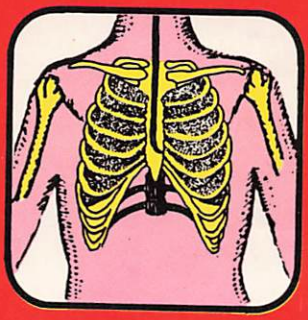
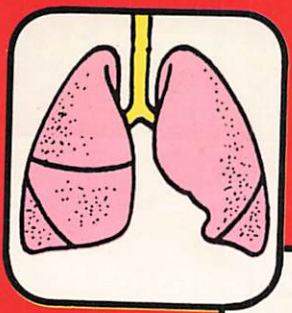
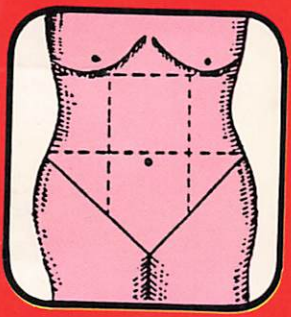
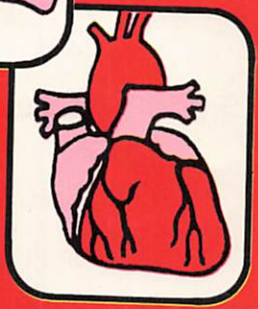
CLINICAL STUDENT'S COMPANION

Dr. Amin.H.Karim









3rd EDITION

AZAM SONS
OPP. DOW MEDICAL COLLEGE
BABA-E-URDU ROAD, KARACHI.
PH: 728282

A POCKET BOOK FOR MEDICAL STUDENTS AND HOUSE OFFICERS

CLINICAL STUDENT'S COMPANION

Compiled by:

DR. AMIN H. KARIM
MBBS (Kar.); MRCS (Eng.); LRCP (Lon.); MRCP (UK.); MACP
Diplomate American Board of Internal Medicine.
Former Assistant Chief of Medical Service,
Sinai Hospital of Baltimore Inc.
Baltimore, Maryland.
Senior Fellow in Cardiovascular Diseases,
Baylor College of Medicine and
The Methodist Hospital,
Houston, Texas.

PUBLISHED BY

AZAM SONS
Medical Book Sellers
Baba-e-Urdu Road,
Karachi - 1.
Tel : 72 82 82

First Edition: 1978
Second Edition: 1980
Third Edition: 1987

Dedicated to:

THE PATIENT

— the center of the medical universe
around which all our works revolve.

"To study the phenomena of disease without books is to sail an uncharted sea, while to study books without patients is not to go to sea at all"

Sir William Osler 1849-1919
Professor of Medicine
Johns Hopkins School of Medicine
Baltimore, Maryland
and Oxford University, England.

PREFACE

The objective of the present edition is more or less the same as the previous issues of CLINICAL STUDENT'S COMPANION i.e. to provide a handy source of clinical information for senior medical students and house officers. As outlined in the previous edition, once all the clinical and laboratory data has been gathered on a particular patient, the challenge which faces a medical professional is to formulate in his mind a list of diagnostic possibilities, keeping in mind the outstanding symptom or sign which the patient presents. It is at this stage that the pocket book will be of some help. Once a set of differential diagnosis has been generated, the next task is to rule out the unlikely conditions based on the clinical and laboratory information available. From a long list, a handful of conditions will be left and if the same process is carried out for another salient clincial feature or lab value presented by the patient, it will soon be noticed that one or two diseases will run common in both lists. It becomes relatively simpler to deal with a few diagnostic possibilities, perhaps by means of more sophisticated tests. Most outstanding clinicians adopt this approach while dealing with clinical problems. It is thus a good idea to develop this habit starting from senior school years and to continue it through residency and postgraduate training so that by the time one starts practicing, these lists are well engraved in the grey matter.

Compared to previous editions, much new material has been added including a new section on important formulae and their applications and a few important staining methods. This has been attempted without altering the basic concept for which this book was compiled i.e. clarity and brevity.

I am grateful to Ms. Azamsons for their help and cooperation in compiling this book.

A.H.K.

Houston, Texas.
Dec. 1986.

CONTENTS

SECTION 1

INFECTIOUS DISEASES

CAUSES OF FEVER OF UNKNOWN ORIGIN

(Illness of atleast 3 weeks duration, with fever exceeding 38.3° C on several occasions and no established diagnosis after 1 week of hospital investigation)

A) INFECTIONS (40% cases)

1) SYSTEMIC

- Tuberculosis
- Infective endocarditis
- Cytomegalovirus infection
- Toxoplasmosis
- Brucellosis
- Psittacosis
- Gonococcemia
- Chronic meningococcemia
- Disseminated mycosis eg
  - Histoplasmosis
  - Coccidiodomycosis
  - Cryptococcosis

2) LOCALISED

- Subphrenic abscess
- Subhepatic abscess
- Pericholecystic abscess
- Empyema of the gall bladder
- Cholangitis
- Liver abscess
- Pancreatic abscess
- Appendiceal abscess
- Pelvic abscess
- Pyelonephritis
- Perinephric abscess
- Renal carbuncle
- Prostatic abscess

B) NEOPLASMS (20%)

- Lymphoma
- Leukemia
- Hypernephroma
- Cancer of the colon
- Tumor of the head of pancreas

C) COLLAGEN VASCULAR DISEASES (15%)

Rheumatoid arthritis
Systemic lupus erythematosus
Polyarteritis nodosa
Wegener's granulomatosis
Temporal arteritis

D) MISCELLANEOUS

Sarcoidosis
Granulomatous hepatitis of unknown origin
Inflammatory bowel disease
Pulmonary embolisation
Drug fever
Hepatic cirrhosis
Familial Mediterranean fever
Whipple's disease
Undiagnosed fever.

CAUSES OF FEVER WITH RIGORS

1) Pneumonia
2) Malaria
3) Abscess
4) Viremia
5) Lymphoma
6) Intermittent administration of anti-pyretics
7) Pyelonephritis

CAUSES OF MACULO-PAPULAR RASH WITH FEVER

A) VIRAL DISEASES

Rubeola
Rubella
Enterovirus
Cytomegalovirus
Hepatitis B
Adenovirus
Arbovirus
Rhabdovirus
Reovirus

B) RICKETTSIAL DISEASES
- Murine typhus
- Rocky mountain spotted fever

C) CHLAMYDIAL
- Psittacosis

D) FUNGAL
- Candidiasis
- Sporotrichosis
- Cryptococcosis

E) PROTOZOAL
- Toxoplasma
- Trichinosis

F) DRUG ERUPTIONS

G) IMMUNOLOGIC
- Erythema multiforme
- Erythema nodosum

CAUSES OF PURPURIC RASH WITH FEVER

A) DRUG ERUPTIONS

B) VIRAL ERUPTIONS
- Enterovirus
- Viral hemorrhageic fevers
- Dengue
- Adenovirus
- Yellow fever
- Atypical measles

C) RICKETTSIAL FEVERS
- Rocky mountain spotted fevers
- Epidemic typhus

D) BACTERIAL INFECTIONS
- Severe sepsis with DIC
- Meningococcemia
- Gonococcemia
- Pseudomonas sepsis

SBE
Listeria infections

E) PROTOZOAL INFECTIONS
Trichinosis
Plasmodia

F) IMMUNOLOGIC
Henoch-Schonlein purpura

FEVER WITH PULSE RATE SLOWER THAN PREDICTED

1) Typhoid fever
2) Brucellosis
3) Psittacosis
4) Viral pneumonia
5) Meningitis
6) Tularemia
7) Legionnaire's disease
8) Ascending cholangitis

FEVER WITH PULSE RATE FASTER THAN PREDICTED

1) Rheumatic fever
2) Polyarteritis
3) Diphtheria
4) Miliary tuberculosis
5) Thyroid storm

CRITERIA FOR DIAGNOSING ACUTE RHEUMATIC FEVER

MAJOR CRITERIA:
1) Carditis
2) Polyarthritis
3) Chorea
4) Erythema marginatum
5) Subcutaneous nodules

MINOR CRITERIA:

1) History of rheumatic fever
2) History of rheumatic heart disease
3) Fever
4) Raised ESR
5) C-reactive protein
6) Leukocytosis
7) Prolonged PR interval on ECG
8) Increased ASO titre

CAUSES OF NEGATIVE BLOOD CULTURE IN INFECTIVE ENDOCARDITIS

1) Inadequate blood cultures
2) Ineffective antibiotic treatment
3) Infection with cell wall deficient bacteria
4) Infection with nutritionally deficient Strept. viridans
5) Infection with slow growing organisms eg
   - Cardiobacterium hominis
   - Actinobacillus
   - Hemophilus
6) Fungal endocarditis eg Candida
7) Non-bacterial thrombotic endocarditis
8) Rickettsial endocarditis (eg Coxiella)
9) Technical errors

CAUSES OF RECURRENCE OF FEVER DURING TREATMENT FOR INFECTIVE ENDOCARDITIS

1) Infarction caused by emboli
2) Thrombophlebitis due to IV infusion
3) New infection due to IV infusion eg
   - Staphylococcus
   - Fungus
4) Metastatic abscess
5) Drug Fever
6) Unrelated febrile illness eg
   - Pneumonia
   - Urinary tract infection

CAUSES OF FALSE POSITIVE TESTS FOR SYPHILIS

1) Acute bacterial infection
2) Subacute bacterial endocarditis
3) Systemic lupus erythematosus
4) Following vaccination
5) Leprosy
6) Malaria
7) Malnutrition
8) Pregnancy
9) Infectious mononucleosis
10) Dysproteinemia

CAUSES OF NEGATIVE TUBERCULIN TEST IN A PATIENT KNOWN TO HAVE TUBERCULOSIS

1) Inactive old tuberculin used for test
2) Old age
3) Healed childhood tuberculosis
4) Sarcoidosis
5) Miliary tuberculosis
6) Steroids
7) Malignant lymphoma
8) Viral infection
9) Severe febrile illness

FACTORS PRECIPITATING HERPES ZOSTER

1) Malignant diseases
2) Lymphoma
3) Secondary deposits in spine
4) Radiation therapy

INFECTION IN THE IMMUNO-COMPROMISED HOST

DEFECT	DISEASE	ORGANISM
A) ANTIBODY DEFICIENCY		
Agammaglobulinemia	Sinusitis	Pneumococcus
Ataxia telangiectasis	Pneumonia	Hemophilus
Wiscott-Aldrich syndrome		Giardia
Multiple myeloma		
Waldenstrom's macroglobulinemia		
Chronic lymphatic leukemia		
B) COMPLEMENT DEFICIENCY		
C3 deficiency	Otitis	Staph. aureus
C5 deficiency	Sinusitis	E. coli
Systemic lupus erythematosus	Pneumonia	Pseudomonas
Sickle cell anemia		Neisseria
C) NEUTROPENIA		
Cytotoxic drugs	Cellulitis	Staph. aureus
Acute leukemia	Pharyngitis	E. coli
Aplastic anemia	Perirectal abscess	Pseudomonas
	Pneumonia	Candida
		Aspergillus
D) CHEMOTACTIC DEFECTS		
Diabetes mellitus	Cellulitis	Staph. aureus
Rheumatoid arthritis	Abscesses	Staph. pyogenes
	Septic arthritis	
	Skin ulcers	
E) PHAGOCYTIC DEFECTS		
Acute leukemias	Pharyngitis	E. coli
	Abscesses	Pseudomonas
	Pneumonia	Serratia
F) MICROBICIDAL DEFECT		
Chronic granulomatous disease	Recurrent skin	Staph. aureus
	Abscesses	Salmonella
	Osteomyelitis	Serratia

G) T-CELL DEFECT		
Hodgkins disease	Skin infections	Candida
Thymic dysplasia	Hepatitis	Cryptococcus
Sarcoidosis	TB	Mycobacteria
Leprosy	Fungal infections	Listeria
Congenital	Meningitis	Toxoplasma
		Herpes virus
H) COMBINED T-CELL AND B-CELL DEFECTS		
Crohn's disease	Skin infection	Staph. aureus
Thymoma	Otitis	Gm. neg. bacilli
Chronic lymphatic leukemia	Sinusitis	Herpes zoster
	Bronchitis	Herpes simplex
	Pneumonia	Cytomegalovirus
	Bacteremia	
I) IMPAIRED TISSUE PERFUSION		
Diabetes mellitus	Skin ulcers	Staph. aureus
Sickle cell anemia	Cellulitis	E. coli
Severe atherosclerosis	Wet gangrene	Gm. neg. bacilli
	Osteomyelitis	
K) ABNORMAL DRAINAGE		
Cystic fibrosis	Bronchitis	Staph. aureus
Bronchogenic carcinoma	Bronchiectasis	E. coli
Ureteral obstruction	Urinary tract infection	Gm. neg. bacilli
Biliary obstruction	Ascending cholangitis	
L) SPLENECTOMY	Pneumonia	Pneumococcus
	Bacteremia	Neisseria
		Pseudomonas
		Toxoplasma
		Babesia

SECTION 2

DISORDERS OF CARDIOVASCULAR SYSTEM

DIAGNOSIS OF CARDIAC DISEASE

The following is an outline of writing down a diagnosis of any cardiac disease, according to the New York Heart Association guidelines.

A) UNDERLYING ETIOLOGY

eg Congenital heart disease
Rheumatic heart disease
Hypertensive heart disease
Arteriosclerotic heart disease

B) ANATOMIC ABNORMALITIES

Which chambers are enlarged?
Which valves are affected?
Is there pericardial involvement?
Is myocardial infarction present?

C) PHYSIOLOGICAL DISTURBANCES

Is arrhythmia present?
Is congestive cardiac failure present?
Is there any myocardial ischemia?

D) EXTENT OF FUNCTIONAL DISABILITY

Class 1: Asymptomatic
Class 2: Dyspnea or chest pain on strenous activity
Class 3: Dyspnea or chest pain on ordinary activity
Class 4: Dyspnea or chest pain at rest

(EXAMPLE OF A CARDIAC DIAGNOSIS: Patient has HYPERTENSIVE HEART DISEASE, with left ventricular hypertrophy, in sinus rhythm and is in Class 2).

CAUSES OF COLLAPSING PULSE
(syn. Water-hammer or Corrigan's pulse)

A) PHYSIOLOGICAL CAUSES:

1) Pregnancy
2) Emotional excitement
3) Exercise

B) GENERAL STATES:

1) Fever
2) Thyrotoxicosis
3) Anaemia
4) Shock
5) Beri beri
6) Hepatic failure
7) Alcoholism
8) Arteriosclerosis
9) Paget's disease

C) CAUSES IN THE HEART

1) Aortic incompetence
2) Patent ductus arteriosus
3) Complete heart block

PULSATIONS IN THE NECK

ARTERIAL PULSE	VENOUS PULSE
1) Visible as a single stroke. It has no level and is forceful .	It has 3 pulsations per beat, two of which are visible. It has a level and arises slowly.
2) It is palpable.	It is not palpable.
3) Arterial pulse is expansile. The distance between the two fingers placed on the artery increases when the wave passes.	It is not expansile, the fingers remain stationary.
4) If pressure is applied on the proximal part of the artery, the pulsations are abolished in the distal part, eg pressure is applied in the	If pressure is applied in the supraclavicular region, the pulsations in the cervical veins become more marked.

supraclavicular region, the pulsations are abolished in the cervical arteries.	
5) If pressure is applied in the distal part of the artery the pulsations in the artery persist eg if pressure is applied in the submaxillary region, the pulsations in the carotid persist.	If pressure is applied in the proximal part of the vein, its pulsations disappear eg if pressure is applied in the submaxillary region, the pulsations in the cervical veins disappear.
6) If the liver is pressed, the pulsations in the cervical arteries are not affected.	If the liver is pressed, the pulsations in the cervical veins become more prominent (HEPATO JUGULAR REFLUX).
7) The arterial pulse is not affected by position.	The venous pulse is affected by postu.e, becoming more marked in the recumbent position.

CAUSES OF SLOW REGULAR PULSE

A) SINUS BRADYCARDIA

1 Congenital
2) Physical training
3) Convalescence from fever
4) Jaundice
5) Myxedema
6) Hypothermia
7) Raised intracranial pressure
8) Rapid rise in B.P.
9) Drugs (digitalis, beta blockers)
10) Vomiting
11) Acute myocardial infarction

B) COMPLETE HEART BLOCK

3) AV JUNCTIONAL RHYTHM

1) Sinus arrest
2) Digitalis toxicity
3) Inferior wall myocardial infarction

CAUSES OF SLOW IRREGULAR PULSE

1) Atrial fibrillation with digitalis intoxication
2) Atrial flutter with high degree block
3) Sinu-atrial arrest
4) Sinu-atrial block

CAUSES OF PULSUS PARADOXUS

1) Cardiac tamponade
2) Restrictive cardiomyopathies
3) Severe heart failure
4) Hemorrhagic shock
5) Chronic obstructive airway disease
6) Severe bronchial asthma

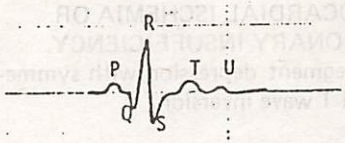
CAUSES OF NON-PALPABLE APEX BEAT

1) Obesity
2) Emphysema
3) Behind a rib
4) Behind breast in a female
5) Congestive cardiac failure
6) Pericardial effusion

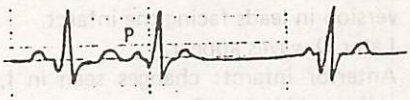
CAUSES OF PARADOXICAL SPLITTING OF SECOND HEART SOUND

1) Artificial pacemaker
2) Left bundle branch block
3) Aortic stenosis
4) Angina pectoris
5) Acute myocardial infarction

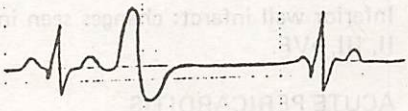
ELECTROCARDIOGRAPHIC CHANGES



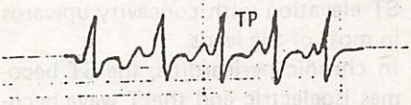
A NORMAL ELECTROGRAPHIC COMPLEX.
Rate/min = 1500
No. of small squares between adjacent R peaks.
Normal PR interval = Less than 0.2 sec.
Normal QRS duration = Less than 0.12 sec.
1 small square = 0.04 second
1 large square = 0.2 second.



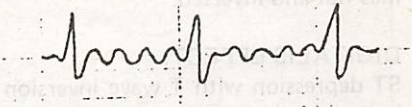
SUPRAVENTRICULAR EXTRASYSTOLE.
(P wave with normal looking QRS)



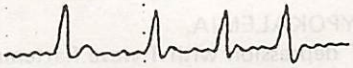
VENTRICULAR EXTRASYSTOLE.
(no P wave with widened and bizarre looking QRS)



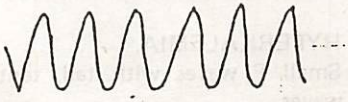
SUPRAVENTRICULAR TACHYCARDIA.
(normal looking QRS with P waves fused with T waves)



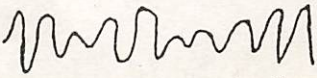
ATRIAL FLUTTER.
P waves have sawtooth pattern, with rates of 250–350/min. QRS complexes after every second, third or fourth beat.



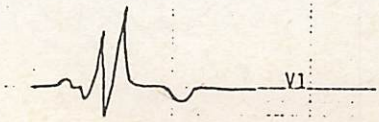
ATRIAL FIBRILLATION.
No P waves with an irregular QRS rate.



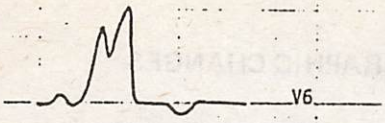
VENTRICULAR TACHYCARDIA.
No P waves seen. Wide and bizarre QRS complexes.



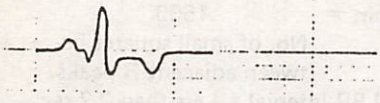
VENTRICULAR FIBRILLATION.
Bizarre and rapid QRS complexes.



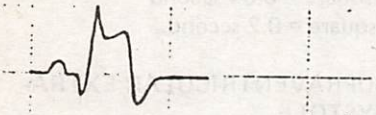
RIGHT BUNDLE BRANCH BLOCK (RBBB).
M shaped wave in the right sided chest leads, like V1.



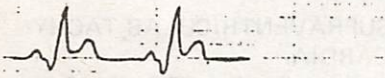
LEFT BUNDLE BRANCH BLOCK (LBBB).
M shaped wave in the left sided chest leads like V6.



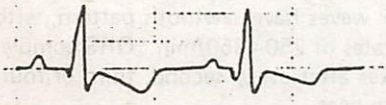
MYOCARDIAL ISCHEMIA OR CORONARY INSUFFICIENCY.
ST segment depression with symmetrical T wave inversion.



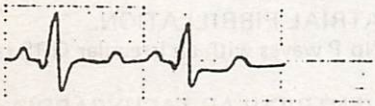
ACUTE MYOCARDIAL INFARCTION.
ST segment elevation with T wave inversion in leads facing the infarct.
Later Q waves appear.
Anterior infarct: changes seen in I, aVL, and V1 to V6.
Inferior wall infarct: changes seen in II, III, aVF.



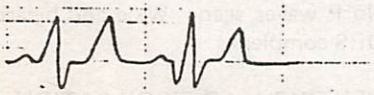
ACUTE PERICARDITIS.
ST elevation with concavity upwards in most of the leads.
In chronic pericarditis, the ST becomes isoelectric and the T wave becomes flat and inverted.



DIGITALIS EFFECT:
ST depression with T wave inversion in "reversed correction mark" pattern.



HYPOKALEMIA.
ST depression with T wave flattening or inversion. U waves may appear.



HYPERKALEMIA.
Small P waves with tall, tented T waves.

LOWN'S GRADING OF CARDIAC ARRHYTHMIAS

Grade I: Single premature ventricular contraction (PVC)
Grade II: Two consecutive PVCs (couplets)
Grade III: PVCs of different shapes (Multifocal PVCs)
Grade IV: Ventricular tachycardia
Grade V: R wave on T wave (R on T phenomenon)

CAUSES OF SINUS TACHYCARDIA

A) CARDIAC CAUSES
- Cardiac failure
- Myocarditis
- Cardiac tamponade
- Constrictive pericarditis

B) DRUGS
- Epinephrine
- Anti-cholinergics
- Aminophylline
- Nitrates
- Withdrawal of beta blockers

C) ENDOCRINE CAUSES
- Thyrotoxicosis
- Pheochromocytoma

D) SYSTEMIC CAUSES
- Fever
- Hypotension
- Anemia
- Exercise
- Emotion
- Delirium tremens
- Acute intermittent porphyria

ATRIAL EXTRASYSTOLES

1) Over-indulgence in
    a) tea
    b) coffee
    c) tobacco
    d) alcohol
2) Dyspepsia
3) Anxiety
4) Ischaemic heart disease
5) Rheumatic heart disease
    a) Acute rheumatic fever
    b) Mitral valvular disease
6) Drugs egdigoxin
7) Cardiomyopathy
8) Thyrotoxicosis
9) Hypertension
10) Hypokalemia

CAUSES OF SUPRAVENTRICULAR TACHYCARDIA

A) WITHOUT ORGANIC HEART DISEASE

Tobacco
Alcohol
Coffee
Dyspepsia
Anxiety
Pulmonary embolism

B) WITH ORGANIC HEART DISEASE

Ischemic heart disease
Rheumatic heart disease
Atrial septal defect
Sick sinus syndrome
Drugs eg digitalis
Thyrotoxicosis
Cardiac surgery
Wolf-Parkinson-White syndrome

CAUSES OF ARTRIAL FLUTTER

1) Ischemic heart disease
2) Rheumatic mitral valve disease
3) Cor pulmonale
4) Digitalis
5) Thoracotomy and mitral vulvotomy
6) Infections: pneumonia
   diphtheria
7) Pericarditis
8) Hypertensive heart disease
9) Malignant tumors of mediastinum
10) Anesthesia
11) Hypokalemia
12) W-P-W syndrome
13) Sick sinus syndrome

CAUSES OF ATRIAL FIBRILLATION

1) Ischaemic heart disease
2) Rheumatic mitral valve disease
   a) Mitral stenosis
   b) Mitral regurgitation
3) Thyrotoxicosis
4) Surgery
   a) Anaesthesia
   b) Thoracotomy
   c) Mitral vulvotomy
5) Drugs
   a) Digitalis
6) Infections
   a) Diphtheria
   b) Pneumonia
7) Pulmonary heart disease
   a) Chronic bronchitis
   b) Emphysema
   c) Pulmonary embolism
8) Malignant tumors of the mediastinum
9) Hypokalemia
10) Constrictive pericarditis
11) Hypertension
12) Wolf-Parkinson-White syndrome

13) Sick sinus syndrome
14) Idiopathic (lone fibrillator)

ATRIAL FIBRILLATION NOT RESPONDING TO DIGITALIS

1) Fever
2) Thyrotoxicosis
3) Silent coronary occlusion
4) Multiple pulmonary infarcts
5) Acute rheumatic carditis

VENTRICULAR EXTRASYSTOLES

1) Over-indulgence in:
    a) tea
    b) coffee
    c) tobacco
    d) alcohol
2) Dyspepsia
3) Anxiety
4) Ischaemic heart disease
5) Rheumatic heart disease
6) Drugs
    a) Digitalis
    b) Phenothiazines
    c) Bronchodilators
    d) Quinidine
7) Cardiomyopathy
8) Hypertension
9) Cerebrovascular accident
10) Hypokalemia
11) Hereditary QT prolongation

ATRIAL ECTOPIC WITH ABERRANT CONDUCTION	VENTRICULAR EXTOPIC
1) There may be a receding p wave	Usually absent

2) Right bundle branch block pattern in lead V1	The beat is mono-phasic i.e. in one direction only
3) Initial vector is identical with that of the flanking conducted beats	The initial vector is different

SUPRAVENTRICULAR TACHYCARDIA WITH ABERRANT CONDUCTION	VENTRICULAR TACHYCARDIA
A) CLINICAL DIFFERENCES	
1) Heart sounds not split	Wide splitting of the heart sounds
2) Variation in the intensity of the heart sounds	No variation
3) No cannon waves	Cannon waves present in the jugular
4) Carotid sinus massage may terminate it	No effect
B) ELECTROCARDIOGRAPHIC DIFFERENCES	
1) P waves if present, precede each QRS complex	P waves if present usually occur dissociated from QRS complex
2) QRS complexes only slightly wider than normal	QRS complex almost always greater than 0.12 seconds
3) In lead V1 the QRS complex has the pattern of right bundle branch i.e. triphasic configuration	The QRS complexes are wide, monophasic or diphasic and dominantly upward
4) The QRS axis is normal	QRS axis is about -150°
5) No capture beats seen	Capture beats seen i.e. normal QRS complex in between abnormal ones
6) At onset of tachycardia, there is an obvious P wave	At the onset there is a ventricular ectopic

7) No fusion beats	Fusion beats may be seen
8) In cases of doubt, procainamide may show the difference by slowing the rate and bringing out the P wave	Procainamide is the treatment

CAUSES OF PROLONGED QT INTERVAL

A) CONGENITAL
- with deafness
- without deafness

B) ACQUIRED
1) Drug induced
   - Quinidine
   - Procainamide
   - Disopyramide
   - Phenothiazines
   - Tricyclic anti-depressants
   - Doxepin
2) Electrolyte imbalance
   - Hypokalemia
   - Hypomagnesemia
   - Hypocalcemia
3) Intrinsic heart disease
   - Myocarditis
   - Ischemic heart disease
   - AV block
4) Acute CNS disease
   - Subarachnoid hemorrhage
5) Liquid protein diets
6) Organic phosphate poisoning

CAUSES OF T WAVE FLATTENING OR INVERSION ON EKG

A) PHYSIOLOGICAL CAUSES
- Black race
- After a large meal

Swallowing ice
Anxiety
Delirium tremens
Hyperventilation

B) PATHOLOGICAL CAUSES

CARDIAC CAUSES

Myocardial ischemia
Myocarditis
Cardiomyopathy
Constrictive pericarditis or pericardial effusion
Following supraventricular tachycardia

NON-CARDIAC CAUSES

Thick chest wall
Emphysema
Hypothyroidism
Hypopituitarism
Hypoadrenalism
Blunt chest trauma
Drugs (digitalis, quinidine)
Hypokalemia
Hypocalcemia
Pancreatitis
Cholecystitis

SINU-ATRIAL BLOCK

1) DRUGS
   a) Digitalis
   b) Beta blockers
   c) Verapamil
   d) Cholinergics
2) HYPOTHYROIDISM
3) JAUNDICE
4) MYOCARDIAL INFARCTION
5) SICK SINUS SYNDROME
6) UREMIA
7) HYPOKALEMIA
8) HYPERKALEMIA

SINU ATRIAL ARREST

1) DRUGS
   a) Digitalis
   b) Cholinergics
2) MYOCARDIAL INFARCTION
3) SICK SINUS SYNDROME
4) HYPOKALEMIA

CAUSES OF ATRIO-VENTRICULAR BLOCK

A) CONGENITAL CAUSES
   Congenital heart disease
   Congenital AV block

B) ACQUIRED CAUSES
   Surgical trauma
   Carotid sinus pressure
   Acute rheumatic fever
   Myocarditis
   Tumors
   Ischemic heart disease
   Drugs: digitalis
      beta blockers
   Focal fibrosis
      Idiopathic sclerosis (Lenegre's disease)
      Fibrocalcareous encroachment (Lev's disease)

RIGHT BUNDLE BRANCH BLOCK

1) Congenital block
2) Atrial septal defect
3) Ischemic heart disease
4) Acute pulmonary embolism
5) Myocarditis
6) Acute rheumatic fever
7) Cardiomyopathy
8) Idiopathic sclerosis
9) Fibrocalcification
10) Drugs: Quinidine
    Procainamide

LEFT BUNDLE BRANCH BLOCK

1) Ischemic heart disease
2) Hypertensive heart disease
3) Myocarditis
4) Cardiomyopathies
5) Acute rheumatic fever
6) Surgical trauma
7) Tumors
8) Idiopathic sclerosis
9) Fibrocalcification
10) Drugs: Quinidine
Procainamide

RIGHT AXIS DEVIATION ON THE ELECTROCARDIOGRAM

1) Right ventricular hypertrophy
Mitral stenosis
Cor pulmonale
2) Tall asthenic subjects
3) Left posterior hemiblock
4) Secundum atrial septal defect
5) Dextrocardia
6) Arm leads reversed

CAUSES OF ANTERIOR AND POSTERIOR HEMIBLOCKS

1) Ischemic heart disease
2) Surgical trauma
3) Hypertensive heart disease
4) Chronic cardiac failure
5) Cardiomyopathy
6) Idiopathic sclerosis
7) Fibrocalcification

CAUSES OF CHEST PAIN

A) DISEASES OF THE CHEST WALL
- Epidemic myalgia (Bornholm's disease)
- Rheumatism
- Osteomyelitis of the rib
- Secondary tumor in the rib
- Herpes zoster

B) DISEASES OF THE PLEURA
- Pleurisy
- Pneumothorax

C) DISEASES OF THE LUNG
- Pneumonia
- Pulmonary embolism
- Bronchogenic carcinoma
- Massive collapse of the lung

D) DISEASES OF THE HEART
- Angina pectoris
- Acute myocardial infarction
- Pericarditis
- Mitral valve prolapse syndrome

E) DISEASES OF THE LIVER
1) Viral hepatitis
2) Liver abscess
3) Congestive cardiac failure

F) MISCELLANEOUS CAUSES
1) Cervical spondylosis
2) Perforated duodenal ulcer

CONDITIONS PRODUCING ANGINA-LIKE CHEST PAIN

A) CARDIAC CONDITIONS
a) Coronary artery disease
b) Aortic stenosis
c) Systolic click murmur syndrome
d) Cardiomyopathy
e) Rheumatic heart disease
f) Small vessel disease of the myocardium

1) Coronary atherosclerosis
2) Postoperative cardiac surgery
3) Systemic arteritis
4) Amyloidosis
5) Diabetes mellitus
6) Friedrich's ataxia
7) Progressive muscular dystrophy

B) NON-CARDIAC CAUSES

a) Diffuse esophageal spasm
b) Reflux esophagitis
c) Cholelithiasis
d) Cervical spondylosis
e) Anxiety neurosis
f) Neurocirculatory asthenia
g) Epidemic pleurodynia

KILLIP CLASSIFICATION OF ACUTE MYOCARDIAL INFARCTION

Class I: No evidence of cardiac failure
Class II: With S3 triple rhythm or crepitations at both lung bases
Class III: Crepitations higher than level of scapula or frank pulmonary edema
Class IV: Cardiogenic shock

CAUSE OF GALLOP RHYTHM

A) ATRIAL GALLOP S4 GALLOP

1) Physiological: in children
in pregnancy
2) Systemic hypertension
3) Aortic stenosis
4) Myocardial infarction
5) Angina pectoris
6) Cardiomyopathy
7) Pulmonary hypertension
8) Pulmonic stenosis

B) VENTRICULAR OR S3 GALLOP

Left ventricular S3 gallop

- Coronary artery disease
- Aortic stenosis
- Myocardial infarction
- Cardiomyopathy

Right ventricular S3 gallop

- Pulmonary hypertension
- Pulmonic stenosis

CAUSES OF LEFT VENTRICULAR FAILURE

1) Mitral regurgitation
2) Ischemic heart disease
3) Ventricular septal defect
4) Myocarditis
5) Aortic valve disease
6) Tachycardia
7) Arterial hypertension
8) AV fistula
9) Anemia
10) Patent ductus arteriosus

FACTORS PRECIPITATING CONGESTIVE HEART FAILURE

1) Pulmonary embolism
2) Infection
3) Anaemia
4) Hyperthyroidism
5) Hypothyroidism
6) Pregnancy
7) Arrhythmias
8) Systemic hypertension
9) Increased physical exertion
10) Increased sodium load
11) Failure to take cardiac medications
12) Excessive hot and humid environment
13) Emotional strain
14) Corticosteroids

15) Cardiac depressants (beta blockers, anti-arrhythmics)
16) Urinary tract obstruction
17) Silent myocardial infarction
18) Alcohol abuse

CAUSES OF UNEXPLAINED CARDIAC FAILURE IN AN ELDERLY PERSON

1) Silent pulmonary embolism
2) Infective endocarditis
3) Valvular heart disease eg
   end stage aortic stenosis
4) Occult arrhythmias
5) Occult thyroid disease
   myxedema
   thyrotoxicosis
6) Painless myocardial infarction
7) Cardiac amyloidosis
8) Congenital heart disease eg
   atrial septal defect
9) Idiopathic hypertrophic subaortic stenosis
10) Obesity
11) Non-cardiac causes eg anemia
12) Constrictive pericarditis

CAUSES OF CONGESTIVE HEART FAILURE WITH PERIPHERAL NEUROPATHY

1) Diabetes mellitus
2) Chronic alcoholism
3) Amyloidosis
4) Myxedema
5) Beri beri

CAUSES OF ENLARGED CARDIAC SHADOW ON CXR

1) True cardiomegaly

2) False appearance
   a) AP view
   b) Filmed in expiration
   c) High diaphragm
   d) Bradycardia
   e) Pericardial effusion
   f) Pectus excavatum
   g) Kyphoscoliosis

CAUSES OF CARDIOGENIC SHOCK

TYPE A: (with tissue hypoxia)
1) Cardiogenic shock
2) Septicemias
3) Left ventricular failure
4) Very severe anemia

TYPE B: (without tissue hypoxia)
1) Diabetes mellitus
2) Liver failure
3) Renal failure
4) Leukemias
5) Drug induced:
   Phenformin
   Metformin
   Fructose
   Sorbitol
   Zylitol
   Ethanol
   Methanol
   Salicylates

PULMONARY DISORDERS PREDISPOSING TO CHRONIC COR PULMONALE

A) INTRINSIC LUNG DISEASE
1) Chronic obstructive lung disease
2) Diffuse interstitial pulmonary fibrosis

3) Multiple pulmonary emboli
4) Primary pulmonary hypertension
5) Massive fibrosis of the lung
    a) T.B.
    b) Cystic fibrosis

B) MALFUNCTIONING CHEST BELLOWS
1) Myasthenia gravis
2) Polyneuritis
3) Muscular dystrophies
4) Kyphoscoliosis
5) Marked obesity (Pickwickian syndrome)

C) INADEQUATE VENTILATORY DRIVE
1) Primary alveolar hypoventilation (Ondine's curse)
2) Chronic mountain sickness

PERICARDITIS

CLINICAL CLASSIFICATION:

1) ACUTE PERICARDITIS (less than 6 weeks)
    Fibrinous
    Effusive

2) SUBACUTE PERICARDITIS (6 weeks to 6 months)
    Constrictive
    Effusive-constrictive

3) CHRONIC PERICARDITIS (more than 6 months)
    Constrictive
    Effusive
    Adhesive

ETIOLOGIC CLASSIFICATION:

1) FAMILIAL PERICARDITIS
    Mulibrey nanism

2) TRAUMATIC PERICARDITIS
    Penetrating injuries
    Non-penetrating trauma
    Post-irradiation

Post-pericardiotomy
Procainamide
Hydralazine

3) INFECTIVE PERICARDITIS
Viral
Pyogenic
Tuberculous
Fungal
Parasitic

4) NEOPLASTIC
Benign
Malignant eg mesothelioma
metastatic tumors

5) VASCULAR
Aortic aneurysm with leakage
Chylopericardium

6) COLLAGEN VASCULAR DISORDERS
Rheumatic fever
Systemic lupus erythematosus
Rheumatoid arthritis
Scleroderma

7) ENDOCRINE CAUSES
Myxedema

8) MISCELLANEOUS
Acute myocardial infarction
Post myocardial infarction syndrome
Uremia
Cholesterolemia
Associated with atrial septal defect
Associated with severe chronic anemia
Infectious mononucleosis
Familial Mediterranean fever
Sarcoidosis
Acute idiopathic pericarditis

CAUSES OF ACUTE PERICARDITIS

1) Penetrating injury
2) Non-penetrating injury
3) Acute myocardial infarction
4) Post-myocardial infarction syndrome (Dressler's syndrome)
5) Viral pericarditis
6) Pyogenic pericarditis
7) Infectious mononucleosis
8) Aortic aneurysm
9) Rheumatic fever
10) Systemic lupus erythematosus
11) Rheumatoid arthritis
12) Scleroderma
13) Acute idiopathic pericarditis

CAUSES OF SUBACUTE PERICARDITIS

1) Post-irradiation
2) Post-pericardiotomy
3) Tuberculous pericarditis
4) Fungal pericarditis
5) Malignant tumors
6) Systemic lupus erythematosus
7) Rheumatoid arthritis
8) Scleroderma
9) Uremia

CAUSES OF CHRONIC PERICARDITIS

A) CHRONIC CONSTRICTIVE PERICARDITIS

1) Post-traumatic
2) Post-irradiation
3) Pyogenic infection
4) Tuberculous pericarditis
5) Histoplasmosis
6) Acute viral pericarditis
7) Acute idiopathic pericarditis
8) Rheumatoid arthritis
9) Systemic lupus erythematosus

10) Chronic renal failure
11) Neoplastic disease
12) Unknown cause

B) CHRONIC EFFUSIVE PERICARDITIS
1) Post-traumatic
2) Post-irradiation
3) Tuberculous pericarditis
4) Acute viral pericarditis
5) Chronic renal failure
6) Scleroderma
7) Hypercholesterolemia
8) Chylopericardium

CAUSES OF CARDIOMYOPATHY

A) PRIMARY:
(No known cause)
1) Congestive cardiomyopathy
2) Hypertrophic cardiomyopathy with or without obstruction
3) Endocardial fibroelastosis
4) Endomyocardial fibrosis

B) SECONDARY:
1) INFECTIVE:
Viral
Bacterial
Parasitic: Toxoplasma
Trypanosoma
Schistosoma

2) METABOLIC AND ENDOCRINE
Pregnancy and peurperium
Acromegaly
Hypothyroidism
Hyperthyroidism
Hypoadrenalism
Hemochromatosis
Glycogen storage disease
Thiamine deficiency (beri beri)
Amyloidosis

3) NEUROMUSCULAR DISEASES
- Muscular dystrophy
- Friedrich's ataxia

4) DRUGS
- Heavy metals eg antimony, arsenic
- Alcohol
- Emetine
- Phenothiazines
- Tricyclic anti-depressants

5) MISCELLANEOUS
- Leukemia
- Sarcoidosis
- Serum sickness
- Radiation

CAUSES OF MYOCARDITIS

A) VIRUSES
- Coxsackie
- Influenza
- Infectious mononucleosis

B) BACTERIAL
- Diphtheria
- Rheumatic fever

C) PARASITIC
- Chaga's disease
- Toxoplasmosis

ARTERIAL DISEASES

A) DISEASES AFFECTING LARGE ARTERIES
- Atherosclerosis
- Syphilis
- Takayashu's disease

B) DISEASES AFFECTING MEDIUM SIZED ARTERIES

Polyarteritis nodosa
Monckeberg's sclerosis
Embolism
Giant cell arteritis
Arteritis of severe infection and malignancy
Berger's disease

C) DISEASES AFFECTING SMALL ARTERIES AND ARTERIOLES

Hypertension
Dermatomyositis
Scleroderma
Raynaud's phenomenon
Rheumatoid arthritis
Ergotism

CAUSES OF ARTERIAL EMBOLISM

1) Atrial fibrillation
2) Mitral stenosis
3) Left atrial myxoma
4) Acute myocardial infarction
5) Ventricular aneurysm
6) Subacute bacterial endocarditis
7) Myocarditis
8) Cardiomyopathy
   Venous thrombosis with ASD or VSD (Paradoxical embolism).

CAUSES OF AORTIC DISSECTION

1) Arteriosclerosis
2) Hypertension
3) Pregnancy
4) Coarctation of the aorta
5) Bicuspid aortic valve
6) Marfan's syndrome

CAUSES OF RAYNAUD'S PHENOMENON

A) VASCULAR CAUSES:
- Ergotism
- Arteriosclerosis
- Arterial emboli
- Thromboangiitis obliterans (Berger's disease)

B) NEUROGENIC CAUSES:
- Cervical rib
- Costoclavicular compression
- Syringomyelia
- Poliomyelitis
- Disuse atrophy of the limb

C) COLLAGEN VASCULAR DISEASES
- Systemic lupus erythematosus
- Scleroderma
- Rheumatoid arthritis

D) BLOOD DYSCRASIAS
- Cryoglobulinemia
- Hodg in's disease

E) TRAUMA
- Vibration eg pneumatic drills
- Cold eg fish mongers
- Vinyl chloride exposure

F) IDIOPATHIC
- Raynaud's disease

CAUSES OF ELEVATED JUGULAR VENOUS PRESSURE

1) Congestive cardiac failure
2) Superior vena cava obstruction
3) Tricuspid regurgitation
4) Pericardial effusion
5) Constrictive pericarditis
6) Large pleural effusion

7) Increased blood volume
   - Acute glomerulonephritis
   - Steroid therapy
   - IV infusions
   - Polycythemia
8) Bradycardia
9) Ascites
10) High cardiac output
   - Thyrotoxicosis
   - Severe anemia
   - Pyrexia
   - Pregnancy
   - Paget's disease
   - AV fistula

CAUSES OF CANNON WAVES IN THE JUGULAR PULSE

A) REGULAR
   1) Nodal rhythm

B) IRREGULAR
   2) Complete heart block
   3) Multiple extrasystoles

CAUSES OF VENOUS THROMBOSIS

CONGENITAL:
   Anti-thrombin III deficiency

ACQUIRED:
   1) Immobilisation
   2) Trauma to legs
   3) Surgery
   4) Venous occlusion eg by
      - lymph node
      - tumor
   5) Intravenous drug abuse
   6) Paroxysmal nocturnal hemoglobinuria
   7) Migratory thrombophlebitis
   8) Thrombotic thrombocytopenic purpura
   9) Nephrotic syndrome

10) Systemic lupus erythematosus
11) Abnormal plasminogen
12) Thrombocythemia
13) Inflammatory bowel disease
14) Polycythemia
15) Cyroglobulinemia

CAUSES OF CLOTS IN MULTIPLE BIG VEINS

1) Polycythemia
2) Paroxysmal nocturnal hemoglobinuria
3) Anti-thrombin III deficiency
4) Cryoglobinemia
5) Chronic disseminated intravascular coagulation (Trousseau's syndrome)
    a) Ca pancreas
    b) Ca lung
    c) Ca stomach
    d) Acute leukemia

CAUSES OF SUPERIOR VENA CAVA OBSTRUCTION

A) TRAUMATIC
- Central venous lines
- Cardiac pacemakers
- Swan Ganz catheters
- Radiation
- Surgery

B) INFECTION
- Tuberculosis
- Histoplasmosis
- Actinomycosis
- Pyogenic infections

C) NEOPLASTIC CAUSES
- Bronchogenic carcinoma
- Lymphoma
- Metastatic tumor

D) MISCELLANEOUS
Thyroiditis
Sarcoidosis
Vasculitis

CAUSES OF PULMONARY HYPERTENSION
(from left heart to right)

1) Left ventricular failure
2) Mitral valve disease
3) Pulmonary veno-occlusive disease
4) Pulmonary resection
5) Diffuse interstitial lung disease
6) Multiple pulmonary emboli
7) Primary pulmonary hypertension
8) Pulmonary vasculitis
9) Schistosomiasis
10) Sickle cell disease
11) Portal hypertension
12) Appetite suppressing drugs
    Phenfluramine
    Aminorex fumarate
13) Bacterial sepsis
14) Left to right intracardiac shunts

CAUSES OF SUDDEN HYPOTENSION IN HOSPITAL

1) Acute myocardial infarction
2) Pulmonary embolism
3) Septicemia
4) Gastrointestinal bleeding

ARTERIAL HYPERTENSION

A) PRIMARY or ESSENTIAL
B) SECONDARY HYPERTENSION
    1) RENAL ARTERY STENOSIS due to:
        Atherosclerotic plaque

Fibromuscular hyperplasia
Aneurysm
Thrombosis
Embolism
AV fistula
Arteritis
Compression by tumor, fibrous band or retroperitoneal fibrosis

2) RENAL PARENCYMAL DISEASE due to:
Congenital hypoplastic kidney
Pyelonephritis
Tuberculosis of the kidney
Irradiation
Trauma
Renal neoplasm
Unilateral renal vein thrombosis
Obstructive nephropathy
Glomerulonephritis
Polycystic disease
Systemic lupus erythematosus
Scleroderma
Polyarteritis nodosa
Amyloidosis
Uric acid nephropathy
Nephrocalcinosis
Renin producing tumors

3) ENDOCRINE DISORDERS
Primary aldosteronism
Pheochromocytoma
Cushing's syndrome
Adrenogenital syndrome
Acromegaly
Myxedema

4) ORAL CONTRACEPTIVES
5) TOXEMIA OF PREGNANCY
6) POLYCYTHEMIA
7) HYPERCALCEMIA
8) ACUTE INTERMITTENT PORPHYRIA
9) LEAD POISONING
10) BURNS
11) INTRACRANIAL TUMORS
12) BULBAR POLIOMYELITIS
13) COARCTATION OF AORTA

SYSTOLIC HYPERTENSION

1) Severe bradycardia
2) Thyrotoxicosis
3) Severe anemia
4) Fever
5) Aortic valvular regurgitation
6) AV fistula
7) Paget's disease
8) Beri beri
9) Hypercapnia
10) Patent ductus arteriosus
11) Aortic arteriosclerosis

CAUSES OF LABILE HYPERTENSION

1) Pheochromocytoma
2) Acute intermittent porphyria
3) Early essential hypertension

CAUSES OF HYPERTENSION WITH HYPOKALEMIA

A) SECONDARY HYPERALDOSTERONISM
- Hypertensive patient on diuretics
- Accelerated hypertension
- Hypertension with cardiac failure
- Juxtaglomerular cell tumor
- Renovascular hypertension
- Oral contraceptives

B) PRIMARY HYPERALDOSTERONISM
- Adrenal adenoma (Conn's syndrome)
- Adrenal carcinoma
- Bilateral cortical nodular hyperplasia

C) MISCELLANEOUS
- Liquorice
- Corticosteroids
- Congenital adrenal hyperplasia

CAUSES OF SUDDEN RISES IN BLOOD PRESSURE

1) Pheochromocytoma
2) Sudden increase in intracranial pressure (Cushing's reflex)
    a) Trauma
    b) Stroke
    c) Encephalitis
    d) Bleeding into a cerebral tumor
3) Acute pulmonary edema
4) Angina pectoris
5) Migraine headaches
6) Diencephalic seizures
7) Carcinoid syndrome
8) Lead encephalopathy
9) Acute intermittent porphyria
10) Clonidine withdrawal
11) Monoamine oxidase inhibitors with tyramine containing foods

---

FACTORS INDICATING ADVERSE PROGNOSIS IN HYPERTENSION

1) Black race
2) Youth
3) Male
4) Persistent diastolic pressure greater than 115 mm Hg
5) Smoking
6) Diabetes mellitus
7) Hypercholesterolemia
8) Obesity
9) Evidence of end organ damage
    A) CARDIAC
        Cardiomegaly
        Ischemic ECG changes
        Myocardial infarction
        Congestive heart failure
    B) EYES
        Retinal exudates and hemorrhage
        Papilledema
    C) NERVOUS SYSTEM
        Cerebrovascular accident

REASONS FOR POOR THERAPEUTIC RESPONSE IN PATIENTS WITH HYPERTENSION

1) Inadequate patient compliance
2) Inadequate doses
3) Excessive sodium intake
4) Drug antagonism
   - Common cold remedies
   - Sympathomimetics
   - Oral contraceptives
   - Adrenal steroids
5) Secondary hypertension
   - Renal disease
   - Pheochromocytoma
6) Inappropriate combination therapy

CAUSES OF SUDDEN DEATH

A) CARDIAC CAUSES
- Acute myocardial infarction
- Myocardial rupture
- Cardiomyopathies
- Mitral valve prolapse
- Congenital anomalies
- Congenital QT syndrome
- Acute pericardial tamponade
- Atrial myxoma
- Wolf-Parkinson-White syndrome
- Drugs (eg digoxin, quinidine)

B) NON-CARDIAC CAUSES
- Cerebrovascular accidents
- Dissection of rupture of aortic anuerysm
- Malignant obesity and Pickwickian syndrome
- Pulmonary hypertension
- Acute pulmonary hypertension
- Acute pulmonary embolism
- Acute or chronic alcoholism

MECHANISMS OF SUDDEN CARDIAC DEATH

1) Cardiac arrhythmia
    a) Bradyarrhythmia
        Sinus arrest
        Complete heart block
        Cardiac standstill (asystole)

    b) Ventricular arrhythmias
        Ventricular tachycardia
        Torsades de pointes
        Ventricular flutter or fibrillation

2) Congestive cardiac failure
3) Electromechanical dissociation

SECTION 3

DISORDERS OF THE RESPIRATORY SYSTEM

CAUSES OF DYSPNEA WITH WHEEZING

1) Bronchial asthma
2) Hay fever
3) Acute left ventricular failure (cardiac asthma)
4) Chronic bronchitis
5) Eosinophilic pneumonias
6) Polyarteritis
7) Carcinoid tumor
8) Recurrent pulmonary emboli
9) Endobronchial disease
   - foreign body
   - neoplasm
   - bronchial stenosis
10) Upper airway obstruction
11) Laryngeal edema

ACUTE DYSPNEA IN AN ADULT

1) Spontaneous pneumothorax
2) Acute bronchial asthma
3) Pneumonia
4) Foreign body aspiration
5) Pulmonary edema
6) Pulmonary embolism

CHRONIC DYSPNEA IN MIDDLE AGED MALE

1) PULMONARY CAUSES
   a) Emphysema
   b) Chronic bronchitis
   c) Chronic bronchial asthma
   d) Diffuse interstitial lung disease
   e) Chest wall deformity
   f) Pleural fibrosis

2) NON-PULMONARY CAUSES
   a) Congestive cardiac failure
   b) Anemia
   c) Hyperthyroidism

CAUSES OF EMPHYSEMA

A) LOCALISED EMPHYSEMA
   Congenital
   Compensatory due to lung collapse, scarring or resection
   Partial bronchial occlusion by
      Foreign body
      Neoplasm
      Peribronchial lymphadenopathy (eg TB)
   Bronchiolitis in childhood

B) GENERALISED EMPHYSEMA
   Idiopathic or primary
   Associated with chronic bronchitis
   Associated with chronic asthma
   Associated with pneumoconiosis
   Senile or physiological
   Familial due to Alpha-1-antitrypsin deficiency

CAUSES OF PULMONARY EDEMA

1) Left ventricular failure due to:
   Ischemic heart disease
   Hypertension
   Aortic stenosis
2) Mitral stenosis
3) Fluid overload
4) Viral or bacterial pneumonia
5) Septicemia
6) Toxins eg chlorine or mustard gas
7) Uremia
8) Following trauma
9) Snake venoms
10) Irradiation
11) Hypoalbuminemia
12) High altitude

13) Raised intracranial pressure eg cerebrovascular accidents
14) Fat embolism

CAUSES OF PLEURITIC CHEST PAIN

1) Pleurisy
    a) Pneumonia
    b) Pulmonary embolism
    c) Pulmonary neoplasm
    d) Tuberculosis

2) Pericarditis
3) Intercostal myalgia
4) Rib fracture

DIFFERENCES BETWEEN CENTRAL AND PERIPHERAL CYANOSIS

CENTRAL CYANOSIS	PERIPHERAL CYANOSIS
1) Central cyanosis is due to oxygen undersaturation of the arterial blood from poor gaseous exchange in the lungs in such conditions as emphysema, pulmonary edema, pneumonia or congenital heart disease with right to left shunt.	Peripheral cyanosis is due to excessive removal of oxygen from the blood when the circulation is impaired from vasoconstriction, low cardiac output, cold, arterial or venous obstruction.
2) Central cyanosis is not abolished by warming the extremity.	Massage or gentle warming of the cyanotic extremity will increase the peripheral blood flow and abolish peripheral cyanosis.
3) The skin is warm.	The skin is cold.
4) The tongue is cyanosed.	The tongue is not cyanosed.

CAUSES OF HEMOPTYSIS

A) TRAUMATIC
- Foreign body
- Lung contusion

B) INFLAMMATORY
- Bronchitis
- Bronchiectasis
- Tuberculosis
- Lung abscess
- Pneumonia particularly Klebsiella

C) NEOPLASTIC
- Bronchogenic carcinoma
- Bronchial adenoma

D) MISCELLANEOUS
- Pulmonary thromboembolism
- Left ventricular failure
- Mitral stenosis
- Primary pulmonary hypertension
- Arterio-venous malformation
- Eisenmenger's syndrome
- Wegener's granulomatosis
- Goodpasture's syndrome
- Idiopathic pulmonary hemosiderosis
- Amyloidosis
- Hemorrhagic diathesis
- Anticoagulants

DIFFERENCES BETWEEN HEMATEMESIS AND HEMOPTYSIS

HEMATEMESIS	HEMOPTYSIS
1) Hematemesis means vomiting of blood.	Hemoptysis means coughing up of blood.
2) It may be brown or coffee ground in color. It can be fresh blood.	Usually bright red or pink in color.

3) It may contain food particles.	It may be frothy.
4) It is acidic in reaction.	It is alkaline in reaction.
5) On microscopy, it is seen to contain columnar epithelium.	It contains ciliated pseudostratified or ciliated columnar epithelium.
6) Stools may be black in color (malena).	No malena, unless blood has been swallowed by the patient.
7) There may be history of peptic ulcer disease, or chronic liver disease.	There may be history of cough, sputum or of symptoms of cardiac failure.

CAUSES OF HYPOVENTILATION

A) RESPIRATORY CENTER DEPRESSION

1) Sedative drugs
2) Hypoxia
3) Hypercapnia
4) Trauma
5) Raised intracranial pressure
6) Obesity (Pickwickian syndrome)

B) NEUROMUSCULAR DISEASES

1) Guillain-Barre syndrome
2) Muscular dystrophies
3) Neuromuscular blocking drugs
4) Myasthenia gravis
5) Botulism

C) MECHANICAL PROBLEMS

1) Kyphoscoliosis
2) Pleural effusion
3) Pneumothorax

CAUSES OF HYPERVENTILATION

A) EMOTIONAL CAUSES

Anxiety
Hysteria
Pain

B) CNS LESIONS
- Meningitis
- Encephalitis
- Trauma
- Cerebrovascular accident

C) HYPOXIA

D) DRUGS
- Salicylates
- Analeptics
- Epinephrine

E) ARTIFICIAL VENTILATION

F) HYPOTENSION

G) PULMONARY CAUSES
- Irritant gases
- Pneumothorax
- Atelectasis
- Left ventricular failure

H) METABOLIC ACIDOSIS

DIFFERENCES BETWEEN PLEURAL RUB AND PERICARDIAL RUB

PLEURAL RUB	PERICARDIAL RUB
1) Pleural rub is heard with each respiratory cycle at a rate of about 14 to 18 per minute.	Pericardial rub is heard with each cardiac cycle at a rate of approx. 72 per minute.
2) Heard during both inspiration and expiration.	May be heard during both systole and diastole.
3) If the patient is asked to stop breathing, the pleural rub disappears.	If the patient is asked to stop breathing, the pericardial rub persists.
4) Pleuritic pain may be present, ie pain worsened by deep inspiration.	There is continuous discomfort over the precordium.

CAUSES OF MILIARY MOTTLING ON CHEST X-RAY

1) Miliary tuberculosis
2) Metastatic carcinoma
3) Pneumoconiosis
4) Sarcoidosis
5) Extrinsic allergic alveolitis
6) Fibrosing alveolitis
7) Histioytosis X
8) Mesodermal dysplasia

CAUSES OF DIFFUSE BILATERAL NODULAR OPACITIES ON CHEST X-RAY IN ELDERLY PERSONS

A) INFECTIONS
- Disseminated tuberculosis
- Mycoplasma pneumonia
- Bacterial pneumonia
- Psittacosis
- Cytomegalovirus pneumonia
- Fungal pneumonia eg aspergillus

B) HYPERSENSITIVITY LUNG DISEASE
C) CARDIOGENIC PULMONARY EDEMA
D) SARCOIDOSIS
E) PULMONARY ALVEOLAR PROTEINOSIS
F) IDIOPATHIC PULMONARY HEMOSIDEROSIS
G) GOODPASTURE'S SYNDROME

CAUSES OF MEDIASTINAL MASSES

A) LYMPHADENOPATHY
- Lymphoma
- Sarcoidosis
- Tuberculosis
- Carcinoma

B) AORTA
- Unfolded aorta

Aortic aneurysm
Coarctation of the aorta

C) ESOPHAGUS
Cockscrew esophagus
Megaesophagus
Enterogenous cyst
Neoplasm

D) RETROSTERNAL GOITRE

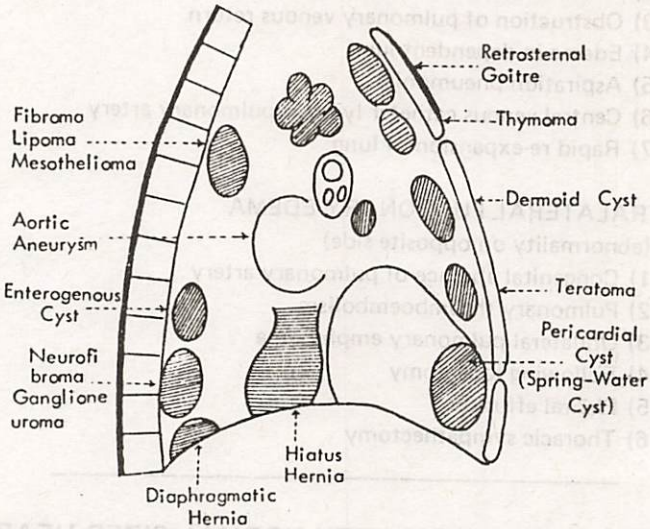
E) CYSTS
Dermoid cyst
Teratoma
Pericardial 'spring water' cyst
Hydatid cyst
Bronchial cyst

F) THYMOMAS

G) HERNIAE
Hiatus hernia
Diaphragmatic hernia
Lung herniation

H) NEUROGENIC
Neurolemmoma
Neurofibroma
Sympathetic ganglioneuroma
Sympathetic neuroblastoma

I) MISCELLANEOUS RARE CAUSES
Cardiac aneurysm
Mesothelioma
Lipoma



COMMON SITES OF MEDIASTINAL MASSES

UNILATERAL PULMONARY EDEMA

A) IPSILATERAL PULMONARY EDEMA
(abnormality present on affected side)

1) Systemic pulmonary shunt (eg Blalock-Tausig anastomosis)
2) Total bronchial obstruction
3) Obstruction of pulmonary venous return
4) Edema in dependent lung
5) Aspiration pneumonia
6) Central venous catheter lying in pulmonary artery
7) Rapid re-expansion of lung

B) CONTRALATERAL PULMONARY EDEMA
(abnormality on opposite side)

1) Congenital absence of pulmonary artery
2) Pulmonary thromboembolism
3) Unilateral pulmonary emphysema
4) Following lobectomy
5) Pleural effusion
6) Thoracic sympathectomy

PULMONARY EDEMA WITH NORMAL SIZED HEART

1) Mitral stenosis
2) Constrictive pericarditis
3) Constrictive type of cardiomyopathy
4) Pneumoconiosis (blocking lymphatics)
5) Viral pneumonias
6) Inhalation of toxic fumes
7) Head injury
8) Cerebro-vascular accident

CANNON BALL SECONDARIES ON CHEST X-RAY

1) Hypernephroma
2) Nephroblastoma
3) Choriocarcinoma
4) Sarcoma

CAUSES OF LUNG CAVITATION

1) Staphylococcal pneumonia
2) Lung abscess
3) Tuberculosis
4) Bronchogenic carcinoma
5) Bronchiectasis
6) Fungal infections
7) Rheumatoid nodules

CAUSES OF RIB NOTCHING

1) Coarctation of aorta
2) Neurofibromatosis
3) Enlargement of nerves
    a) Amyloidosis
    b) Congenital hypertrophic polyneuropathy
4) Inferior vena cava obstruction
5) Following Blalock operation
6) Congenital (rarely)

CAUSES OF RECURRENT PNEUMONIA

1) Lowered host resistance
    Leucopenia
    Hypogammaglobulinemia
    Multiple myeloma
2) Diabetes mellitus
3) Aspiration
4) Bronchial obstruction
    Adenoma
    Carcinoma
    Foreign body
    External compression of bronchus
5) Bronchiectasis
6) Cystic fibrosis
7) Recurrent pulmonary infarcts

CAUSES OF SLOW RESOLUTION OF PNEUMONIA

1) Bronchial obstruction
    - Neoplasm
    - Foreign body eg pea-nut
2) Inappropriate chemotherapy
3) Decreased host resistance
    - Cachexia
    - Agranulocytosis
    - Immunoglobulin deficiency
    - Left ventricular failure
4) Pharygeal pouch with spilling
5) Formation of abscess
6) Formation of empyema
7) Formation of pleural effusion

CAUSES OF ASPIRATION PNEUMONITIS

1) Loss of consciousness
2) Sinusitis – pus aspirated at night
3) Oily nose drops
4) Liquid paraffin ingestion
5) Dysphagia due to any cause
6) Dental extraction

CAUSES OF LUNG ABSCESS

A) INFECTION
    a) PNEUMONIA
        1) Staphylococci
        2) Klebsiella
        3) Tuberculosis
        4) Actinomycosis
        5) Amoebiasis

    b) ASPIRATION
        1) Oral sepsis

2) Pharyngeal pouch
3) Oesophageal obstruction
4) Drowning
5) Bronchiectasis
6) Coma

B) MALIGNANCY

1) Necrotic bronchial carcinoma
2) Bronchial obstruction

C) VASCULAR CAUSES

1) Infection of pulmonary infarct
2) Septic embolus
3) Arteritis (eg Wegener's granulomatosis)

(REMEMBER PAT–FAT–CAT)

P = pneumonia
A = actinomycosis
T = tuberculosis
F = faryngeal pouch
A = amoeba
T = tumour
C = coma
A = arteritis
T = thrombosis with embolism

DIFFERENCES BETWEEN BRONCHIAL ASTHMA AND LEFT VENTRICULAR FAILURE

BRONCHIAL ASTHMA	LEFT VENTRICULAR FAILURE (CARDIAC ASTHMA)
1) Characterised by paroxysms of dyspnea accompanied by wheezing resulting from temporary narrowing of the bronchi by muscular spasm or mucus secretion.	Paroxysms of dyspnea, which may or may not be accompanied by wheezing occuring in association with heart disease.

2) HISTORY: The history is of previous attacks of asthma or other allergic conditions in patient or other members of the family.	History of angina, myocardial infarctions, hypertension, valvular heart disease etc.
3) AGE: Occurs at any age, the onset being early.	Middle aged or old.
4) TIME OF OCCURENCE: Any time, but usually in early morning.	Usually in the middle of the night.
5) SYMPTOMS: Cough with expectoration of small sticky pellets..	Cough with expectoration of watery and frothy secretions which may be blood tinged.
Wheezing or rhonchi are always heard except in severe attacks when the chest is silent.	Wheezing may be present due to exudation of fluid into the airways.
6) SIGNS: The chest may be emphysematous or barrel shaped especially in chronic cases.	Chest may be normal in shape.
Usually only expiration is prolonged.	Both phases of respiration are prolonged.
Rhonchi more prominent than crepitations and are heard diffusely all over the lung.	Crepitations more prominent than rhonchi and are heard at the bases initially, and progress upwards.
There is no cardiomegaly except in advanced stages when there is right ventricular hypertrophy.	Cardiomegaly may be detected with a heaving apex beat.
Pulse is feeble and rapid.	Pulse may be full and bounding with a pulsus alternans.
Triple rhythm absent unless right heart failure has supervened.	Triple rhythm and gallop rhythm (triple rhythm + tachycardia may be present).
No evidence of cardiovascular disease.	Murmurs may be heard.

7) ELECTROCARDIOGRAM may show sinus tachycardia and right axis deviation. Usually normal.	May show evidence of myocardial infarction or left ventricular hypertrophy.
8) EOSINOPHILIA is common.	No eosinophilia.
9) SPUTUM STAIN may show Laennec's pearls, Curschmann's spirals and Charcot-Leyden crystals.	May show RBCs.
10) RESPONSE TO TREATMENT: Responds best to epinephrine and aminophylline.	Responds best to morphine and nitrates.

CAUSES OF PULMONARY EOSINOPHILIA
(pulmonary infiltrates with eosinophilia)

A) LOEFFLER'S SYNDROME (simple pulmonary eosinophilia)
- 1) Ascaris
- 2) Schistosoma
- 3) Paraaminosalicylic acid
- 4) Nitrofurantoin
- 5) Sulfonamide

B) TROPICAL PULMONARY EOSINOPHILIA
- 1) Microfilariae

C) ALLERGIC BRONCHOPULMONARY ASPERGILLOSIS
D) MUCOID IMPACTION SYNDROME
E) BRONCHOCENTRAL GRANULOMATOSIS
F) ALLERGIC GRANULOMATOSIS
G) PERIARTERITIS NODOSA
H) CHRONIC EOSINOPHILIC PNEUMONIA

CAUSES OF PULMONARY FIBROSIS

A) INFECTIONS
- Tuberculosis
- Mycosis (fungal infections)
- Varicella
- Psittacosis

B) PNEUMOCONIOSIS
- Anthracosis
- Silicosis
- Asbestosis
- Byssinosis
- Bagassosis

C) FIBROSING ALVEOLITIS
- Extrinsic allergic alveolitis
- Rheumatoid lung
- Idiopathic fibrosing alveolitis

D) ASPIRATION
- Lipoid pneumonia

E) CARDIAC CAUSES
- Long standing pulmonary edema
- Multiple pulmonary infarcts

F) NEOPLASTIC
- Alveolar cell carcinoma
- Lymphangitic carcinomatosa

G) MISCELLANEOUS
- Sarcoidosis
- Systemic sclerosis
- Systemic lupus erythematosus
- Radiation
- Eosinophilic granuloma
- Tuberous sclerosis
- Xanthomatosis
- Biliary cirrhosis
- Paraquat poisoning
- Busulphan therapy

DIFFUSE INTERSTITIAL LUNG DISEASE

A) INFECTIONS
- a) VIRAL
  - Influenza
  - Cytomegalovirus
  - Measles
  - Varicella-Zoster

b) BACTERIA

Miliary tuberculosis
Staphylococcus
Streptococcus
Klebsiella
Mycoplasma
Brucellosis

c) FUNGI

Histoplasmosis
Aspergillosis

d) PARASITES

Schistosoma
Pneumocystis carinii
Toxoplasmosis

B) OCCUPATIONAL CAUSES

MINERAL DUSTS

Silicosis
Asbestosis
Coal miner's pneumoconiosis

CHEMICAL FUMES

Chlorine
Ammonia
Sulphus dioxide

C) NEOPLASTIC CAUSES

Bronchoalveolar carcinoma
Secondary carcinoma
Leukemia
Lymphoma

D) CONGENITAL OR FAMILIAL DISEASES

Familial dysautonomia
Tuberous sclerosis
Niemann-Pick disease
Gaucher's disease
Cystic fibrosis
Neurofibromatosis
Pulmonary microlithiasis

E) METABOLIC CAUSES

Uremic pneumonitis
Hypercalcemia
Paraquat poisoning

F) PHYSICAL AGENTS

Radiation pneumonitis
Thermal injury
Blast injury
Oxygen toxicity

G) CIRCULATORY DISORDERS

Thrombo-emboli
Mitral stenosis
Chronic left ventricular failure

H) IMMUNOLOGIC DISORDERS

EXTRINSIC ALLERGIC ALVEOLITIS

Farmer's lung
Bagassosis
Bird fancier's lung

DRUGS

Hydralazine
Busulfan
Nitrofurantoin
Hexamethonium
Methysergide
Bleomycin

COLLAGEN VASCULAR DISORDERS

SLE
Polyarteritis nodosa
Rheumatoid arthritis
Scleroderma
Dermatomyositis
Sjogren's syndrome
Chronic active hepatitis
Goodpastures syndrome

I) DISORDERS OF UNKNOWN ORIGIN

Sarcoidosis
Histiocytosis X
Idiopathic pulmonary hemosiderosis
Pulmonary alveolar proteinosis
Diffuse idiopathic pulmonary fibrosis

CAUSES OF PNEUMOTHORAX

A) TRAUMATIC
B) IATROGENIC
- Thoracocentesis
- Thoracic surgery
- Artificial ventilation
- Artificial pneumothorax

C) SPONTANEOUS
- Cysts – congenital and acquired
- Bullae
- Emphysema – localised and generalised
- Bronchial asthma
- Bronchiectasis
- Eosinophilic granuloma
- Tuberous sclerosis
- Tuberculosis
- Silicosis
- Lung abscess
- Malignant tumors
- Hydatid cysts
- During labour

PLEURAL EFFUSION

TRANSUDATES
1) Congestive cardiac failure
2) Cirrhosis
3) Nephrotic syndrome
4) Meig's syndrome

EXUDATES
1) TRAUMATIC
   a) Chest trauma
   b) Leakage through subclavian catheter
   c) Peritoneal dialysis

2) INFECTIVE
   a) Bacterial pneumonia
   b) Tuberculosis
   c) Subphrenic abscess

3) NEOPLASTIC
   a) Bronchogenic carcinoma
   b) Mesothelioma
   c) Lymphoma

4) MISCELLANEOUS
   a) Pulmonary infarction
   b) SLE
   c) Rheumatoid arthritis
   d) Myxedema
   e) Hydronephrosis
   f) Pancreatitis
   g) Pneumothorax

CAUSES OF EMPYEMA THORACIS

1) Bacterial pneumonia
2) Fungal pneumonia
3) Tuberculous pneumonia
4) Chest trauma
5) Thoracic surgery
6) Mediastinitis
7) Lung abscess
8) Ruptured subdiaphragmatic abscess

CAUSES OF ADULT RESPIRATORY DISTRESS SYNDROME

A) TRAUMATIC
   Lung contusion
   Head injury
   Cardio-pulmonary by-pass

B) TOXINS
   Oxygen
   Smoke
   Nitrous oxide
   Chlorine
   Ammonia
   Phosgene

C) DRUG OVERDOSE

Aspirin
Heroin
Methadone
Propoxyphene
Barbiturates

D) ASPIRATION

Gastric contents
Fresh water
Salt water
Hydrocarbons

E) INFECTIONS

Septicemia
Viral pneumonia
Tuberculosis
Peritonitis

F) AUTO-IMMUNE DISEASES

Goodpasture's syndrome
Uremia

G) MISCELLANEOUS

Shock due to any cause
Disseminated intravascular coagulation
Massive blood transfusions
Fat embolism
Amniotic fluid embolism

SECTION 4

DISORDERS OF THE KIDNEY AND URINARY TRACT

CAUSES OF POLYURIA

A) TEMPORARY POLYURIA

a) Following recovery of acute tubular necrosis
b) Following treatment of edema
c) Mannitol infusion
d) Narcotic antagonists
e) Clonidine

B) PERSISTENT POLYURIA

a) Excessive water intake
    Psychogenic polydipsea
    Hypothalamic disease
    Drug induced eg thioridazine
        anti-cholinergics
        chlorpromazine
b) Osmotic diuresis
    Diabetes mellitus
c) Cranial diabetes insipidus
d) Nephrogenic diabetes insipidus

CAUSES OF NOCTURIA

1) Diabetes mellitus
2) Diabetes insipidus
3) Hypercalcemia
4) Hypokalemia
5) Malabsorption syndrome (delayed absorption)

CAUSES OF DYSURIA

A) PHYSICAL CAUSES

1) Excessive washing
2) Excessive sexual intercourse
3) Masturbation

B) CHEMICAL CAUSES
1) Contraceptive foams
2) Douches
3) Contraceptive devices

C) INFECTION
1) Urinary tract infections
2) Acute urethral syndrome
3) Gonorrhoea
4) Non-specific vaginitis

D) MISCELLANEOUS
1) Inflammatory bowel disease

CAUSES OF PYURIA
(Presence of pus or leucocytes in the urine)

A) RENAL DISORDERS
1) Acute and chronic pyelonephritis
2) Renal calculus
3) Renal abscess
4) Renal tuberculosis

B) URETERIC CAUSES
1) Ureteric calculus

C) VESICAL CAUSES
1) Cystitis
2) Schistosomiasis
3) Tuberculosis
4) Calculus
5) Carcinoma or papilloma

D) URETHRAL CAUSES
1) Urethritis
2) Prostatitis

E) GENITAL TRACT DISORDERS
1) Vaginitis
2) Balanitis
3) Phimosis
4) Pyosalpinx

F) GASTROINTESTINAL TRACT DISORDERS

1) Vesico-colic fistula due to
   - Inflammatory bowel disease
   - Carcinoma
   - Diverticulitis
2) Appendicular abscess

CAUSES OF PROTEINURIA IN A YOUNG PERSON

1) Membranous glomerulonephritis
2) Minimal lesion glomerulonephritis
3) Proliferative glomerulonephritis
4) Amyloidosis
5) Drugs eg Penicillamine
   Gold
6) Systemic lupus erythematosus
7) Polyarteritis nodosa
8) Polycystic kidneys
9) Chronic glomerulonephritis
10) Hypertension
11) Congestive cardiac failure
12) Orthostatic proteinuria

CAUSES OF HEMATURIA

A) RENAL DISORDERS

1) Acute and chronic glomerulonephritis
2) Tuberculosis
3) Renal calculus
4) Renal carcinoma
5) Renal infarction
6) Trauma to the kidney
7) Polycystic disease
8) Hydronephrosis
9) Toxins eg sulfonamides
   mercury

B) URETIC CAUSES

1) Uretic calculus
2) Carcinoma ureter

C) VESICAL CAUSES

1) Trauma to the bladder
2) Acute cystitis
3) Schistosomiasis
4) Carcinoma bladder

D) PROSTATE GLAND DISORDERS

1) Benign prostatic hyperplasia
2) Adenoma
3) Carcinoma

E) URETHRAL DISORDERS

1) Trauma
2) Acute urethritis
3) Hemangioma
4) Carcinoma

H) DISORDERS OF NEIGHBOURING ORGANS

1) Acute appendicitis
2) Acute salpingitis
3) Cancer uterus or rectum
4) Pelvic abscess
5) Meno-uria (menstrual flow occuring through a utero-vescical fistula into the bladder)

I) DUE TO SYSTEMIC DISORDERS

1) Blood dyscrasias eg
   - Purpura
   - Leukemia
   - Hemophilia
   - Anti-coagulant therapy
2) Scurvy
3) Malignant hypertension
4) Acute infection eg
   - Malaria
   - Yellow fever
5) Incompatible blood transfusion

CAUSES OF MICROSCOPIC HEMATURIA

1) Minimal change disease
2) Berger's disease
3) Subacute bacterial endocarditis

4) Resolving acute glomerulonephritis
5) Membrano-proliferative glomerulonephritis
6) Alport's syndrome
7) Fabry's disease
8) Sickle cell disease
9) Systemic lupus erythematosus

CAUSES OF PAINLESS HEMATURIA

1) Renal tuberculosis
2) Renal carcinoma
3) Renal stones
4) Polycystic disease
5) Acute glomerulonephritis
6) Systemic lupus erythematosus
7) Malignant hypertension
8) Transitional cell papilloma or carcinoma

REDUCING SUBSTANCES IN URINE

1) Glucose in
    a) Diabetes mellitus
    b) Renal glycosuria
2) Galactose in galactosemia
3) Fructose in fructosemia
4) Lactose in lactosuria
5) Pentose in pentosuria
6) Homogentisic acid in alkaptonuria
7) Drugs conjugated with glucuronic acid eg aspirin

CAUSES OF ELEVATED BLOOD UREA WITH NORMAL CREATININE

1) Very high protein diet
2) Gastrointestinal hemorrhage
3) Steroids in large doses
4) Old age
5) Renal impairment in bilateral amputee

CAUSES OF VERY RAPID RISE OF BLOOD UREA

1) Acute renal failure
2) Acute-on-chronic renal failure
3) Gastrointestinal bleeding in a patient with renal failure
4) Transplant kidney patients developing septicemia
5) Lab error

REVERSIBLE CAUSES OF ACUTE RENAL FAILURE

A) PRE-RENAL CAUSES
- Dehydration
- Congestive cardiac failure
- Malignant hypertension
- Hypercalcemia

B) RENAL CAUSES
- Urinary tract infection

C) POST-RENAL
- Urinary tract obstruction eg
  - enlarged prostrate
  - Stone obstructing only functioning kidney

	OLIGURIA DUE TO PRE-RENAL AZOTEMIA eg dehydration	OLIGURIA DUE TO ACUTE RENAL FAILURE
A) URINE SEDIMENT	Only hyaline casts. Few formed elements.	Brown pigmented cellular casts. Many renal tubular epithelial cells.
B) URINE OSMOLARITY	Greater than 500 mOsm/kg i.e. urine is concentrated.	Less than 350 mOsm/kg i.e. urine is dilute.
C) RATIO OF $\frac{\text{Urine Osmolarity}}{\text{Plasma Osmolarity}}$	Greater than 1.2	Less than 1.2
D) URINE SODIUM (normal 100 mEq/L)	Less than 20 mEq/L	More than 40 mEq/L
E) URINE UREA	Normal i.e. 100 mg/100 ml or more	Less than 30 mg/100 ml
F) RATIO OF $\frac{\text{Urine urea in mg/dl}}{\text{Plasma urea in mg/dl}}$	Greater than 8	Less than 2
G) RATIO OF $\frac{\text{Urine creatinine in mg/dl}}{\text{Plasma creatinine in mg/dl}}$	Greater than 40	Less than 20
H) RATIO OF $\frac{\text{Blood urea in mg/dl}}{\text{Serum creatinine in mg/dl}}$	Greater than 10	Less than 10
I) RENAL FAILURE INDEX $= \frac{\text{Urine sodium} \times \text{Plasma creatinine}}{\text{Urine creatinine}}$	Less than 0.6	Greater than 4
J) FRACTIONAL EXCRETION OF FILTERED SODIUM $= \frac{\text{Urine sodium} \times \text{Plasma creatinine} \times 100}{\text{Plasma sodium} \times \text{Urine creatinine}}$	Less than 0.6	Greater than 4

	RENAL FAILURE INDEX	FRACTIONAL EXCRETION OF FILTERED SODIUM
Pre-renal azotemia	0.6	0.4
Acute oliguric renal failure	10 ± 2	7 ± 1.4
Acute non-oliguric renal failure	4 ± 0.6	3 ± 0.5
Acute obstruction	8 ± 3	6 ± 2
Acute glomerulonephritis	0.4	0.6

$$\text{Renal failure index} = \frac{\text{Urine sodium} \times \text{Plasma creatinine}}{\text{Urine creatinine}}$$

$$\text{Fractional excretion of filtered sodium} = \frac{\text{Urine sodium} \times \text{Plasma creatinine} \times 100}{\text{Plasma sodium} \times \text{Urine creatinine}}$$

CAUSES OF ACUTE GLOMERULONEPHRITIS

A) INFECTIONS

1) Streptococcal infections
2) Infective endocarditis
3) Pneumococcal pneumonia
4) Typhoid fever
5) Secondary syphilis
6) Meningiococcemia
7) Sepsis
8) Hepatitis B
9) Infectious mononucleosis
10) Mumps
11) Measles
12) Vacicella
13) Vaccinia
14) Echovirus
15) Coxsackie virus
16) Malaria
17) Toxoplasmosis

B) COLLAGEN VASCULAR DISEASES

1) S.L.E.
2) Polyarteritis nodosa

C) PRIMARY GLOMERULAR DISEASE

1) Membrano-proliferative glomeronephritis
2) Berger's disease

D) MISCELLANEOUS

1) Vasculitis
2) Henoch-Schonlein purpura
3) Goodpasture's syndrome
4) Guillain-Barre syndrome
5) Serum sickness

CAUSES OF RARIDLY PROGRESSIVE GLOMERULONEPHRITIS

A) INFECTIONS

1) Streptococcal infections
2) Infective endocarditis
3) Sepsis anywhere

B) COLLAGEN VASCULAR DISEASES
1) S.L.E.

C) PRIMARY GLOMERULAR DISEASES
1) Membrano-proliferative glomerlonephritis
2) Berger's disease
3) Idiopathic cresentic glomerulonephritis

D) MISCELLANEOUS
1) Henoch-Schonlein purpura
2) Vasculitis
3) Goodpasture's syndrome
4) Malignancy

CAUSES OF ACUTE GLOMERULONEPHRITIS WITH HEMOPTYSIS

1) Bronchogenic carcinoma
2) Goodpasture's syndrome
3) Polyarteritis nodosa
4) Wegener's granulomatosis

CAUSES OF RENAL FAILURE WITH HEMOPTYSIS

1) Goodpasture's syndrome
2) Renal failure with cardiac failure
3) Systemic lupus erythematosus
4) Polyarteritis nodosa
5) Wegener's granulomatosis
6) Cryoglobulinemia
7) Henoch-Schonlein purpura
8) Renal vein thrombosis with pulmonary embolism
9) Legionnaire's disease

CAUSES OF RENAL TUBULAR ACIDOSIS

A) PRIMARY OR HEREDITARY
Type I or Distal renal tubular acidosis
Type II or Proximal renal tubular acidosis

B) SECONDARY OR ACQUIRED

Type I or Distal RTA

- Hypercalciuria
- Potassium deficiency
- Chronic pyelonephritis
- Interstitial nephritis
- Mercury
- Phenacetin

Type II or Proximal RTA

- Fanconi syndrome
- Medullary sponge kidney
- Galactosemia
- Ehlers-Danlos syndrome
- Fabry's disease
- Hereditary elliptocytosis
- Wilson's disease

CAUSES OF CHRONIC RENAL FAILURE

1) Chronic glomerulonephritis
2) Chronic pyelonephritis
3) Diabetic nephropathy
4) Bilateral hydronephrosis
5) Systemic lupus erythematosus
6) Polyarteritis nodosa
7) Amyloidosis
8) Essential hypertension
9) Polycystic kidneys
10) Nephrocalcinosis
11) Renal tuberculosis
12) Congenital renal hypoplasia

CAUSES OF RENAL FAILURE IN MULTIPLE MYELOMA

1) Tubular damage by filtered light chains
2) Hypercalcemia
3) Hyperuricemia
4) Amyloidosis
5) Intravenous pyelography without adequate hydration

CAUSES OF COMBINED HEPATIC AND RENAL FAILURE

1) Shock
2) Severe heart failure
3) Hepatorenal syndrome due to
   - advanced hepatic cirrhosis
   - fulminant hepatitis
4) Toxins like
   - aminoglycosides
   - carbon tetrachloride
5) Infections
   - leptospirosis
   - viral hepatitis with immune complex disease

CAUSES OF SALT LOSING NEPHRITIS

1) Analgesic nephropathy
2) Pyelonephritis
3) Obstructive uropathy
4) Nephrocalcinosis
5) Hyperuricemia
6) Multiple myeloma
7) Wilson's disease
8) Amyloidosis
9) Heavy metal poisoning
10) Recovery phase of acute tubular necrosis

CAUSES OF NEPHROTIC SYNDROME

I) PRIMARY GLOMERULAR DISEASES
   1) Minimal change disease
   2) Focal sclerosis
   3) Membranous glomerulopathy
   4) Membrano-proliferative glomerulonephritis
   5) Cresentic glomerulonephritis

II) SECONDARY TO SYSTEMIC DISEASES
   A) DRUG INDUCED
      - Gold
      - Penicillamine
      - Probenecid

Mercury
'Street' heroin
Anti-tetanus serum
Anti-snake venom
Contrast media

B) BACTERIAL INFECTIONS
Streptococcal infections
Infective endocarditis
Secondary syphilis
Leprosy

C) VIRAL INFECTIONS
Hepatitis B
Infectious mononucleosis

D) PARASITES
Malaria
Schistosomiasis
Filariasis

E) NEOPLASIA
Lymphomas
Leukemias
Carcinomas
Melanomas
Wilm's tumor

F) COLLAGEN VASCULAR DISEASES
SLE
Dermatomyositis
Sjogren's syndrome

G) CONGENITAL CAUSES
Congenital nephrotic syndrome
Sickle cell disease
Fabry's disease
Nail patella syndrome

H) MISCELLANEOUS
Diabetic nephropathy
Henoch-Schonlein purpura
Polyarteritis nodosa
Goodpasture's syndrome
Dermatitis herpetiformis

Amyloidosis
Toxemia of pregnancy
Thyroiditis
Myxedema
Renovascular hypertension
Vesico-ureteric reflux
Chronic allograft rejection
Bee stings

CAUSES OF NEPHROTIC SYNDROME IN A PATIENT WITH RHEUMATOID ARTHRITIS

1) Penicillamine therapy
2) Gold therapy
3) Renal amyloid
4) Development of SLE

CAUSES OF RENAL PAPILLARY NECROSIS

1) Diabetes mellitus
2) Analgesic nephropathy
3) Gout
4) Pyelonephritis
5) Sickle cell disease

CAUSES OF URINARY TRACT INFECTION WITHOUT BACTERIURIA

1) Recent antibiotic therapy
2) Early hematogenous pyelonephritis
3) Total urinary obstruction
4) Urine of high osmolarity
5) High urea concentration
6) Low pH. of the urine

CAUSES OF NEPHROCALCINOSIS

1) Hypercalcemia
2) Old healed tuberculosis
3) Renal tubular acidosis
4) Renal cortical necrosis

CAUSES OF BILATERAL SYMMETRICALLY ENLARGED KIDNEYS

1) Nephrotic syndrome
2) Bilateral hydronephrosis
3) Polycystic kidneys

SECTION 5

DISORDERS OF THE GASTROINTESTINAL TRACT

CAUSES OF DYSPHAGIA

A) DISORDERS OF THE MOUTH
- 1) Stomatitis
- 2) Glossitis

B) DISORDERS OF THE PHARYNX
- 1) Tonsillitis
- 2) Retropharyngeal abscess
- 3) Plummer-Vinson syndrome
- 4) Pharyngeal pouch
- 5) Carcinoma pharynx and larynx
- 6) Crico-pharyngeal achalasis

C) DISORDERS OF THE ESOPHAGUS
- 1) Foreign body
- 2) Esophageal strictures
- 3) Carcinoma esophagus
- 4) Achalasia cardia
- 5) Systemic sclerosis
- 6) Trypanosomiasis (Chaga's disease)
- 7) Mediastinal tumors
- 8) Pericardial effusion
- 9) Bronchogenic carcinoma

D) DISORDERS OF THE NERVOUS SYSTEM
- 1) Diphtheric neuritis
- 2) Bulbar palsy
- 3) Pseudobulbar palsy
- 4) Myasthenia gravis
- 5) Psychological causes (globus hystericus)

CAUSES OF PAROTID GLAND ENLARGEMENT

A) INFECTIONS
- Mumps
- Cytomegaloviral infections
- Bacterial infections

B) NEOPLASMS
C) DUCT BLOCKAGE eg by calculus
D) SYSTEMIC DISEASE
- Sjogren's syndrome
- Sarcoidosis
- Drugs: iodides
  - thiouracil
  - phenylbutazone
  - lead
- Cirrhosis of the liver
- Cystic fibrosis
- Hyperlipidemia
- Malnutrition
- Pregnancy
- Diabetes mellitus

CAUSES OF VOMITING

A) DISORDERS OF THE GASTROINTESTINAL TRACT
1) Dietary indiscretion
2) Gastroenteritis
   - viral
   - bacterial
   - chemical
3) Peptic ulcer disease
4) Drugs
   - Digitalis
   - Antibiotics
   - Ipecac –
5) Intestinal obstruction
   - Pyloric stenosis
   - Intussusception
   - Volvulus
   - Strangulated hernia
   - Stricture
   - Paralytic ileus
6) Acute appendicitis

B) DISORDERS OUTSIDE THE GASTROINTESTINAL TRACT (REFERRED VOMITING)
1) Infective hepatitis
2) Acute pancreatitis

3) Acute cholecystitis
4) Acute pyelonephritis
5) Diabetic ketoacidosis
6) Pregnancy
7) Uremia
8) Addison's disease
9) Radiation sickness

C) DISORDERS OF THE CENTRAL NERVOUS SYSTEM

1) Severe pain
2) Motion sickness
3) Meniere's disease
4) Meningitis
5) Migraine
6) Psychogenic
7) Drug-induced eg
   Morphine
   Apomorphine

CAUSES OF DISTENDED ABDOMEN

Remember 8 F's

1) Fat
2) Flatus (= gaseous distension)
3) Fluid (= ascites)
4) Fetus (= pregnancy)
5) Fanthom (correct spelling is phanthom meaning a false pregnancy or pseudocyesis)
6) Full bladder
7) Feces
8) Fibroid (the most common of the uterine tumors plus all the other tumors arising from any other abdominal organ).

MEDICAL CAUSES OF ACUTE ABDOMINAL PAIN

1) Diabetic ketoacidosis
2) Uremia
3) Addison's disease
4) Acute intermittent porphyria
5) Lead poisoning

6) Tabes dorsalis
7) Hemachromotosis
8) Sickle cell anemia
9) Hypercalcemia
10) Intestinal parasites
11) Epilepsy
12) Migraine

CAUSES OF ABDOMINAL PAIN WITH HYPOTENSION

1) Perforated duodenal ulcer
2) Acute pancreatitis
3) Biliary colic with septicemia
4) Acute appendicitis
5) Dissecting aneurysm
6) Acute myocardial infarction
7) Pulmonary embolism
8) Mesenteric vascular occlusion
9) Diabetic ketoacidosis
10) Acute intermittent porphyria
11) Addison's disease
12) Hypercalcemia

CAUSES OF HYPOCHLORHYDRIA

1) Pernicious anemia
2) Gastric ulcer
3) Gastric carcinoma
4) Gastric polyposis
5) Subtotal gastrectomy
6) Iron deficiency
7) Pregnancy
8) Atrophic gastritis
9) Old age or debility
10) Pellagra
11) Radiation

CAUSES OF ELEVATED SERUM GASTRIN LEVELS

1) Gastrinoma (Zollinger Ellison syndrome)
2) Antral G cell hyperplasia
3) Renal failure
4) Achlorhydria
5) Vagotomy
6) Short bowel syndrome
7) Cimetidine

CAUSES OF ABSENT GASTRIC BUBBLE ON CHEST X-RAY

1) Stomach on right side (situs inversus)
2) Large abdominal mass
3) Splenomegaly
4) Full stomach
5) Achalasia

CAUSES OF ACUTE DIARRHEA

A) DRUGS
- Laxatives
- Magnesium hydroxide
- Antibiotics
- Digitalis
- Quinidine
- Colchicine
- Warfarin

B) CHEMICALS
- Arsenic
- Lead
- Mercury
- Mushrooms

C) BACTERIAL TOXINS
- Enterotoxigenic E. coli
- Clostridium perfringens
- Staphylococcus aureus
- Bacillus cereus

Klebsiella
Enterobacter
Vibrio cholerae

D) INVASIVE BACTERIA
Shigella
Salmonella
Yersinia enterocolitica
Vibrio parahemolyticus
Invasive E. coli
Campylobacter
Neisseria gonorrheae

E) VIRUSES
Rotavirus
Enterovirus
Hepatitis-associated virus
Parnovirus
Orbivirus
Calicivirus eg Norwalk agent

F) PROTOZOAL
Giardia lamblia
Entameba histolytica

G) HELMINTHIC
Ascaris lumbricoides
Ankylostoma duodenale
Necator americanus
Trichuris trichura
Stongyloides stercoralis

H) FUNGI
Candida
Actinomyces
Histoplasma

I) DIETARY CAUSES
Irritating foods
Alcohol
Food allergies
Nonspecific food intolerance
Non-absorbable sugar substitutes eg
sorbitol
mannitol

J) MISCELLANEOUS

Appendicitis
Diverticulitis
Gastrointestinal hemorrhage
Henoch-Schonlein purpura
Stevens-Johnson syndrome
Pseudomembranous enterocolitis
Fecal impaction
Ischemic colitis
Medullary carcinoma thyroid
Vipomas
Gastrinomas (Zollinger-Ellison syndrome)
Radiation enteritis

DIFFERENCES BETWEEN AMEBIC DYSENTERY AND BACILLARY DYSENTERY

AMEBIC DYSENTERY	BACILLARY DYSENTERY
1) AGE: ncommon in children	Common in children
2) ONSET: Insidious	Sudden onset
3) EPIDEMIOLOGY: Endemic, rarely epidemic	May occur in epidemics
4) FREQUENCY OF STOOLS: Two or more stools per day.	More frequent stools
5) FEVER: Rare	May be present
6) TOXEMIA: slight or none	May be present
7) APPEARANCE OF STOOLS:	
– More mucus than blood.	Both blood and mucus mixed, more blood.
– Odor offensive	Not offensive
– Fecal matter present	Hardly any fecal matter
– Reaction acid	Reaction alkaline

8) MICROSCOPIC EXAMINATION OF STOOLS:	
– RBCs in clumps	RBCs may be in rouleaux formation.
– lymphocytes and mononuclears may present either a mouse eaten appearance owing to action of digestive enzymes on parts of cytoplasm or pyknotic bodies from nuclear fragments	Polymorphs are present. Cellular lysis is marked the result being ghost cells from macrophages and ring nuclei from polymorphs.
– macrophages scanty	macrophages present.
– Organisms: Entameba histolytica present. Vegetative forms in acute stage and cysts in chronic stages.	Shigella present on stool culture.
9) SIGMOIDOSOPIC APPEARANCE:	
Deep flask shaped ulcers seen. The floor is formed by muscular coat or thickened peritoneum.	The ulcers are shallow and serpiginous without any undermined edges. They seldom penetrate muscularis mucosa.
The lesion is necrotic	The lesion is supprative.
The mucosa between ulcers appears healthy.	Mucosa appears inflamed.
10) COMPLICATIONS:	
– perforation	– perforation
– amebic liver abscess	– toxemia
	– dehydration
	– pyogenic liver abscess

CAUSES OF CHRONIC DIARRHEA

A) INFECTIONS

Amebiasis
Tuberculosis enteritis
Intestinal parasites

B) INFLAMMATORY BOWEL DISEASE
- Ulcerative colitis
- Crohn's disease

C) ENDOCRINE DISORDERS
- Thyrotoxicosis
- Diabetic autonomic neuropathy
- Carcinoid syndrome
- Pancreatic tumors producing vaso-active intestinal polypeptide.

D) NEOPLASMS OF THE COLON

E) MISCELLANEOUS
- Malabsorption syndrome
- Purgative abuse
- Irritable bowel syndrome
- Post-vagotomy

CAUSES OF BACTERIAL OVERGROWTH IN SMALL INTESTINE

A) POST-SURGICAL eg.
- After partial gastrectomy
- After vagotomy

B) FISTULAE
- Gastro-colic fistula
- Entero-colic fistula

C) DIVERTICULI
D) ADHESIONS
F) STRICTURES
G) SCLERODERMA
H) AUTONOMIC NEUROPATHY
I) PERNICIOUS ANEMIA
J) GANGLION BLOCKING DRUGS
K) CHOLANGITIS

CAUSES OF PROTEIN LOSING ENTEROPATHY

A) CAUSES IN THE STOMACH
- Gastric carcinoma
- Giant hypertrophy of gastric mucosa

Atrophic gastritis
Post-gastrectomy syndrome

B) CAUSES IN THE SMALL INTESTINE
Tropical sprue
Coeliac disease
Regional enteritis
Whipple's disease
Lymphoma
Intestinal lymphangiectasis
Intestinal tuberculosis
Acute infectious enteritis
Scleroderma
Jejunal diverticulosis
Allergic gastroenteropathy

C) CAUSES IN THE COLON
Colonic neoplasm
Ulcerative colitis
Granulomatous colitis
Megacolon

D) CARDIAC CAUSES
Congestive cardiac failure
Constrictive pericarditis
Atrial septal defect
Primary cardiomyopathy

E) MISCELLANEOUS
Esophageal carcinoma
Gastrocolic fistula
Agammaglobulinemia

CAUSES OF MALABSORPTION

A) INADEQUATE DIGESTION
1) Post-gastrectomy
2) Chronic pancreatitis
3) Pancreatic carcinoma
4) Cystic fibrosis
5) Pancreatic resection
6) Zollinger-Ellison syndrome

B) INADEQUATE ABSORPTION

1) Reduced bile salt concentration
   - Parenchymal liver disease
   - Obstructive jaundice
   - Blind loop syndrome
   - Ileal resection
   - Crohn's disease
2) Inadequate absorptive surface
   - Intestinal resection
3) Lymphatic obstruction
   - Intestinal lymphangiectasia
   - Whipple's disease
   - Lymphoma
4) Cardiovascular disorders
   - Constrictive pericarditis
   - Congestive heart failure
   - Mesentric vascular insufficiency
   - Vasculitis
5) Primary mucosal absorptive defects
   - Regional enteritis
   - Amyloidosis
   - Scleroderma
   - Lymphoma
   - Radiation enteritis
   - Tropical sprue
   - Non-tropical sprue
   - Disaccharidase deficiency
   - Hypogammaglobilinemia
   - Abetalipoproteinemia
   - Hartnup disease
   - Cystinuria
6) Endocrine and metabolic disorders
   - Diabetes mellitus
   - Hypoparathyroidism
   - Addison's disease
   - Carcinoid syndrome

UPPER GASTROINTESTINAL BLEEDING

A) COMMON CAUSES

1) Duodenal ulcer
2) Gastric ulcer
3) Acute erosions

4) Stress ulcers
5) Mallory-Weiss tear
6) Esophagitis
7) Esophageal varices

B) UNCOMMON CAUSES
1) Esophageal ulcer
2) Esophageal tumor
3) Gastric carcinoma
4) Benign gastric tumors
5) Anastomotic ulcers

C) RARE CAUSES
1) Bleeding disorder
2) Anti-coagulant therapy
3) Aortic aneurysm
4) Hereditary telangiectasia
5) Duodenal tumor

CAUSES OF MASS IN THE RIGHT ILIAC FOSSA

1) Appendiceal abscess
2) Carcinoma ceacum
3) Crohn's disease
4) Ileocecal tuberculosis
5) Intussusception
6) Ovarian tumor
7) Ectopic kidney
   congenital
   following renal transplant
8) Ameboma
9) Actinomycosis

CAUSES OF CONSTIPATION

A) ACUTE CONSTIPATION
1) Intestinal obstruction
2) Acute illness
3) Hospitalisation
4) Travel
5) Dehydration

CHRONIC CONSTIPATION

1) DISORDERS OF THE GASTROINTESTINAL TRACT
   a) Tumors
   b) Strictures
   c) Hemorrhoids
   d) Anal fissures
   e) Hirschsprung's disease
   f) Irritable bowel syndrome
   g) Scleroderma
2) ENDOCRINE AND METABOLIC CAUSES
   a) Hypothyroidism
   b) Hypercalcemia
   c) Hypokalemia
3) DRUG INDUCED
   a) Lead poisoning
   b) Abuse of purgatives
4) DISORDERS OF THE NERVOUS SYSTEM
   a) Spinal cord injury
   b) Multiple sclerosis
   c) Cerebral palsy
   d) Senility
   e) Autonomic neuropathy
5) PSYCHOLOGICAL CAUSES
   a) Depression
   b) Anorexia nervosa
   c) Habitual neglect of call
6) MISCELLANEOUS
   a) Low fibre diet
   b) Early pregnancy
   c) Idiopathic slow transit

SLIGHTLY ELEVATED BILIRUBIN

1) Gilbert's syndrome
2) Dubin Johnson syndrome
3) Secondary neoplasm of the liver
4) Cirrhosis of the liver
5) Hemolytic anemia
6) Congenial spherocytosis
7) Drug induced
   Phenothiazines
   Oral contraceptives
8) Specimen hemolysed

CAUSES OF JAUNDICE IN THE NEWBORN

1) Rh incompatibility
2) ABO incompatibility
3) Breast milk jaundice
4) Biliary atresia
5) Galactosemia
6) Urinary tract infections
7) Septicemia
8) Rubella
9) Cytomegalovirus
10) Toxoplasmosis
11) Syphilis
12) Viral hepatitis
13) Physiological

CAUSES OF JAUNDICE IN A YOUNG PERSON

A) PRE-HEPATIC JAUNDICE

- Spherocytosis
- Thallasemia
- Sickle cell disease

B) HEPATIC JAUNDICE

- Viral hepatitis
- Infectious mononucleosis
- Drugs:
  - Contraceptive pill
  - Phenothiazines
  - Acetaminophen overdose
  - Anti-depressants
  - Anti-tuberculous drugs
  - Erythromycin
- Congenital hyperbilirubinemia
  - Gilbert's syndrome
  - Dubin-Johnson syndrome
- Wilson's disease
- Cytomegalovirus infection
- Toxoplasmosis
- Ulcerative colitis
- Chronic active hepatitis

CAUSES OF JAUNDICE IN THE LAST TRIMESTER OF PREGNANCY

1) Acute viral hepatitis
2) Gall bladder disease
3) Primary biliary cirrhosis
4) Benign recurrent jaundice of pregnancy
5) Acute fatty liver of pregnancy
6) Dubin-Johnson syndrome

CAUSES OF JAUNDICE IN A MIDDLE AGED PERSON

A) PRE-HEPATIC JAUNDICE
- Hemolytic anemia

B) HEPATIC JAUNDICE
- Viral hepatitis
- Alcoholic hepatitis
- Drug induced hepatitis
- Chronic active hepatitis
- Cirrhosis of the liver
- Secondary carcinoma

C) POST-HEPATIC JAUNDICE
- Gall stone obstruction
- Carcinoma head of the pancreas

CAUSES OF JAUNDICE IN THE ELDERLY

A) PRE-HEPATIC
- Hemolytic anemia

B) HEPATIC JAUNDICE
- Drug induced
- Cirrhosis of the liver
- Secondary carcinoma

C) POST-HEPATIC JAUNDICE
- Gall stones
- Carcinoma pancreas

CAUSES OF ELEVATED LDH LEVELS

A) MARKED INCREASE
- Acute myocardial infarction
- Hemolysis
- Pernicious anemia
- Leukemia
- Myelofibrosis
- Shock

B) MODERATE INCREASE
- Viral hepatitis
- Infectious mononucleosis
- Malignancy anywhere in the body
- Skeletal muscle disease
- Pulmonary embolism
- Cerebral infarction
- Renal disease

C) SLIGHT INCREASE
- Hemolysed specimens

CAUSES OF HEPATOMEGALY

A) TRAUMA
- a) Subcapsular hematoma
- b) Traumatic cyst

B) INFECTIONS
- a) Viral hepatitis
- b) Infectious mononucleosis
- c) Yellow fever
- d) Pylephlebitis
- e) Pyogenic liver abscess
- f) Amebic liver abscess
- g) Hydatid cyst, Tuberculosis

C) NEOPLASTIC
- a) BENIGN: Fibroma
  - Adenoma
  - Hemangioma
  - Cholangioadenoma

b) MALIGNANT:
Hepatoma
Cholangiocarcinoma
Metastatic tumors, lymphoma, leukemia

D) BILE DUCT OBSTRUCTION: due to:
Gall stones
Strictures
Congenital
Parasites eg ascaris
Carcinoma

E) HEPATIC CIRRHOSIS in early stages

F) BUDD CHIARI SYNDROME

G) INFERIOR VENA OCCLUSION

H) CONGESTIVE HEART FAILURE

I) MISCELLANEOUS
Rickets
Amyloidosis
Hemachromatosis
Hemolytic anemias
Storage diseases eg Gaucher's disease
Sarcoidosis

CAUSES OF SPLENOMEGALY IN GENERAL

A) TRAUMA
Hematoma
Cyst

B) INFECTION
a) Viral
Infectious mononucleosis
Viral hepatitis
Psittacosis
b) Bacterial
Typhoid
Paratypoid
Anthrax
Tuberculosis
Septicemia

Splenic abscess
Leptospirosis
Syphilis

c) Rickettsial diseases
Typhus

d) Parasitic
Malaria
Visceral leishmaniasis (kala az r)
Hydatid cyst

e) Fungal
Histoplasmosis
Blastomycosis

C) NEOPLASTIC CAUSES

BENIGN
Fibroma
Lymphangioma
Hemangioma

MALIGNANT
Lymphoma
Leukemia
Metastatic tumors

D) HEMATOLOGICAL DISORDERS
Pernicious anemia
Hemolytic anemias
Thrombocytopenic purpura
Myelofibrosis

E) METABOLIC CAUSES
Rickets
Amyloidosis
Porphyria
Storage disease eg Gaucher's disease

F) CIRCULATORY CAUSES
Portal hypertension
Infective endocarditis
Congestive cardiac failure
Splenic vein thrombosis
Splenic vein obstruction eg by carcinoma pancreas

G) COLLAGEN VASCULAR DISEASES
Still's disease
Felty's syndrome

H) MISCELLANEOUS
Dermoid cysts
Splenic infarction

CAUSES OF SPLENOMEGALY ACCORDING TO SIZE

A) SLIGHTLY ENLARGED
only tip felt

1) Subacute bacterial endocarditis
2) Infectious mononucleosis
3) Brucellosis
4) Portal hypertension
5) Lymphoma
6) Early leukemia
7) Early myelofibrosis
8) Amyloidosis
9) Sarcoidosis
10) Storage diseases eg Gauchers
11) Idiopathic thrombocytopenic purpura
12) Congenital spherocytosis
13) Polycythemia rubra vera

B) MODERATELY ENLARGED

1) Portal hypertension
2) Lymphoma
3) Chronic lymphatic leukemia
4) Storage diseases eg Gauchers
5) Early chronic myeloid leukemia
6) Early myelofibrosis
7) True cysts of the spleen
8) Pseudocysts either hemorrhagic or traumatic

C) MASSIVELY ENLARGED

1) Chronic myeloid leukemia
2) Chronic lymphatic leukemia
3) Primary myelofibrosis
4) Malaria
5) Visceral leishmaniasis (Kala azar)

CAUSES OF PORTAL HYPERTENSION

1) DISORDERS OF THE LIVER
   1) Cirrhosis of the liver
   2) Lymphoma
   3) Leukemia
   4) Congenital hepatic fibrosis
   5) Schistosomiasis

2) CAUSES OUTSIDE THE LIVER
   1) Constrictive pericarditis
   2) Veno-occlusive disease
   3) Hepatic vein obstruction (Budd-Chiari syndrome)
   4) Suppurative pylephlebitis
   5) Portal lymphadenopathy (due to carcinoma or lymphoma)
   6) Polycythemia rubra vera

CAUSES OF ELEVATED SERUM GLUTAMIC PYRUVIC TRANSAMINASE (SGPT)

A) MARKED INCREASE
   1) Viral hepatitis
   2) Toxic liver necrosis
   3) Shock

B) MODERATELY INCREASED
   1) Myocardial infarction
   2) Cholestatic jaundice
   3) Infectious mononucleosis
   4) Cirrhosis of liver
   5) Skeletal muscle disease
   6) Following trauma
   7) Following surgery

CAUSES OF ELEVATED SERUM GLUTAMIC OXALOACETIC ACID (SGOT)

A) MARKED INCREASE
   1) Myocardial infarction
   2) Viral hepatitis

3) Toxic liver necrosis
4) Shock
5) Congestive heart failure

B) MODERATELY RAISED

1) Infectious mononucleosis
2) Cholestatic jaundice
3) Malignant infiltration of liver
4) Cirrhosis of liver
5) Skeletal muscle disease
6) After trauma
7) After surgery
8) Severe hemolytic anemia
9) Toxemia of pregnancy
10) Infarction of kidney, spleen or intestine

C) SLIGHT INCREASE

1) Artefactually in hemolysed specimens
2) Physiological in newborn
3) Drugs: Salicylates
   Opiates
   Coumarin
4) Hypothyroidism

CAUSES OF ELEVATED ALPHA FETO-PROTEIN

A) FEMALES

Fetus with spina bifida or anencephaly
Primary hepatoma

B) MALES

Primary hepatoma

GROUPS WITH A HIGH INCIDENCE OF HEPATITIS SURFACE ANTIGEN

1) Down's syndrome
2) Lepromstous leprosy
3) Leukemia
4) Hodgkin's disease

5) Polyarteritis nodosa
6) Chronic renal failure on hemodialysis
7) Needle using drug addicts

CAUSES OF CIRRHOSIS OF THE LIVER

1) Post viral hepatitis
2) Alcoholism
3) Prolonged cholestasis
4) Cardiac failure
5) Hepatic venous obstruction
6) Hemochromatosis
7) Wilson's disease
8) Galactosemia
9) Glycogen storage disease
10) Alpha-1 anti-trypsin deficiency
11) Cystic fibrosis of pancreas
12) Drugs: Methotrexate
Methyldopa
Oxyphenasatin
13) Congenital syphilis
14) Cryptogenic cirrhosis

CAUSES OF CARDIAC CIRRHOSIS

1) Mitral valve disease
2) Tricuspid valve disease
3) Constrictive pericarditis
4) Decompensated cor pulmonale

CAUSES OF SECONDARY BILIARY CIRRHOSIS

1) Gall stones
2) Post-operative strictures
3) Tumors: of pancreas
biliary tree
gall bladder
4) Pericholangitis of ulcerative colitis
5) Idiopathic sclerosing cholangitis
6) Congenital atresia of bile ducts

CAUSES OF NON-VISUALISATION OF GALL BLADDER ON ORAL CHOLECYSTOGRAM

A) BILIARY CAUSES
1) Liver disease
2) Bilirubin above 3 mg %
3) Cystic duct obstruction
4) Acute or chronic cholecystitis

B) EXTRABILIARY CAUSES
1) Vomiting
2) Diarrhoea
3) Malabsorption

PREDISPOSING FACTORS FOR GALL STONES

A) INCREASED SECRETION OF CHOLESTEROL
1) Dietary
2) Obesity
3) Drugs: estrogens
oral contraceptives
clofibrate
4) Familial
5) Idiopathic

B) REDUCED BILE ACID POOL
1) Chronic ileal disease
2) Extensive ileal resection
3) Cystic fibrosis

C) BILE STASIS
1) Pregnancy
2) Diabetes mellitus
3) Truncal vagotomy

D) HEMOLYSIS
1) Chronic hemolytic anemia

E) BILE INFECTION

F) BILE OBSTRUCTION

G) ALCOHOLIC LIVER DISEASE

SCLEROSING CHOLANGITIS

PRIMARY
- Isolated
- Associated with
  - a) Ulcerative colitis
  - b) Multifocal fibrosclerosis

SECONDARY
- Common bile duct stones
- Carcinoma
- Operative trauma
- Contiguous inflammation

EXTRINSIC BILE DUCT COMPRESSION

1) Carcinoma head of the pancreas
2) Chronic pancreatitis
3) Enlarged lymph nodes in porta hepatis
   - Lymphoma
   - Metastatic carcinoma
4) Duodenal disorders
   - Villous adenomas
   - Diverticula
   - Peptic ulceration
5) Hepatic artery aneurysm
6) Enlarging renal masses

CAUSES OF ACUTE PANCREATITIS

1) Alcohol ingestion
2) Biliary tract disease
3) Post-operative
4) Post-endoscopic retrograde cholecystopancreatography
5) Trauma
6) Hyperlipidemia
7) Hyperparathyroidism
8) Viral infections
   - Mumps
   - Viral hepatitis
   - Coxsackievirus
   - ECHO virus

9) Mycoplasma
10) Ascariasis
11) Drug induced pancreatitis
    Thiazides
    Frusemide
    Ethacrynic acid
    Clonidine
    Azathioprine
    6-mercaptopurine
    Sulfasalazine
    Corticosteroids
    L-asparaginase
    Acetaminophen
    Oral contraceptives
    Phenformin
    Propoxyphene
12) Systemic lupus erythematosus
13) Penetrating duodenal ulcer
14) Obstruction of ampulla of Vater
    Regional enteritis
    Duodenal diverticulum
15) Renal failure
16) After renal transplantation
17) Acute fatty liver of pregnancy
18) Hereditary pancreatitis

CAUSES OF ELEVATED SERUM AMYLASE

TRAUMATIC
1) Pancreatic trauma
2) Cerebral trauma
3) After abdominal surgery
4) After facio-maxillary surgery
5) After renal transplantation
6) Burns

INFLAMMATORY CAUSES
1) Acute pancreatitis
2) Acute cholecystitis
3) Peritonitis
4) Mumps

MALIGNANCY

1) Carcinoma pancreas
2) Carcinoma esophagus
3) Carcinoma lung
4) Carcinoma ovary

MISCELLANEOUS

1) Salivary calculus
2) Chronic pancreatitis
3) Renal failure
4) Diabetic ketoacidosis
5) Pregnancy
6) Perforated peptic ulcer
7) Intestinal obstruction
8) Intestinal infarction
9) Ruptured ectopic pregnancy
10) Aortic aneurysm
11) Chronic liver disease

DEFICIENCY OF PANCREATIC ENZYMES

A) CHRONIC PANCREATITIS
- Alcoholism
- Traumatic pancreatitis
- Hereditary pancreatitis
- Idiopathic pancreatitis

B) CYSTIC FIBROSIS
C) SEVERE PROTEIN AND CALORIE MALNUTRITION
D) PANCREATIC NEOPLASM
E) PANCREATIC RESECTION
F) GASTRIC SURGERY
G) GASTRINOMA
H) HEMOCHROMATOSIS
I) SHWACHMAN'S SYNDROME (pancreatic insufficiency with bone marrow dysfunction)
J) TRYPSINOGEN DEFICIENCY
K) ENTEROKINASE DEFICIENCY
L) ALPHA-1 ANTITRYPSIN DEFICIENCY

CAUSES OF PANCREATIC CALCIFICATION

A) CHRONIC PANCREATITIS
- Alcohol
- Traumatic pancreatitis
- Hereditary pancreatitis
- Idiopathic

B) SEVERE PROTEIN CALORIE MALNUTRITION

C) HYPERPARATHYROIDISM

D) ISLET CELL TUMORS

CAUSES OF ELEVATED CARCINOEMBRYONIC ANTIGEN

1) Cigarette smokers
2) Inflammatory bowel disease
3) Malignant tumors
   - Ca colon
   - Ca pancreas
   - Ca lung
   - Ca breast
   - Ca prostate
   - Ca bladder
   - Ca endometrium
   - Ca cervix
   - Ca ovary

CAUSES OF ASCITES

A) EXUDATIVE ASCITES

a) INFLAMMATION OF THE PERITONEUM
   1) Perforated peptic ulcer
   2) Appendicitis
   3) Cholecystitis
   4) Intestinal infarction
   5) Tuberculous peritonitis
   6) Bile peritonitis
   7) Pancreatitis

b) TUMORS
   1) Hepatic tumors (primary and secondary)
   2) Peritoneal tumors (primary and secondary)
   3) Leukemia
   4) Lymphoma

B) TRANSUDATIVE ASCITES

1) Congestive heart failure
2) Tricuspid insufficiency
3) Constrictive pericarditis
4) Budd-Chiari syndrome
5) Veno-occlusive disease
6) Cirrhosis of the liver
7) Hepatic tumors
8) Portal vein obstruction
9) Hypoalbuminemia due to:
    a) Malnutrition
    b) Nephrotic syndrome
    c) Protein-losing enteropathy

C) CHYLOUS ASCITES

1) Trauma to the thoracic duct
2) Mediastinal tumors
3) Filariasis
4) Tuberculosis
5) Occasionally cirrhosis

DIFFERENCES BETWEEN ASCITES AND OVARIAN CYST

1) In ascites, the bulging is mainly lateral i.e. in the loins.	An ovarian cyst causes an antero-posterior bulging.
2) The chief dullness is in the flanks and it shifts when the patient is moved i.e. shifting dullness is present.	The dullness is central and does not change with the position of the patient i.e. shifting dullness is negative.
3) The umbilicus is flat or bulges out in ascites.	The umbilicus is drawn upwards.
4) The slit in the umbilicus is usually transverse.	The slit in the umbilicus is usually vertical.
5) The umbilicus is situated in the centre of the abdomen.	The umbilicus is nearer to the xiphoid cartilage than to the pubis.
6) The greatest transverse circumference is at the umbilicus.	The greatest transverse circumference is below the umbilicus.

7) Rectal examination shows that the uterus is low down and movable.	The uterus is drawn outwards and its mobility is impaired.

DIFFERENCES BETWEEN GALL BLADDER AND ENLARGED KIDNEY

Gall bladder	Enlarged kidney
1) A distended gall bladder can be temporarily pushed back from the anterior abdominal wall but always tends to spring forward again. It is therefore always in evidence.	A movable kidney often disappears for a time and can only with difficulty be found again.
2) The gall bladder is not bimanually palpable.	The kidney is bimanually palpable.
3) It can be palpated more easily from the anterior aspect.	It can be palpated more easily from the posterior aspect.
4) The gall bladder swelling is piriform in shape.	Renal swelling is reniform in shape.
5) Gall bladder swelling is dull to percussion throughout.	Renal swelling is resonant to percussion anteriorly due to presence of colon.
6) There is evidence of gall bladder disease eg. jaundice etc.	There is evidence of renal disease eg. blood or pus in the urine or of renal stones, high blood pressure etc.
7) The loin just lateral to the erector spinae is resonant.	The loin just lateral to the erector spinae is dull in renal swelling.

SECTION 6

DISORDERS OF THE HEMATOPOIETIC SYSTEM

CAUSES OF RETICULOCYTOSIS

1) Hemolytic anemia
2) Following acute blood loss
3) Following treatment of pernicious anemia with B-12

CAUSES OF TARGET CELLS

1) Iron deficiency
2) Liver disease eg obstructive jaundice
3) Post-splenectomy
4) Splenic atrophy
5) Sickle cell disease and anemia
6) Thalassemia
7) Hemoglobin C disease

CAUSES OF DIMORPHIC BLOOD PICTURE

A) MIXED HYPOCHROMIC AND NORMOCHROMIC CELLS
Sideroblastic anemia
Partially treated iron deficiency
Blood transfusion

B) MIXED MICROCYTIC AND MACROCYTIC
Iron deficiency with B12 or folate deficiency
Blood transfusion

CAUSES OF HOWELL-JOLLY BODIES IN RBC

1) Post-splenectomy
2) Splenic atrophy
3) Megaloblastic anemia

CAUSES OF PUNCTATE BASOPHILIA

1) Pernicious anemia
2) Lead poisoning
3) Leukemias
4) Hemoglobinopathies

CAUSES OF HYPOCHROMIC ANEMIA

1) Iron deficiency anemia
2) Chronic renal failure
3) Chronic infection
4) Rheumatoid arthritis
5) Malignancy
6) Thalassemia
7) Sideroblastic anemia

CAUSES OF MACROCYTOSIS
(Mean corpuscular volume greater than 96 fl)

1) Reticulocytosis
2) B12 deficiency
3) Folate deficiency
4) Liver disease
5) Hypothyroidism
6) Aplastic anemia
7) Drugs impairing DNA metabolism
    - Nitrogen mustard
    - Cyclophosphamide
    - 5-fluorouracil
    - Cytosine arabinoside
    - 6-mercaptopurine
    - Adriamycin
    - Bleomycin
8) Miscellaneous
    - Orotic aciduria
    - Erythro-leukemia

CAUSES OF MEGALOBLASTIC ANEMIA
(Anemia with macrocytosis greater than 110 and megaloblasts in the marrow)

1) Vitamin B12 deficiency
2) Folic acid deficiency
3) Drugs impairing DNA metabolism
4) Miscellaneous: Orotic aciduria
   Erythro-leukemia

CAUSES OF VITAMIN B-12 DEFICIENCY

A) INADEQUATE INTAKE
   Vegetarians

B) MALABSORPTION
   a) Inadequate production of intrinsic factor
      Pernicious anemia
      Gastrectomy
      Congenital absence of intrinsic factor
   b) Disorders of terminal ileum
      Tropical sprue
      Gluten-sensitive enteropathy
      Crohn's disease
      Whipple's disease
      Tuberculosis
      Ileal resection
   c) Consumption by bacteria and parasites
      Intestinal strictures
      Diverticula
      Blind loops
      Diphylobothrium latum
   d) Drugs inhibiting B12 absorption
      PAS
      Colchicine
      Neomycin

C) TRANSCOBALAMIN II DEFICIENCY
   Vitamin B12 cannot be carried in circulation

CAUSES OF FOLIC DEFICIENCY

A) INADEQUATE INTAKE
- Infants
- Alcoholics

B) MALABSORPTION
- Tropical sprue
- Gluten sensitive enteropathy
- Drugs: Phenytoin
  - Barbiturates
  - Ethanol

C) INCREASED REQUIREMENTS
- Pregnancy
- Infancy
- Malignancy
- Hemolytic anemias

D) IMPAIRED METABOLISM
- Congenital eg dihydrofolate reductase deficiency
- Drugs inhibiting dihydrofolate reductase
  - Methotrexate
  - Pyrimethamine
  - Triamterene
  - Pentamidine
- Alcohol

FEATURES OF HEMOLYTIC ANEMIA

1) Rapid fall in the hematocrit in the absence of bleeding
2) Increased reticulocyte count
3) Blood film may show
   - Polychromatophilic macrocytes
   - Spherocytes
   - Elliptocytes
   - Spiculated cells
   - Schizocytes
   - Stomatocytes
   - Sickle cells
   - Heinz bodies
   - Target cells
   - Normal cells

4) Elevation of indirect reacting bilirubin
5) Increased lactic dehydrogenase (LDH)
6) Presence of free hemoglobin in blood (hemoglobinemia)
7) Presence of methemoglobinemia
8) Decreased serum haptoglobin
9) Decreased serum hemopexin
10) Presence of hemoglobin in the urine (hemoglobinuria)
11) Presence of hemosiderin in urine (hemosiderinuria)

CAUSES OF HEMOLYTIC ANEMIA

A) CONGENITAL

1) MEMBRANE DEFECTS
   a) Hereditary spherocytosis
   b) Hereditary elliptocytosis
   c) Hereditary spherocytosis

2) ENZYME DEFECTS
   a) Glucose 6-phosphate dehydrogenase deficiency
   b) 6-phosphogluconate dehydrogenase deficiency
   c) Pyruvate kinase deficiency

3) ABNORMALITIES IN HEME METABOLISM
   a) Erythropoietic porphyria

4) ABNORMALITIES IN GLOBIN METABOLISM
   a) Sickle cell disease
   b) Hemoglobin SC disease
   c) Sickle thalassemia
   d) Hereditary persistance of fetal hemoglobin
   e) Hemoglobin with increased oxygen affinity
   f) Hemoglobin with decreased oxygen affinity
   g) Unstable hemoglobins eg Hb Zurich
   h) Thalassemias

B) ACQUIRED HEMOLYTIC ANEMIAS

1) INTRINSIC DEFECTS
   a) Paroxysmal nocturnal hemoglobinuria

2) EXTRINSIC DEFECTS
   a) Mechanical hemolysis
      Cardiac hemolysis
      Exertional hemolysis
      Microangiopathic hemolytic anemia
      Thrombotic thrombocytopenic purpura

b) Chemical agents
Arsenic
Lead
Distilled water
Snake venom

c) Infection
Malaria
Bartonellosis
Clostridium welchii
Hemolytic streptococcus
Staphylococcus
Salmonella

d) Associated with antibodies
Transfusion reactions
Hemolytic disease of newborn
Viral infections
Tuberculosis
Lymphomas
Leukemias
Teratoma
Sarcoidosis
Systemic lupus erythematosus
Idiopathic autoimmune hemolytic anemia
Paroxysmal cold hemoglobinuria
Drug induced: quinine
quinidine
penicillin
methyldopa
cephalothin

e) Miscellaneous
Hypersplenism
Liver disease
Renal failure

CAUSES OF ACUTE HEMOLYSIS ON EXPOSURE TO COLD

A) INFECTIONS
1) Mumps
2) Measles
3) Influenza
4) Chicken-pox
5) Infectious mononucleosis

6) Mycoplasma pneumoniae
7) Syphilis

B) MALIGNANCIES
1) Lymphoma
2) Leukemia

C) COLLAGEN VASCULAR DISORDERS
1) Systemic lupus erythematosus

D) IDIOPATHIC

CAUSES OF SIDEROBLASTS IN THE BLOOD

A) DRUGS
INH
Pyrizinamide
Chloramphenicol
B) TOXINS
Alcohol
Lead
C) SIDEROBLASTIC ANEMIA
D) PRE-LEUKEMIA
E) ACUTE LEUKEMIA evolving after treatment of another neoplastic disorder

---

SIDEROBLASTIC ANEMIA

A) CONGENITAL
B) ACQUIRED
Primary or idiopathic
Secondary to:
1) Alcohol
2) Lead
3) Anti-tuberculous drugs
4) Myeloproliferative disorders
5) Hemolytic anemia
6) Megaloblastic anemia
7) Rheumatoid arthritis
8) Carcinoma

CAUSES OF PURE RED CELL APLASIA

1) Thymomas
2) Collagen vascular disorders
    a) Systemic lupus erythematosus
    b) Rheumatoid arthritis
3) Drugs
    a) Azathioprine
    b) Phenytoin
    c) Sulfonamides
    d) Halothane

CAUSES OF POLYCYTHEMIA OR HEMATOCRIT ABOVE 50%

A) RELATIVE POLYCYTHEMIA
(with normal red blood cell mass)
    1) Dehydration
    2) Stress erythrocytosis (Gaisbock's syndrome)

B) ABSOLUTE POLYCYTHEMIA
(with increased red blood cell mass)
2 types
    a) SECONDARY POLYCYTHEMIA OR ERYTHROCYTOSIS
    Occurs in response to some known stimulus
        1) High altitude
        2) Massive obesity
        3) Smoking
        4) Cyanotic congenital heart disease
        5) Chronic obstructive pulmonary disease
        6) Pulmonary AV fistula
        7) Cavernous hemangioma lung
        8) Methemoglobinemia
        9) Sulphemoglobinemia
        10) Cushings syndrome
        11) Renal tumors
        12) Cerebellar hemangioblastoma
        13) Uterine myoma
        14) Hepatic carcinoma
        15) Polycystic kidneys
        16) Hydronephrosis
        17) Post-renal transplantation

b) PRIMARY POLYCYTHEMIA OR ERYTHREMIA
Occurs in absence of any stimulus
1) Polycythemia rubra vera

CAUSES OF NEUTROPENIA

Less than 1800 cells/cu mm.

A) PHYSICAL AGENTS
- Ionising radiation
- Dialysis

B) DRUGS
- Cytotoxic drugs
- Aminopyrine
- Chloramphenicol
- Anti-convulsants
- Anti-thyroid drugs
- Non-steroidal anti-inflammatory agents
- Phenothiazines
- Sulfonamides
- Thiazide diuretics
- Oral hypoglycemics

C) INFECTIONS
- Viral infections eg
  - influenza
  - infectious hepatitis
  - rubeola
- Typhoid fever
- Brucellosis
- Malaria
- Overwhelming sepsis

D) NEOPLASIA
- Leukemia
- Marrow infiltration

E) ASSOCIATED WITH ANTIBODIES
- Systemic lupus erythematosus
- Rheumatoid arthritis
- Chronic lymphatic leukemia
- Lymphoma
- Idiopathic autoimmune neutropenia

F) MISCELLANEOUS
- Folic acid deficiency
- B-12 deficiency
- Hypersplenism
- Chronic hypoplastic neutropenia
  - Congenital
  - Cyclic neutropenia

CAUSES OF NEUTROPHILIA

A) INFECTIONS
- Bacterial
- Fungal
- Parasitic

B) NEOPLASMS
- Lymphoma
- Leukemia
- Metastatic carcinoma

C) METABOLIC DISORDERS
- Uremia
- Diabetic ketoacidosis
- Gout
- Eclampsia

D) CELL NECROSIS
- Acute myocardial infarction
- Acute renal infarction
- Acute intestinal infarction
- Hepatocellular necrosis
- Acute hemolytic anemia

E) DRUGS
- Corticosteroids

F) MISCELLANEOUS
- Stress

CAUSES OF LEUKEMOID REACTION

A) MYELOID LEUKEMIC REACTION

1) Infections
   - Pneumonia
   - Septicemia
   - Miliary tuberculosis
2) Leuko-erythroblastic anemia due to:
   - Secondary deposits
   - Myelofibrosis
3) Acute hemolysis

B) LYMPHATIC LEUKEMOID REACTION

1) Infectious mononucleosis
2) Acute infectious lymphocytosis
3) Pertussis
4) Tuberculosis
5) Carcinoma

CAUSES OF HIGH LEUCOCYTE ALKALINE PHOSPHATASE SCORE

1) Pyogenic infections
2) Myocardial infarction
3) Trauma
4) Diabetic ketoacidosis
5) Polycythemia rubra vera
6) Hodgkin's disease
7) Acute lymphoblastic leukemia
8) Monocytic leukemia

CAUSES OF EOSINOPHILIA

A) ALLERGIC OR HYPERSENSITIVITY DISEASES

1) Asthma
2) Seasonal rhinitis
3) Pulmonary aspergillosis
4) Drug reactions
5) Atopic dermatitis

B) PARASITIC DISEASES
1) Strongyloidosis
2) Ascariasis
3) Trichinosis
4) Schistosomiasis
5) Filariasis
6) Toxocara

C) CONNECTIVE TISSUE DISEASES
1) Rheumatoid arthritis
2) Systemic lupus erythematosus
3) Scleroderma
4) Polyarteritis nodosa
5) Eosinophilic fasciitis

D) NEOPLASTIC DISEASES
1) Lymphomas
2) Leukemias
3) Metastatic carcinoma

CAUSES OF MONOCYTOSIS

1) Infectious mononucleosis
2) Typhoid fever
3) Brucellosis
4) Rickettsial infections
5) Malaria
6) Visceral leishmaniasis (kala azar)
7) Lymphoma
8) Monocytic leukemia

CAUSES OF LYMPHOCYTOSIS

A) INFECTIONS
1) Infectious mononucleosis
2) Infective hepatitis
3) Influenza
4) Other viral infections
5) Pertussis
6) Brucellosis

7) Tuberculosis
8) Toxoplasmosis
9) Convalescence from acute infections

B) NEOPLASMS
1) Lymphatic leukemia
2) Carcinoma
3) Myeloma

C) ENDOCRINE DISORDERS
1) Myasthenia gravis
2) Hypopituitarism
3) Thyrotoxicosis

CAUSES OF LEUCOERYTHROBLASTIC BLOOD PICTURE (immature red and white blood cells in the blood film)

1) Malignant deposits in bone
   a) Carcinoma thyroid
   b) Carcinoma breast
   c) Carcinoma bronchus
   d) Carcinoma pancreas
   e) Carcinoma prostate
2) Myelofibrosis
3) Chronic myeloid leukemia
4) Polycythemia vera
5) Multiple myeloma
6) Miliary tuberculosis
7) Lymphoma
8) Paget's disease
9) Thalassemia major
10) Osteopetrosis
11) Severe hypoxia

CAUSES OF MOUTH ULCERS IN A LEUKEMIC PATIENT

1) Cytotoxic chemotherapy causing granulocytopenia
2) Fungal infection
3) Herpes simplex
4) Leukemic infiltration

CAUSES OF THROMBOCYTOPENIA

A) DRUGS
- Thiazides
- Alcohol
- Estrogens
- Quinine
- Quinidine
- Heparin

B) SYSTEMIC LUPUS ERYTHEMATOSUS

C) NUTRITIONAL
- B-12 deficiency
- Folic acid deficiency
- Iron deficiency

D) INFECTION
- Viral
- Bacterial

E) DISSEMINATED INTRAVASCULAR COAGULATION

F) APLASTIC ANEMIA
- Primary
- Secondary to infiltration
  - radiation
  - cytotoxic drugs

G) HEMOLYTIC UREMIC SYNDROME

H) POST-TRANSFUSION

I) IDIOPATHIC THROMBOCYTOPENIC PURPURA

J) HYPERSPLENISM

CAUSES OF THROMBOCYTHEMIA

A) MYELOPROLIFERATIVE DISORDERS
- Chronic granulocytic leukemia
- Polycythemia rubra vera
- Megakaryocytic leukemia

B) INFECTIONS
- Acute
- Chronic

C) MALIGNANT DISEASES

D) FOLLOWING SPLENECTOMY

CAUSES OF MARROW PLASMACYTOSIS
(Greater than 5% plasma cells)

1) Serum sickness
2) Chronic granulomatous infections
3) Tumor metastasis to marrow
4) Benign monoclonal gammopathy
5) Multiple myeloma

CAUSES OF CRYOGLOBULINEMIA
(Presence of cold antibodies or cryoglobulins which precipitate on exposure to cold)

1) Multiple myeloma
2) Waldenstrom's macroglobulinemia
3) Chronic lymphatic leukemia
4) Rheumatoid arthritis
5) Chronic infections
6) Cirrhosis of the liver
7) Essential cryoglobulinemia

CAUSES OF LOW PROTHROMBIN LEVEL

A) DEFECTIVE SYNTHESIS OF VITAMIN K BY INTESTINAL BACTERIA
   a) In neonates
   b) Following antibiotic therapy
B) BILE DUCT OBSTRUCTION
C) LIVER DISEASE
D) RENAL FAILURE
E) DRUG INDUCED eg salicylates
F) DIETARY DEFICIENCY OF VIT. K (Very rare)

CAUSES OF PROLONGED PARTIAL THROMBOPLASTIN TIME (PTT)

1) Heparin
2) Coumadin drugs

3) Acquired inhibitor to clotting factors
4) Hemophilia
5) Christmas disease

CAUSES OF DISSEMINATED INTRAVASCULAR COAGULATION (DIC)

A) ACUTE

1) Obstetric accidents
   - Abruptio placentae
   - Amniotic fluid embolism
2) Cardiac surgery
3) Lung surgery
4) Hemolytic transfusion reaction
5) Septicemia
6) Pulmonary embolism
7) Snake bites
8) Anaphylaxis
9) Diabetic ketoacidosis

B) CHRONIC

1) Disseminated carcinoma
   - Pancreas
   - Stomach
   - Breast
2) Acute leukemia
3) Intrauterine fetal death

CAUSES OF CIRCULATING INHIBITORS OF COAGULATION

1) Systemic lupus erythematosus
2) Lymphoma
3) Carcinoma
4) Treated hemophiliacs (anti-factor 8)

CAUSES OF LOW SERUM ALBUMIN

1) Cirrhosis of liver
2) Nephrotic syndrome

3) Protein-losing nephropathy
4) Hemodilution

CAUSES OF SPONTANEOUS RUPTURE OF SPLEEN

1) Malaria
2) Infectious mononucleosis
3) Congestive splenomegaly
4) Chronic lymphatic leukemia
5) Sarcoidosis
6) Congenital spherocytic anemia

CAUSES OF GENERALISED LYMPHADENOPATHY

A) INFECTIONS

Infectious mononucleosis
Cytomegalovirus infection
Infectious hepatitis
Tuberculosis
Rubella
Secondary syphilis
Toxoplasmosis
Brucellosis
Lymphogranuloma venereum
Histoplasmosis
Coccidiodomycosis
Malaria
Herpes simplex infection

B) NEOPLASMS

Lymphoma
Acute leukemia
Chronic lymphocytic leukemia
Disseminated carcinoma

C) MISCELLANEOUS

Sarcoidosis
Serum sickness
Systemic lupus erythematosus
Rheumatoid arthritis
Drug induced: Phenytoin
Anti-thyroid drugs

Immunoblastic lymphadenopathy
Dermatopathic lymphadenitis
Hyperthyroidism
Addison's disease

CAUSES OF CERVICAL LYMPHADENOPATHY

A) INFECTIONS
- Infective mononucleosis
- Cytomegalovirus infection
- Tuberculosis
- Toxoplasmosis
- Coccidiodomycosis
- Infection anywhere in the pharynx

B) NEOPLASMS
- Lymphoma
- Leukemia
- Chronic lymphocytic leukemia
- Carcinoma pharynx
- Carcinoma tongue
- Carcinoma tongue
- Carcinoma thyroid
- Carcinoma esophagus

CAUSES OF UNILATERAL ANTERIOR AURICULAR LYMPHADENOPATHY

1) Conjunctivitis
2) Blepharitis
3) Tularemia
4) Tuberculosis
5) Cat scratch fever
6) Syphilis
7) Dental infections

CAUSES OF SUPRACLAVICULAR LYMPHADENOPATHY

1) Carcinoma lung

2) Carcinoma esophagus
3) Carcinoma stomach
4) Carcinoma ovary
5) Carcinoma testis
6) Carcinoma kidney

CAUSES OF INGUINAL LYMPHADENOPATHY

1) Syphilis
2) Chancroid
3) Lymphogranuloma venereum
4) Carcinoma penis and scrotum
5) Carcinoma vulva
6) Carcinoma anal canal
7) Carcinoma prostate

ACUTE GENERALISED LYMPHADENOPATHY WITH FEVER IN A YOUNG PERSON

1) Infectious mononucleosis
2) Brucellosis
3) Viral hepatitis
4) Cytomegalovirus infection
5) Toxoplasmosis

COMPLICATIONS OF LYMPHOMAS

1) COMPRESSION OF SURROUNDING STRUCTURES
2) DIRECT INFILTRATION
3) HEPATIC INVOLVEMENT
   - Infiltration of liver
   - Hematogenous spread
   - Obstruction of bile duct by portal nodes
4) CNS INVOLVEMENT
   - Direct extension
   - Spinal cord compression
   - Meningitis: lymphomatous
     - bacterial
     - herpes zoster

Progressive multifocal leukoencephalopathy
Subacute cerebellar degeneration
Myelopathy
Neuropathy

5) PULMONARY COMPLICATIONS
Infiltration from mediastinum
Hematogenous spread
Pleural effusion
Pneumonia
Tuberculosis
Drug induced reactions due to:
Bleomycin
Methotrexate

6) SKIN INVOLVEMENT
Excoriations due to pruritis
Urticaria
Erythema multiforme
Erythema nodosum
Exfoliative dermatitis
Dermatomyositis

7) ANEMIA due to:
Bone marrow suppression because of:
Infiltration by tumor
Radiotherapy
Chemotherapy
Iron malabsorption
Folate malabsorption
Chronic illness
Blood loss because of:
Gastrointestinal ulceration
Gastrointestinal infiltration
Hemolytic anemia

8) LEUKOPENIA due to:
Bone marrow suppression
Hypersplenism

9) LEUKEMIA

10) THROMBOCYTOPENIA due to:
Bone marrow suppression
Hypersplenism

11) THROMBOCYTOSIS following splenectomy

12) HYPERURICEMIA

13) HYPERCALCEMIA due to:
Bone destruction
Release of PTH like substances

14) SERUM PROTEIN ABNORMALITIES
- Increase of alpha and beta fractions
- Paraproteinemia
- Hypogammaglobulinemia

15) DECREASED GONADAL FUNCTION
- Chemotherapy
- Radiotherapy

16) SECOND MALIGNANCIES
- Chemotherapy
- Radiotherapy

SECTION 7

DISORDERS OF THE ENDOCRINE SYSTEM AND METABOLISM

CAUSES OF SHORT STATURE

A) WITH NORMAL APPEARANCE

1) Emotional deprivation
2) Malabsorption syndrome
3) Chronic renal failure
4) Diabetes mellitus
5) Congenital heart disease
6) Untreated asthma
7) Hypopituitarism
8) Hypothyroidism
9) Cushing's syndrome
10) Turner's syndrome

B) WITH DISTINGUISHING FEATURES

1) Achondroplasia
2) Low birth weight syndrome

CAUSES OF HYPOPITUITARISM

A) CONGENITAL CAUSES

1) Idiopathic growth hormone deficiency
2) Idiopathic corticotrophin deficiency
3) Idiopathic thyrotropin deficiency
4) Idiopathic gonadotrophin defi iency
5) Multiple hormone deficiencies

B) TRAUMATIC CAUSES

1) Head trauma
2) Surgery
3) Radiation

C) INFECTION

1) Bacterial meningitis
2) Tuberculous meningitis
3) Fungal meningitis
4) Sarcoidosis
5) Wegener's granulomatosis

D) NEOPLASTIC CAUSES

PRIMARY

1) Pituitary adenomas
2) Craniopharyngiomas
3) Meningioma
4) Hamartoma
5) Teratoma
6) Ectopic pinealoma
7) Glioma
8) Chordoma

METASTIC

1) Breast
2) Thyroid
3) Leukemia
4) Lymphoma

E) VASCULAR DISORDERS

1) Pituitary apoplexy
2) Postpartum pituitary necrosis
3) Aneurysm of internal carotid
4) Vasculitis eg SLE

F) MISCELLANEOUS

1) Histiocytosis X
2) Hemochromatosis
3) Emotional deprivation
4) Tay Sach's disease

CAUSES OF INCREASED GROWTH HORMONE SECRETION

A) PHYSIOLOGICAL

Exercise

B) PATHOLOGICAL

Cirrhosis of the liver
Renal failure
Diabetes mellitus
Drugs: L-dopa
Dopamine
Arginine

CAUSES OF RAISED PROLACTIN

A) PHYSIOLOGICAL
- Pregnancy
- Stress
- Strenuous exercise
- Surgery of pituitary and hypothalamus
- Sexual intercourse
- Nipple or breast stimulation

B) PATHOLOGICAL
- Hypothyroidism
- Renal failure
- Drugs: Phenothiazines
  - Haloperidol
  - Morphine
  - Enkephalins
  - Methyldopa
  - Metoclopromide
  - Imipramine
- Pituitary tumors
- Non-endocrine tumors
- Chest trauma
- Pulmonary infections
- Stopping oral contraceptives
- Tuberculosis
- Syphilis
- Sarcoidosis
- Herpes zoster
- Idiopathic

CAUSES OF INAPPROPRIATE SECRETION OF ANTI-DIURETIC HORMONE

A) CNS DISORDERS
- Skull fracture and craniotomy
- Subdural hematoma
- Subarachnoid hemorrhage
- Cerebrovascular thrombosis
- Cerebral atrophy
- Acute encephalitis
- Tuberculous meningitis
- Purulent meningitis

Guillain-Barre syndrome
Lupus erythematosus
Physical or emotional stress
Pain

B) PULMONARY DISORDERS
Oat cell carcinoma
Tuberculosis
Lung abscess
Pneumonia
Chest trauma
Lymphomas
Positive pressure ventilation

C) ABDOMINAL DISORDERS
Carcinoma pancreas
Carcinoma duodenum

E) ENDOCRINE AND METABOLIC CAUSES
Hypothyroidism
Thymoma
Acute intermittent porphyria

F) DRUGS
Thiazides
Oxytocin
General anesthesia
Narcotics
Barbiturates
Tricyclic anti-depressants
Carbamazepine
Cyclophosphamide
Vincristine
Chlorpropamide

CAUSES OF PAINFUL OR TENDER THYROID GLAND

1) Subacute thyroiditis
2) Bleeding into a neoplasm
3) Rapidly growing neoplasm
4) Pyogenic thyroiditis
5) Rarely Hashimoto's thyroiditis

CAUSES OF LOW THYROID BINDING GLOBULIN (TBG)

A) HYPOPROTEINEMIA
- a) Starvation
- b) Nephrotic syndrome
- c) Protein losing enteropathy

B) CONGENITAL
C) ACROMEGALY
D) DRUGS: Androgens
Danazol
Steroids
Asparaginase

CAUSES OF ELEVATED THYROID BINDING GLOBULIN (TBG)

A) CONGENITAL
2) PREGNANCY
3) NEW BORN
4) LIVER DISEASE
5) PORPHYRIA
6) DRUGS: Estrogens
Methadone
Heroin
Perphenazine
Clofibrate

CAUSES OF HYPOTHYROIDISM

A) PRIMARY HYPOTHYROIDISM
WITHOUT THYROID ENLARGEMENT
1) Congenital development defect
2) Thyroidectomy
3) Radioactive iodine
4) Irradiation of the neck
5) Idiopathic
WITH THYROID ENLARGEMENT (GOITRE)
1) Iodine deficiency
2) Congenital enzyme defects

3) Drugs: Iodides
Anti-thyroid drugs
PAS
Phenylbutazone
Colchicine
Lithium
Cobalt
4) Chronic thyroiditis (Hashimoto's disease)

B) SECONDARY HYPOTHYROIDISM
1) Pituitary hypothyroidism
2) Hypothalamic hypothyroidism

CAUSES OF HYPERTHYROIDISM

1) Graves' disease
2) Toxic adenoma
3) Toxic multinodular goitre
4) Thyrotoxicosis factitia
5) TSH secreting tumor of pituitary
6) Ectopic thyroid hormone production
a) Struma ovarii
b) Choriocarcinoma testis
c) Hydatidiform mole

CAUSES OF HYPOCALCEMIA

A) VITAMIN D DEFICIENCY
a) Dietary
b) Malabsorption
c) Primary biliary cirrhosis
d) Drugs
1) Phenobarbital
2) Phenytoin
B) HYPOPARATHYROIDISM
a) Following thyroid surgery
b) Primary hypoparathyroidism
C) HYPOMAGNESEMIA
D) CHRONIC RENAL FAILURE
E) HEMODILUTION
F) CARCINOMA PROSTATE (increased osteoblastic activity)

CAUSES OF HYPOCALCEMIA IN INFANTS

A) VITAMIN D DEFICIENCY
- Dietary
- Malabsorption

B) FEEDING WITH UNDILUTED COW'S MILK
C) CHRONIC RENAL FAILURE
D) PRIMARY HYPOPARATHYROIDISM
E) CALCIUM DEFICIENCY
F) HEMODILUTION
G) HYPOMAGNESEMIA
H) HYPERPARATHYROIDISM in mother

CAUSES OF HYPERCALCEMIA

A) COMMON CAUSES
1) Secondary malignancy in bone
   - Carcinoma kidney
   - Carcinoma lung
   - Carcinoma ovary
   - Carcinoma pancreas
   - Carcinoma breast
   - Malignant lymphoma
2) Multiple myeloma
3) Hyperparathyroidism
4) Sarcoidosis
5) Milk-alkali syndrome
6) Vitamin D intoxication
7) Immobilised patient

B) LESS COMMON CAUSES
1) Hyperthyroidism
2) Hypothyroidism
3) Calcium containing medicines
4) Lithium
5) Vitamin A intoxication
6) Pheochromocytoma
7) Hypoadrenalism

C) RARE CAUSES
1) Congenital absence of alkaline phosphatase
2) Tuberculosis (during chemotherapy)
3) Leprosy

4) Berylliosis
5) Recovery phase of acute renal failure
6) Laboratory artefact

CAUSES OF HYPERCALCIURIA

1) Metastatic malignant tumors
2) Hyperparathyroidism
3) Milk-alkali syndrome
4) Vitamin D intoxication
5) Renal tubular acidosis
6) Sarcoidosis

CAUSES OF HYPOPHOSPHATEMIA

A) WITHOUT DEPLETION
1) Respiratory alkalosis
2) Infusions of glucose and insulin

B) WITH DEPLETION
1) Decreased GI absorption due to:
Reduced intake
Phosphate binding antacids eg Aludrox
Malabsorption syndrome
2) Increased urinary losses
Hyperparathyroidism
Fanconi's syndrome
Osmotic diuresis
Vitamin D resistant rickets
3) Miscellaneous
Hemodialysis
Chronic alcoholism
Osteomalacia

CAUSES OF HYPERPHOSPHATEMIA

A) INCREASED INTESTINAL ABSORPTION
Phosphate containing laxatives or enemas
Phosphate salts

B) INCREASED TISSUE RELEASE

Acute rhabdomyolysis due to:

trauma
thermal injury
narcotic overdose

Cytotoxic agents

C) DECREASED URINARY EXCRETION

Renal insufficiency
Increased production of growth hormone

CAUSES OF TETANY

1) Hypocalcemia
2) Hypomagnesemia
3) Alkalosis

CAUSES OF SOFT TISSUE CALCIFICATION

1) Tuberculosis
2) Cysticerosis
3) Hematoma
4) Leg ulcers
5) Scleroderma and dermatomyositis
6) Hypercalcemia
7) Hypoparathyroidism (intracranial calcification)
8) Myositis ossificans
9) Calcinosis universalis

CAUSES OF LOCALISED INCREASE IN BONE DENSITY

A) Secondary malignancy from

Carcinoma prostate
Carcinoma breast
Lymphoma

B) Avascular area of bone

Infarction eg sickle cell disease
Healed fracture

CAUSES OF GENERALISED INCREASE IN BONE DENSITY

1) Paget's disease
2) Secondary malignancy from
   - Carcinoma prostate
   - Carcinoma breast
   - Lymphoma
3) Myelofibrosis
4) Fluorosis
5) Osteopetrosis or marble bone disease
6) Chronic osteomyelitis
7) Lymphoma
8) Leukemia
9) Urticaria pigmentosa
10) Tuberous sclerosis
11) Vitamin D intoxication
12) Idiopathic hypercalcemia
13) Phosphorus intoxication
14) Heavy metal intoxication
15) Renal osteodystrophy
16) Healed brown tumors of hyperparathyroidism
17) Hypoparathyroidism
18) Leprosy
19) Gaucher's disease

CAUSES OF LOCALISED DECREASE OF BONE DENSITY

1) Rheumatoid arthritis
2) Secondary malignancy from
   - Thyroid
   - Bronchus
   - Breast
   - Kidney
3) Lymphoma
4) Leukemia
5) Simple bone cysts
6) Sarcoidosis
7) Histiocytosis X
8) Bone tumors

CAUSES OF GENERALISED DECREASE IN BONE DENSITY (OSTEOPOROSIS)

A) IDIOPATHIC OSTEOPOROSIS

B) SECONDARY OSTEOPOROSIS

a) Endocrine disorders
   1) Cushing's disease
   2) Hyperthyroidism
   3) Hyperparathyroidism
   4) Acromegaly
   5) Diabetes mellitus
   6) Hypogonadism

b) Drugs
   1) Steroids
   2) Alcohol
   3) Heparin
   4) Anti-convulsants

c) Miscellaneous
   1) Immobilisation
   2) Protein malnutrition
   3) Scurvy
   4) Rheumatoid arthritis
   5) Chronic liver disease

CAUSES OF RENAL CALCULI

A) CAUSES ACCORDING TO STONE TYPE

a) CALCIUM OXALATE AND MIXED CALCIUM OXALATE-CALCIUM PHOSPHATE STONES
   1) Hypercalciuria due to
      Primary hyperparathyroidism
      Vitamin D excess
      Immobilisation
      Malignant tumors
      Idiopathic hypercalciuria
   2) Hyperuricosuria
   3) Hyperoxaluria
   4) Idiopathic calcium lithiasis

b) PURE CALCIUM PHOSPHATE STONES
   1) Distal renal tubular acidosis

2) Acetozolamide
3) Chronic alkali ingestion
4) Primary hyperparathyroidism
5) Sarcoidosis
6) Vitamin D intoxication

c) PURE URIC ACID CALCULI
1) Primary gout
2) Inborn errors of metabolism
Lesch-Nyhan syndrome
Phosphoribosyl pyrophosphate overactivity
3) Secondary gout
Leukemia
Other malignancies
4) Uricosuric drugs
Probenecid
Salicylates
X-ray contrast agents
5) Inflammatory bowel disease
6) Idiopathic uric acid lithiasis

d) CYSTINE STONES
1) Cystinuria

e) STRUVITE STONES
1) Chronic urinary tract infection with urea splitting organisms
2) Impaired urinary drainage

f) XANTHINE CALCULI
1) Allopurinol
2) Xanthinuria

CAUSES ACCORDING TO FREQUENCY

1) Idiopathic hypercalciuria
2) Hyperuricosuria
3) Gout
4) Chronic urinary tract infections
5) Impaired urinary drainage
6) Inflammatory bowel disease
7) Primary hyperparathyroidism
8) Vitamin D intoxication
9) Immobilisation

10) Sarcoidosis
11) Hyperoxaluria
12) Acetozolamide
13) Chronic alkali ingestion
14) Lesch-Nyhan syndrome
15) Allopurinol
16) Cystinuria
17) Xanthinuria
18) Idiopathic calcium lithiasis
19) Distal renal tubular acidosis

DIFFERENCES BETWEEN HYPOGLYCEMIC COMA AND DIABETIC COMA

HYPOCLYCEMIC COMA	DIABETIC COMA
1) There is a history of having taken no food, or too much insulin or some unaccustomed exercise.	There is a history of having taken too little or no insulin, or infection or a digestive disturbance.
2) The patient is in good health immediately before the onset of the coma.	The patient is not well for several days before onset of coma.
3) The patient complains of being weak and empty, of hunger, sweating, palpitations, tremor, faintness, dizziness, headache, diplopia, and mental confusion, which passes on to lassitude, somnolence, muscular twitchings, deepening coma and convulsions.	The patient complains initially of thirst, polyuria, constipation, muscle cramps, and altered vision which progresses to weakness, drowsiness, and finally coma.
4) On examination, the skin and tongue are moist, the pulse is full, the blood pressure is normal or raised, the intraocular tension is normal and breathing is normal, the reflexes are brisk and planter responses are extensor.	The skin and tongue are dry, the pulse is weak, the BP is low, the intraocular tension is reduced, the breathing is labored (air hunger), the reflexes are diminished and the planter responses are usually flexor.
5) Examination of the urine shows no ketonuria or glycosuria.	Ketones (i.e. acetone, betahydroxybutyric acid and acetoacetic acid) are present in addition to glucose.

6) The blood glucose is low (below 80 mg%) and the plasma bicarbonate is normal.	The blood glucose is high and the bicarbonate is reduced.

CAUSES OF HYPOGLYCEMIA

A) REACTIVE HYPOGLYCEMIA
(i.e. occurring after meals)
1) Early diabetes mellitus
2) Post-gastrectomy syndrome
3) Hereditary fructose intolerance
4) Galactosemia
5) Leucine sensitivity
6) Idiopathic reactive hypoglycemia

B) FASTING HYPOGLYCEMIA
a) DUE TO UNDER-PRODUCTION OF GLUCOSE
1) Glucose-6-phosphate deficiency
2) Hypopituitarism
3) Addisons disease
4) Severe malnutrition
5) Muscle wasting
6) Chronic renal failure
7) Late pregnancy
8) Hepatic congestion
9) Severe hepatitis
10) Hepatoma
11) Cirrhosis of the liver
12) Drugs (eg alcohol, propranolol, salicylates)

b) DUE TO OVER-UTILISATION OF GLUCOSE
1) Insulinoma
2) Exogenous insulin
3) Oral hypoglycemics
4) Tumors (eg fibromas, sarcomas, hepatoma)

CAUSES OF HYPOGLYCEMIA IN INFANTS

1) Glycogen storage disease
2) Glucose-6-phosphate deficiency
3) Galactosemia

4) Leucine hypersensitivity
5) Hereditary fructose intolerance
6) Insulinomas
7) Babies of diabetic mothers
8) Idiopathic hypoglycemia

CAUSES OF HYPERGLYCEMIA

A) PRIMARY DIABETES MELLITUS
- 1) Juvenile-onset type
- 2) Adult or maturity-onset type
- 3) Maturity-onset diabetes of the young (MODY)

B) SECONDARY DIABETES
- 1) PANCREATIC DIABETES
  - a) Pancreatectomy
  - b) Pancreatitis
  - c) Hemochromatosis
  - d) Carcinoma of the pancrease
- 2) INSULIN ANTAGONISTS
  - a) Acromegaly
  - b) Cushing's syndrome
  - c) Pheochromocytoma
  - d) Hyperthyroidism
  - e) Gestational diabetes (during pregnancy)
- 3) DRUG-INDUCED
  - a) Corticosteroids
  - b) Thiazide diuretics (eg chlorothiazide)
- 4) LIVER DISEASE
  - a) Cirrhosis
  - b) Hepatitis

CAUSES OF HYPOGLYCEMIA WITH HYPONATREMIA

1) Addison's disease
2) Advanced liver failure
3) Treating hyperglycemia with too much insulin or too little normal saline
4) Oat cell tumor of the bronchus producing ADH and insulin

CAUSES OF ELEVATED GLUCAGON LEVELS

1) Glucogonoma
2) Renal failure
3) Hepatic failure
4) Shock and trauma
5) Burns
6) Intestinal by-pass
7) Celiac disease

CAUSES OF ADRENAL INSUFFICIENCY

A) ACUTE ADRENAL INSUFFICIENCY (ADRENAL CRISIS)

1) Rapid withdrawal of steroids
2) Acute-on-chronic adrenal insufficiency
3) Septicemia: Meningococcemia
   Pneumococcemia
   Staphylococcemia
   H. Influenzae infection
4) Acute bilateral adrenal hemorrhage
   Trauma
   Surgery
   Septicemia with disseminated coagulation
   Pregnancy
   Seizures
   Idiopathic adrenal vein thrombosis
   Following adrenal venography
5) Drugs eg O.P'DDD
6) Congenital adrenal hyperplasia

B) CHRONIC ADRENAL INSUFFICIENCY (ADDISON'S DISEASE)

1) PRIMARY ADRENAL INSUFFICIENCY
   Congenital adrenal hyperplasia
   Surgical removal
   Drugs eg metyrapone
   O.P'DDD
   Tuberculosis
   Histoplasmosis
   Coccidiodomycosis
   Cryptococcosis
   Bilateral tumor metastases
   Adrenal hemorrhage
   Amyloidosis

Sarcoidosis
Idiopathic or autoimmune adrenalitis

2) SECONDARY ADRENAL INSUFFICIENCY
Hypopituitarism
Corticosteroid use

CAUSES OF HYPERADRENOCORTICISM (CUSHING'S SYNDROME)

A) BILATERAL ADRENAL HYPERPLASIA
Secondary to pituitary ACTH production
Secondary to ACTH producing tumors eg
Bronchogenic carcinoma
Thymoma
Pancreatic carcinoma
Bronchial adenoma
B) ADRENAL NODULAR HYPERPLASIA
C) ADRENAL NEOPLASIA
Adenoma
Carcinoma
D) IATROGENIC
Corticosteroids
ACTH use

CAUSES OF RAISED URINARY VANILLYL MANDELIC ACID (VMA)

1) Pheochromocytoma
2) Drug induced
Methyldopa
Guanethidine
Reserpine
Phenothiazines
3) After clonidine withdrawal
4) Foods
Bananas
Ice cream
Tea
Coffee
Chocolate
Vanilla

CAUSES OF A LOW SERUM SODIUM LEVEL

1) True hyponatremia
2) Infusing IV dextrose or dextrose saline
3) Inappropriate ADH secretion
4) False low level due to:
   - Severe hyperlipidemia
   - Hyperproteinemia
   - Hyperglycemia
5) Treating water and salt depletion with dextrose water
6) IDIOPATHIC in elderly people

CAUSES OF HYPOKALEMIA

A) DEFICIENT INTAKE
   1) Starvation
   2) Malnutrition

B) EXCESSIVE LOSS
   1) LOSS VIA GIT
      - Vomiting
      - Gastrointestinal suction
      - Intestinal fistula
      - Biliary fistula
      - Paralytic ileus
      - Diarrhea
      - Uterosigmoidostomy
      - Abuse of laxatives
      - Polyposis coli

   2) LOSS VIA KIDNEY
      - Post-traumatic
      - Diabetic ketoacidosis
      - Drug induced: Diuretics
        - ACTH
        - Steroids
        - Carbenoxolone
      - Hypoxia
      - Acidosis and alkalosis
      - Primary aldosteronism
      - Secondary aldosteronism
      - Cushing's syndrome
      - Ectopic ACTH production

Diuretic phase of acute renal failure
Renal tubular acidosis
Chronic pyelonephritis
Hypercalcemia
Fanconi syndrome
Obstructive nephropathy
Licorice ingestion

3) SHIFT OF POTASSIUM INTO CELLS
Hypokalemic periodic paralysis
Insulin effect
Alkalosis

CAUSES OF HYPOKALEMIA WITH ACIDOSIS

1) Diarrhea
2) Diabetic ketoacidosis after insulin treatment
3) Renal tubular acidosis
4) Uretero-sigmoidostomy
5) Forced alkaline diuresis
6) Acetozolamide

CAUSES OF HYPOKALEMIA WITH ALKALOSIS

A) DRUGS: Diuretics
Steroids
Carbenoxolone sodium

B) ENDOCRINE CAUSES
Cushing's disease
Primary aldosteronism
Secondary aldosteronism due to:
CHF
Nephrotic syndrome
Cirrhosis of the liver
Malignant hypertension

C) VOMITING

D) VILLOUS ADENOMA OF COLON

CAUSES OF HYPERKALEMIA

A) EXCESSIVE INTAKE

B) INADEQUATE EXCRETION
1) Acute renal failure
2) Chronic renal failure
3) Hypoaldosteronism
4) Addison's disease
5) Drugs: Spironolactone
Triamterene
Amiloride

C) SHIFT OF POTASSIUM FROM TISSUE CELLS
1) Crush injuries
2) Hemolysis
3) Internal bleeding
4) Drugs: Succinylcholine
Digitalis poisoning
5) Acidosis
6) Hyperkalemic periodic paralysis

CAUSES OF HYPERKALEMIA WITH ACIDOSIS

1) Renal failure
2) Respiratory failure
3) Fresh water drowning

CAUSES OF ALL BLOOD ELECTROLYTES BEING LOW

1) Lab error
2) Taking blood from a vein with dextrose infusion
3) Inappropriate ADH secretion
4) Hyperlipidemia
5) Hyperproteinemia

CAUSES OF HIRSUTISM

A) HIRSUTISM WITH VIRILISATION
a) Excess adrenal androgens due to
Adrenal carcinoma
Adrenal hyperplasia

Adrenal adenoma
Adult onset congenital adrenal hyperplasia

b) Excess ovarian androgens
Arrhenoblastoma
Adrenal rest tumor
Granulosa cell tumor
Hilar cell tumor
Brenner tumor

c) Iatrogenic androgens

B) HIRSUTISM WITHOUT VIRILISATION

a) Polycystic ovaries (Stein-Leventhal syndrome)
b) Mild form of congenital adrenal hyperplasia
c) Racial (Indian, Mediterranean)
d) Familial
e) Idiopathic
f) Drug induced
Methyltestosterone
Anabolic steroids
Phenytoin
Minoxidil
g) Anorexia nervosa
h) Post-menopausal women

CAUSES OF MALE IMPOTENCE

A) PSYCHOLOGIC in 90% cases
B) ORGANIC in 10% cases

1) Affections of the nervous system
Temporal lobe lesions
Spinal cord lesions eg
trauma
tumor
Pudendal nerve lesions eg
tabes dorsalis
Lesions of nervi erigentes eg
diabetic autonomic neuropathy
radical pelvic surgery
Thoraco-lumbar sympathetic nerve lesions
Diabetes mellitus
Surgery

2) Vascular diseases
Lehriche syndrome

3) Penile lesions
- Trauma
- Burns
- Prolonged priaprism eg
  - sickle cell disease
  - chronic leukemias

4) Endocrine diseases
- Hypopituitarism
- Acromegaly
- Myxedema
- Thyrotoxicosis
- Addison's disease
- Prolactin secreting pituitary adenomas
- Castration

GYNECOMASTIA

A) PHYSIOLOGICAL
- Adolescent males

B) PATHOLOGICAL
- CONGENITAL
  - Klinefelter's syndrome
  - Testicular agenesis
  - Cryptorchidism
  - Dystrophia myotonica
  - Laurence-Moon-Beidl syndrome
- ACQUIRED
  1) DRUGS
     - Amphetamines
     - Phenothiazines
     - Tricyclic anti-depressants
     - Digoxin
     - Spironolactone
     - Reserpine
     - Isoniazid
     - Ethionamide
     - Griseofulvin
     - Cyclophosphamide
     - Estrogens
     - Cimetidine
  2) TRAUMA
     - Orchidectomy
     - Torsion of the testis
     - Testicular irradiation

3) INFECTIONS
- Leprosy
- Mumps
- TB
- Syphilis

4) NEOPLASMS
- Seminoma
- Teratoma
- Chorionepithelioma
- Sertoli cell tumor
- Adreno-cortical tumors
- Bronchogenic carcinoma

5) MISCELLANEOUS
- Chronic lung infections
- Cirrhosis of liver
- Severe malnutrition
- Chronic renal failure
- Hypothyroidism
- Thyrotoxicosis
- Acromegaly
- Paraplegia
- Ulcerative colitis
- Exfoliative dermatitis
- Immobilisation in plastic spica
- Hemochromotosis
- Idiopathic

CAUSES OF GALACTORRHOEA
(Inappropriate secretion of milk)

A) PHYSIOLOGICAL

B) PATHOLOGICAL

1) Trauma to chest wall
2) Drugs: Phenothiazines
   - Haloperidol
   - Tricyclic antidepressants
   - Reserpine
   - Metoclopromide
3) Infections
   - Tuberculosis
   - Syphilis
   - Herpes zoster
   - Pulmonary infections

4) Tumors
   - Prolactin secreting tumors
   - Hypothalamic tumors

5) Miscellaneous
   - Sarcoidosis
   - Hypothyroidism
   - Stress
   - Stopping oral contraceptives
   - Idiopathic

CAUSES OF HYPERLIPIDEMIAS

A) GENETIC HYPERLIPIDEMIAS
   a) Familial hypercholesterolemia
   b) Familial hypertriglyceridemia
   c) Familial combined hyperlipidemia
   d) Familial dysbetalipoproteinemia
   e) Familial lipoprotein lipase deficiency
   f) Familial hyperalphalipoproteinemia

B) SECONDARY HYPERLIPOPROTEINEMIA
   a) Diabetes mellitus
   b) Alcohol consumption
   c) Oral contraceptives
   d) Hypothyroidism
   e) Hypopituitarism
   f) Acromegaly
   g) Anorexia nervosa
   h) Nephrotic syndrome
   i) Multiple myeloma
   j) Obstructive liver disease

THE GENETIC HYPERLIPIDEMIAS

DISORDER	LIPOPROTEIN ELEVATED	ELECTROPHORETIC PATTERN	XANTHOMAS	EARLY ATHEROSCLEROSIS	FREQUENCY
Familial hypercholesterolemia	LDL	2a 2b	Tendon xanthomas	Present	0.1–0.5%
Familial hypertrigylceridemia	VLDL + chylomicrons	4 or 5	Eruptive xanthomas	Possible	1%
Familial combined	VLDL + LDL	2a 2b 4	Nil	Possible	1.5%
Familial dysbetalipoproteinemia	VLDL remnants	3	Planter + palmer + tuberous xanthomas	Present	Rare
Familial lipoprotein lipase deficiency	VLDL + chylomicrons	1	Eruptive xanthomas		Very rare
Familial hyperalphalipoproteinemia	HDL		Nil	Reduced	Rare

VLDL = very low density lipoprotein LDL = low density lipoprotein HDL = high density lipoprotein

CAUSES OF HYPERCHOLESTEROLEMIA

1) Congenital hyperlipidemia
2) Obstructive jaundice
3) Nephrotic syndrome
4) Diabetes mellitus
5) Pregnancy
6) Acute porphyria
7) Myxedema

CAUSES OF ELEVATED URIC ACID LEVEL

A) OVERPRODUCTION OF URIC ACID
- a) With undefined molecular defects
- b) With specific enzyme defects
  - Increased activity of PRPP synthetase
  - HG-PRT deficiency (Lesch-Nyhan syndrome)
- c) Increased turnover of nucleic acids
  - Leukemias
  - Lymphomas
  - Polycythemias
  - Multiple myeloma
  - Hemolytic anemias
  - Infectious mononucleosis
  - Some carcinomas

B) DECREASED EXCRETION OF URIC ACID
- a) Renal disease
  - Renal failure
  - Polycystic disease
  - Lead nephropathy
- b) Drugs
  - Diuretics
  - Low dose heparin
  - Ethambutol
  - Alcohol
- c) Chronic hypovolumia
  - Hypoadrenalism
  - Diabetes insipidus
- d) Ketoacidosis
  - Alcoholic
  - Diabetic
  - Starvation

e) Lactic acidosis
f) Endocrine abnormalities
    Hypoparathyroidism
    Hypothyroidism
    Hyperparathyroidism

THE MULTIPLE ENDOCRINE NEOPLASIA SYNDROMES (MEN SYNDROMES)

MEN TYPE I: (Wermer's syndrome)

The following types of tumors may be seen in this syndrome:

PARATHYROID HYPERPLASIA

PANCREATIC TUMORS eg
- Gastrinoma (Zollinger-Ellison syndrome)
- Insulinoma
- Glucogonoma
- Vasoactive intestinal polypeptide secreting tumor. (Vipoma)

PITUITARY TUMORS eg
- Non-functioning adenomas
- Prolactinomas
- Growth hormone producing tumor
- ACTH producing tumor

(Remember P-P-P)

MEN TYPE II-a

The following types of tumors may be seen:

MEDULLARY CARCINOMA OF THYROID

PHEOCHROMOCYTOMA

HYPERPARATHYROIDISM

MEN TYPE II-b

The following types of tumor may be seen:

MEDULLARY CARCINOMA OF THYROID

PHEOCHROMOCYTOMA

MUCOSAL NEUROMAS

MARFANOID HABITUS

CAUSES OF INAPPROPRIATE SECRETION OF ANTI-DIURETIC HORMONE

A) CNS DISORDERS

Skull fracture and craniotomy

Subdural hematoma
Subarachnoid hemorrhage
Cerebrovascular thrombosis
Cerebral atrophy
Acute encephalitis
Tuberculous meningitis
Purulent meningitis
Guillain-Barre syndrome
Lupus erythematosus
Physical or emotional stress
Pain

B) PULMONARY DISORDERS

Oat cell carcinoma
Tuberculosis
Lung abscess
Pneumonia
Chest trauma
Lymphomas
Positive pressure ventilation

C) ABDOMINAL DISORDERS

Carcinoma pancreas
Carcinoma doudenum

E) ENDOCRINE AND METABOLIC CAUSES

Hypothyroidism
Thymoma
Acute intermittent porphyria

F) DRUGS

Thiazides
Oxytocin
General anesthesia
Narcotics
Barbiturates
Tricyclic anti-depressants
Carbamazepine
Cyclophosphamide
Vincristine
Chlorpropamide

CAUSES OF LACTOSE INTOLERANCE OR LACTASE DEFICIENCY

1) Congenital or hereditary
2) Non-tropical sprue
3) Tropical sprue
4) Regional enteritis
5) Gastroenteritis
6) Giardiasis
7) Abetalipoproteinemia
8) Cystic fibrosis
9) Ulcerative colitis

DRUGS CAUSING EXACERBATION OF PROPHYRIA

1) Barbiturates
2) Chlordiazepoxide
3) Chlorpropamide
4) Estrogens
5) Glutethemide
6) Griseofulvin
7) Meprobamate
8) Oral contraceptives
9) Rifampicin
10) Sulfonamides

FACTORS INCREASING RENIN LEVEL

A) ACUTE ELEVATION

Hemorrhage
Burns
Diarrhoea
Vomiting
Polyuria
Aspiration

B) CHRONIC ELEVATION

Congestive cardiac failure
Cirrhosis of the liver
Nephrotic syndrome

Diuretic therapy
Malignant hypertension
Bartter's syndrome
Tumor of juxta-glomerular apparatus

ASSOCIATIONS OF VITILIGO

1) Pernicious anemia
2) Primary hypothyroidism
3) Primary hypoparathyroidism
4) Diabetes mellitus
5) Addison's disease
6) Primary gonadal failure
7) Alopecia areata

CAUSES OF HEMOCHROMATOSIS

1) Excessive iron ingestion
2) Alcoholism
3) Sideroblastic anemia
4) Thalassemia
5) Porphyria cutanea tarda
6) Idiopathic (autosomal recessive)

SECTION 8

DISORDERS OF THE JOINTS AND CONNECTIVE TISSUE

CAUSES OF ACUTE POLYARTHRITIS

1) Infectious hepatitis
   - Gonococcal
   - Non-specific
2) Serum sickness
3) Acute rheumatic fever
4) Rheumatoid arthritis
5) Systemic lupus erythematosus
6) Gout
7) Pseudogout
8) Psoriatic arthritis
9) Reiter's syndrome
10) Enteropathic arthropathy
11) Palindromic rheumatism
12) Sarcoidosis
13) Viral hepatitis

CAUSES OF POLYMYALGIA RHEUMATICA

1) Giant cell arteritis
2) Rheumatoid arthritis
3) Polymyositis
4) Polyarteritis nodosa
5) Disseminated malignancy
6) Lymphoma
7) Multiple myeloma

CAUSES OF VASCULITIS

1) Periarteritis nodosa
2) Allergic granulomatosis
3) Henoch Schonlein purpura
4) Wegener's granulomatosis
5) Hypersensitivity vasculitis
   a) SLE
   b) Rheumatoid arthritis
   c) Mixed cryoglobulinemia

6) Subacute bacterial endocarditis
7) Drug induced
    a) Penicillins
    b) Sulphonamides
    c) Salicylates
    d) Phenylbutazone
    e) Phenacetin
    f) Propylthiouracil
    g) Busulphan
    h) Iodides
    i) Vaccines
    j) Phenothiazines
8) Giant cell arteritis

CAUSES OF CHONDROCALCINOSIS

1) Primary
2) Secondary
    a) Hyperparathyroidism
    b) Hemochromotosis
    c) Wilson's disease
    d) True urate gout
    e) Acromegaly
    f) Diabetes mellitus
    g) Hypophosphatasia

CAUSES OF RHABDOMYOLYSIS

1) Trauma and crush injuries
2) Heat stroke
3) Severe exercise
4) Seizures
5) Hypokalemia
6) Hypophosphatemia
7) Genetic enzyme deficiencies
8) Muscle compression eg in coma
9) Influenza
10) Alcoholism

CAUSES OF INABILITY TO HOLD HEAD ERECT

1) Myasthenia gravis
2) Amyotrophic lateral sclerosis
3) Fascio-scapulo humeral type of muscular dystrophy
4) Meningioma at foramen magnum

CAUSES OF FACIAL PAIN

1) Trigeminal neuralgia
2) Post-herpetic neuralgia
3) Dental diseases
4) Sinusitis
5) Aneurysm of posterior communicating or internal carotid artery
6) Cranial arteritis
7) Migraine
8) Temporo-mandibular arteritis
9) Myocardial ischemia

CAUSES OF DESTRUCTION OF NASAL BRIDGE

1) Lupus vulgaris
2) Leprosy
3) Wegener's granulomatosis
4) Tertiary syphilis
5) Midline granuloma

CAUSES OF HARRISON'S SULCUS

1) Congenital anomaly
2) Residue of rickets
3) Residue of asthma
4) Residue of chronic chest infections in childhood

CAUSES OF SIMIAN HAND
(wasted small muscles with loss of opposition)

1) Peripheral neuropathy
2) Dystrophia myotonica

3) Pancoast tumor
4) Klumpke's palsy
5) Cervical disc compression

CARPAL TUNNEL SYNDROME

1) Rheumatoid arthritis
2) Myxedema
3) Acromegaly
4) Pregnancy
5) Contraceptive pill
6) Premenstrually
7) Previous scaphoid fracture
8) Amyloidosis
9) Idiopathic tenosynovitis
10) Tuberculous tenosynovitis
11) Diabetes mellitus
12) Pronator teres syndrome
13) Chronic hemodialysis

CAUSES OF CLUBBING

A) CHRONIC LUNG DISEASE
- a) Bronchiectasis
- b) Diffuse interstitial pulmonary fibrosis
- c) Lung abscess
- d) Empyema thoracis

B) INTRATHORACIC TUMORS
- a) Bronchial carcinoma
- b) Mesothelioma pleura
- c) Mediastinal tumors
  - Thymoma
  - Aneurysm of the aorta
  - Hodgkin's disease
  - Neurofibroma

C) ARTERIO-VENOUS SHUNTS
- a) Cyanotic congenital heart disease
  - Fallot's tetralogy
  - Transposition of great vessels
  - Eisenmenger's syndrome
- b) Pulmonary AV aneurysm

D) HEPATIC CIRRHOSIS

E) CHRONIC DIARRHOEA
- a) Ulcerative colitis
- b) Crohn's disease
- c) Coeliac disease

F) SUBACUTE BACTERIAL ENDOCARDITIS
G) FAMILIAL CLUBBING
H) IDIOPATHIC CLUBBING

CAUSES OF CLAWING OF THE TOES

1) Familial
2) Friedrich's ataxia
3) Peroneal muscular atrophy (Charcot-Marie-Tooth disease)

CAUSES OF ACUTE BILATERAL CALF PAINS

1) Prolonged pressure
2) Excessive use of unconditioned muscles
3) Trichinosis
4) Toxoplasmosis
5) Salmonellosis
6) Polymyositis
7) Rheumatoid arthritis
8) Systemic lupus erythematosus
9) Sarcoidosis
10) Peripheral neuropathy

CAUSES OF LEG PAINS
(from knee to ankle)

1) Deep vein thrombosis
2) Peripheral neuropathy
3) Paget's disease
4) Bone tumor
5) Osteomyelitis
6) Osteomalacia
7) Referred pain from L4—L5 disc protusion

CAUSES OF BOWING OF THE TIBIA

1) Syphilis
2) Rickets
3) Yaws
4) Paget's disease

CAUSES OF CHARCOT'S JOINT

A) IN UPPER LIMB

Diabetes mellitus
Syringomyelia
Leprosy
Neurofibromatosis
Intra-articular steroid injection

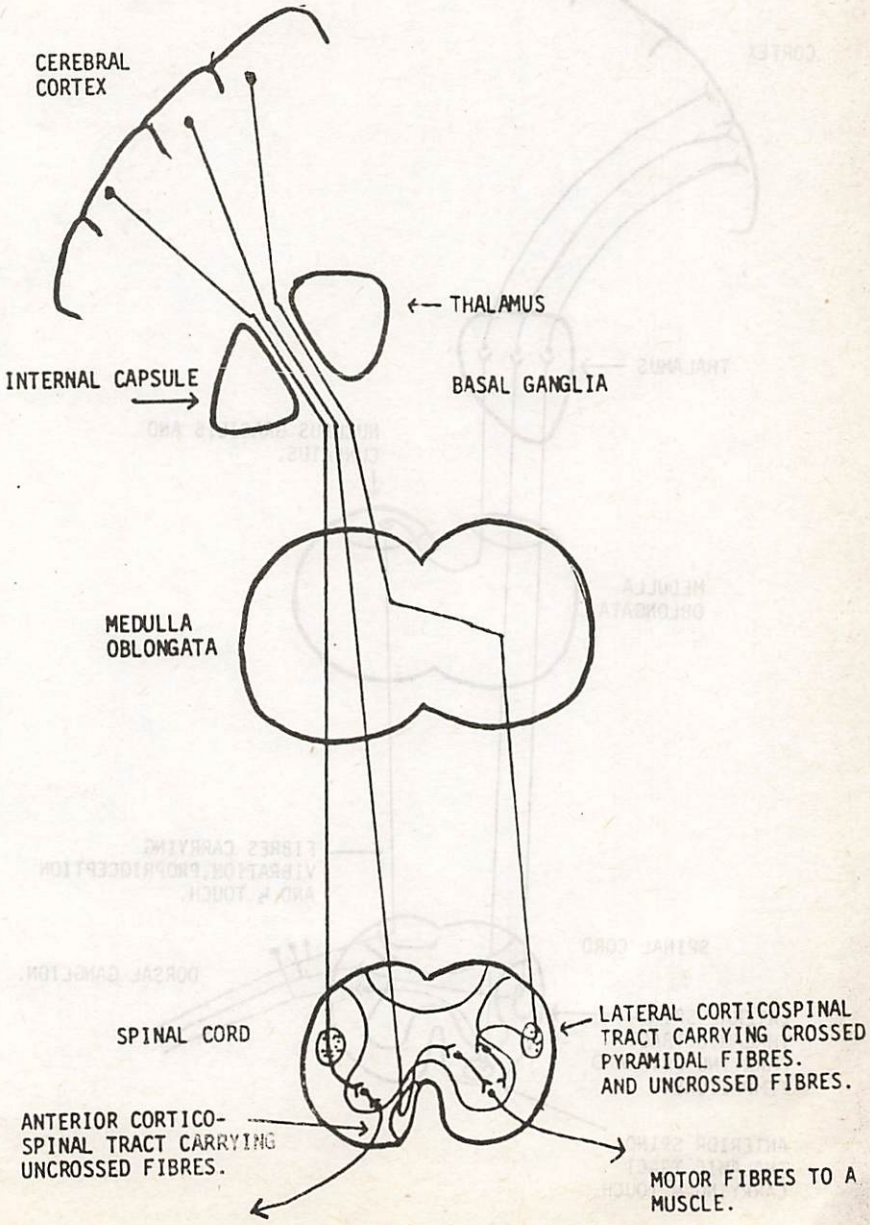
B) IN LOWER LIMB

Diabetes mellitus
Leprosy
Tabes dorsalis
Trauma to spinal cord
Subacute combined degeneration of spinal cord
Congenital neuropathy
Intra-articular steroid injection

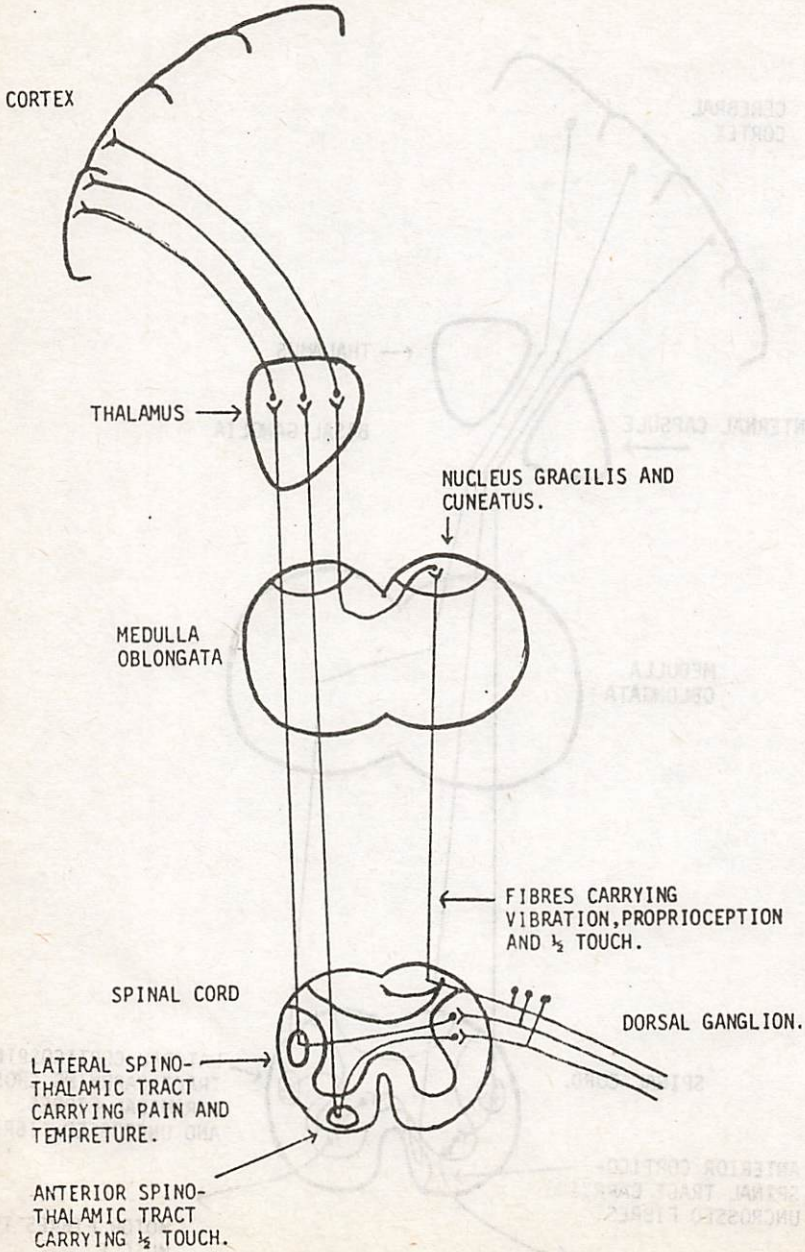
SECTION 9

DISORDERS OF THE NERVOUS SYSTEM

THE MOTOR SYSTEM



THE SENSORY SYSTEM



DIFFERENCES BETWEEN UPPER AND LOWER MOTOR NEURONE LESIONS

1) This type of lesion is due to affection of upper motor neurones in the brain or spinal cord.	This lesion is due to affection of the lower motor neurones in the spinal cord, cauda equina or the peripheral nerve.
2) The tone of the muscles is increased i.e. there is SPASTICITY alongwith paresis.	The tone of the muscles is decreased i.e. there is FLACCIDITY.
3) Tendon reflexes are brisk.	There is loss of tendon reflexes.
4) Ankle and patellar clonus are present.	Clonus is absent.
5) Planter responses are extensor.	No planter responses.
6) Superficial abdominal reflexes are absent if the lesion is above the 6th thoracic segment.	Abdominal reflexes are present if the lesion is below the 12th thoracic segment.
7) There is no muşcular atrophy except disuse atrophy.	The muscles are atrophied because of loss of trophic influence of the nerves.
8) Reaction of degeneration is absent.	Reaction of degeneration is present because the nerve supply of the muscle has been destroyed. When the muscle is directly stimulated by faradic current there is no response but it responds when galvanic current is employed.

CAUSES OF CEREBRO-VASCULAR ACCIDENTS OR STROKES

A) ARTERIAL THROMBOSIS

a) Atherosclerosis

b) Polycythemia
c) Angiography
d) Vasculitis
e) Thrombotic thrombocytopenic purpura
f) Idiopathic thrombocytosis
g) Hyperproteinemia
h) Sickle cell disease
i) Dissecting aortic aneurysm
j) Dissecting carotid aneurysm
k) Cerebral malaria

B) VENOUS THROMBOSIS
a) Neurosurgical operations
b) Infected scalp wounds
c) Pregnancy
d) Contraceptive pill
e) Septicemia
f) Meningitis
g) Chronic wasting illnesses

C) CEREBRAL EMBOLISM
a) From atherosclerotic plaques in
Carotid arteries
Aorta
b) From thrombi in
Carotid arteries
Aorta
Left ventricle following myocardial infarction
Subendocardial fibroelastosis
Idiopathic hypertrophic subaortic stenosis
Marantic endocarditis
Valvoplasty
Mitral stenosis
Chronic atrial fibrillation
Atrial myxoma
Thoracic surgery
Paradoxical embolus
c) Septic embolus in
Infective endocarditis
Lung abscess
Bronchiectasis
d) Tumor embolus
Bronchogenic carcinoma
e) Fat embolus
f) Air embolus

D) LACUNAR STROKE

E) INTRACEREBRAL HEMORRHAGE

a) Hypertension
b) Head injury
c) Hemorrhagic tendency due to
    Aplastic anemia
    Leukemia
    Thrombocytopenia
    Liver disease
    Anti-coagulants
    Hyperfibrinolysis
    Hypofibrinogenemia
    Hemophilia
    Christmas disease
d) Hemorrhage into brain tumors
e) Vasculitis
f) Cerebral angiography
g) Acute inclusion body encephalitis

F) SUBARACHNOID HEMORRHAGE

a) Ruptured aneurysm
b) Arteriovenous malformation
c) Cerebral contusion
d) Cerebral embolism
e) Hemorrhagic tendency
f) Hemorrhage into brain tumors
g) Vasculitis
h) Undetermined origin

CAUSES OF DYSARTHRIA

1) Cerebro-vascular accident
2) Motor neurone disease
3) Multiple sclerosis
4) Poliomyelitis
5) Parkinsonism
6) Choreo-athetosis
7) Wilson's disease
8) Cerebellar lesions
9) Other lesions eg false teeth, cleft palate etc.

	HEMIPLEGIA DUE TO CEREBRAL LESIONS	HEMIPLEGIA DUE TO BRAIN STEM LESIONS
A) EYES	In early stages look towards side of lesion.	In early stages look away from side of lesion.
B) CRANIAL NERVES	Affected on the same side as the hemiplegia.	Cranial nerves involved on the side opposite to the hemiplegia (Crossed hemiplegia).
C) SENSORY LOSS	Sensory loss on same side involving all modalities. Position sense, two point discrimination and tactile localisation affected relatively more than pain, temperature and tactile sense.	There may be dissociated sensory deficit ie loss of pain and temperature and preserved deep sense. Pain, temperature and tactile sense affected more than position, two point and tactile localisation.
D) OTHER FEATURES	No vertigo, diplopia etc	Vertigo, diplopia, cerebellar ataxia, Horner's syndrome and deafness are suggestive signs of brain stem lesion.

CAUSES OF CEREBRAL EMBOLISM

A) CAROTID ATHEROSCLEROSIS
B) CARDIAC CAUSES
    1) Atrial fibrillation
    2) Following acute myocardial infarction
    3) Idiopathic cardiomyopathy
    4) Left ventricular aneurysm
    5) Chronic CHF
    6) Endocarditis (bacterial or marantic)
    7) Mitral valve disease
    8) Left atrial myxoma
    9) Paradoxical embolus from peripheral veins

CAUSES OF MENINGISM

Any severe infection, particularly severe infection of childhood

1) Tonsillitis
2) Cervical adenitis
3) Pneumonia
4) Acute pyelonephritis
5) Salmonella enteritis
6) Viral respiratory infections eg influenza

CAUSES OF ELEVATED PROTEIN IN CSF

1) Guillain-Barre syndrome
2) Froin's syndrome (obstruction to flow of CSF)
    a) Meningioma
    b) Glioma
    c) Secondary deposit
3) Neurofibromata
4) Acoustic neuroma
5) Meningitis
    a) Acute bacterial
    b) Tuberculous
    c) Fungal
    d) Syphilitic

CAUSES OF VERY HIGH CSF PROTEIN

1) Spinal tumor (Froin syndrome)
2) Acoustic neuroma
3) Guillain-Barre syndrome
4) Area of spinal meningitis eg syphilis

DIZZINESS IN OLD AGE

A) POSTURAL HYPOTENSION
- Physiological
- Anti-hypertensives
- Diuretics
- L-dopa
- Parkinsonism
- Diabetes mellitus

B) HYPOGLYCEMIA
- Hypoglycemic drugs
- Starvation

C) CARDIAC ARRHYTHMIAS
- Tachycardia
- Bradycardia

D) ACUTE MYOCARDIAL INFARCTION

E) AORTIC STENOSIS

F) SEVERE PULMONARY HYPERTENSION

G) VERTEBRO-BASILAR INSUFFICIENCY

H) SUBCLAVIAN STEAL SYNDROME

I) HYPERVENTILATION

J) ANEMIA

K) VISUAL DISTURBANCES

CAUSES OF SYNCOPE IN THE ELDERLY

A) CARDIAC CAUSES (30%)
- Cardiac arrythmia
- Angina
- Myocardial infarction
- Hypertension
- Aortic stenosis

B) NEUROLOGICAL CAUSES (12%)
- Vertebro-basilar insufficiency
- Brain stem ischemia

C) GASTROINTESTINAL BLEEDING (12%)

D) RESPIRATORY CAUSES (12%)
- Pulmonary emboli
- Carcinoma lung

E) POSTURAL HYPOTENSION (10%)

F) VASOVAGAL REACTION (10%)

G) HYPOGLYCEMIA (5%)

H) UNKNOWN CAUSE (5%)

ACUTE CONFUSIONAL STATE (OR ACUTE DELIRIUM)

A) DRUG-INDUCED
1) Sedatives
2) Hypnotics
3) Psychoactive drugs
4) Anti-cholinergics
5) Anti-convalsants
6) Anti-parkinsonian drugs
7) Alcohol
8) Anti-hypertensives
9) Diuretics

B) TRAUMA
1) Acute subdural hematoma

C) INFECTIONS
1) Acute meningitis
2) Acute encephalitis
3) Pneumonia
4) Septicemia

D) NEOPLASMS
1) Primary brain tumor
2) Metastatic brain tumor

E) VASCULAR
1) Arteritis
2) Congestive heart failure

F) COLLAGEN VASCULAR DISORDERS
1) S.L.E.

G) METABOLIC DISEASES
1) Hypoglycemia
2) Hyponatremia
3) Hypercalcemia
4) Hypoxia
5) Hypercapnia
6) Azotemia
7) Hepatic encephalopathy
8) Hyperviscosity syndrome
9) Acute intermittent porphyria

H) NUTRITIONAL DEFICIENCIES
1) Vitamin B1 deficiency (Werniche's encephalopathy)
2) Nicotinic acid deficiency (Pellagra)
3) B12 deficiency
4) Folate deficiency

I) MISCELLANEOUS
1) Temporal lobe epilepsy
2) Acute schizophrenia

CAUSES OF CONFUSION AND STUPOR IN A CIRRHOTIC PATIENT

1) Hypoglycemia
2) Subdural hematoma
3) Meningitis
4) Drug overdose
5) Acute alcohol intoxication
6) Delirium tremens
7) Wernicke-Korsakoff psychosis
8) Hepatic encephalopathy

CAUSES OF MENTAL OBTUNDATION IN A LEUKEMIC PATIENT

1) Leukostasis (WBC greater than 100,000)
2) Disseminated intravascular coagulation
3) Leukemic meningitis
4) Cryptococcal meningitis
5) Intracerebral bleeding

CAUSES OF COMA

A) TRAUMATIC CAUSES
- 1) Cerebral concussion
- 2) Cerebral contusion
- 3) Epidural hematoma
- 4) Subdural hematoma
- 5) Hypothermia
- 6) Heat stroke
- 7) Caisson disease

B) DRUG INDUCED
- 1) Alcohol
- 2) Sedative and hypnotic drugs
- 3) Tranquillizers

C) INFECTIONS OF THE NERVOUS SYSTEM
- 1) Meningitis
- 2) Encephalomyelitis
- 3) Cerebral abscess

D) GENERALISED INFECTIONS
- 1) Septicemia
- 2) Typhoid fever
- 3) Typhus fever
- 4) Cerebral malaria

E) CEREBRAL TUMORS
- 1) Primary
- 2) Secondary

F) CEREBRO-VASCULAR ACCIDENTS
- 1) Cerebral thrombosis

2) Cerebral embolism
3) Cerebral hemorrhage
4) Subarachnoid hemorrhage

G) CEREBRAL ISCHEMIA
1) Stokes-Adams syndrome
2) Severe cardiogenic shock
3) Severe anemia
4) Leukemia
5) Hypertensive encaphalopathy

H) METABOLIC CAUSES
1) Diabetic ketoacidosis
2) Uremia
3) Hepatocellular failure
4) Myxedema coma
5) Hypoglycemia
6) Hypopituitarism

I) PSYCHOLOGICAL STATES
1) Hysteria
2) Schizophrenia
3) Severe depression

J) MISCELLANEOUS
1) Hyperviscosity syndrome
2) Post-epileptic coma

COMA WITHOUT FOCAL NEUROLOGICAL SIGNS

METABOLIC ENCEPHALOPATHY	STRUCTURAL INTRACRANIAL LESIONS
CAUSES	CAUSES:
1) Sedative drugs	1) Subarachnoid hemorrhage
2) Hypoglycemia	2) Epidural hemorrhage
3) Hyponatremia	3) Subdural hemorrhage
4) Hyperglycemia	4) Intracranial hemorrhage
5) Hypothermia	5) Massive embolus in basilar artery
6) Hepatic encephalopathy	6) Extensive thrombosis with cerebral edema
7) Anoxic-ischemic encephalopathy	7) Bleeding into tumor
a) Pupils usually REACTIVE.	Pupils usually UNREACTIVE.

b) Eyes move in response to caloric stimulation and doll's eye reflex is present.	Eyes do not move in response to caloric stimulation and doll's eye reflex absent.
c) Decorticate posturing and decerebrate posturing LESS likely.	MORE likely.

CAUSES OF DEMENTIA

A) CONGENITAL
- Wilson's disease

B) DRUG INDUCED
- Sedatives
- Hypnotics
- Psychoactive drugs
- Anti-cholinergics
- Anti-convulsants
- Anti-parkinsonian drugs
- Alcohol
- Anti-hypertensives
- Diuretics
- Digoxin

C) TRAUMA
- Chronic subdural hematoma

D) INFECTIONS
- Tertiary syphilis
- Chronic meningitis due to
  - Cryptococcus
  - Coccidiodomycosis
  - Tuberculosis
- Encephalopathy
  - Progressive multifocal leucoencephalopathy
  - Subacute sclerosing panencephalitis
  - Creutzfeldt-Jacob disease

E) NEOPLASMS
- Primary brain tumor
- Metastatic brain tumor
- Remote effect of neoplasm

F) VASCULAR CAUSES
- Cerebral arteriosclerosis
- Arteritis
- Congestive cardiac failure

G) COLLAGEN VASCULAR DISEASES
- Systemic lupus erythematosus

H) ENDOCRINE DISEASES
- Myxedema
- Thyrotoxicosis
- Cushing's disease

I) METABOLIC CAUSES
- Hypoglycemia
- Hyponatremia
- Hypercalcemia
- Hypoxia
- Hypercapnia
- Azotemia
- Hepatic encephalopathy
- Hyperviscosity syndrome

J) NUTRITIONAL DEFICIENCIES
- Thiamine deficiency
- Nicotinic acid deficiency
- B-12 deficiency
- Folic acid deficiency

K) DEGENERATIVE DISEASES
- Alzheimer's disease
- Pick's disease

L) MISCELLANEOUS
- Normal pressure hydrocephalus
- Blindness
- Deafness

CAUSES OF DECEREBRATE RIGIDITY

1) TEMPORAL LOBE PRESSURE CONE due to
   1) Intracranial neoplasm
   2) Intracerebral hemorrhage
   3) Subarachnoid hemorrhage

2) LESIONS IN THE BRAIN STEM
   1) Neoplasm
   2) Infarction
   3) Hemorrhage

3) HYPOGLYCEMIA

4) HYPOXIA

CAUSES OF VERTIGO

A) ACUTE VERTIGO
   Acute labyrinthitis
   Temporal lobe epilepsy

B) CHRONIC VERTIGO
   Meniere's syndrome
   Drugs: Aminoglycosides
   Aspirin
   Ethacrynic acid
   Labyrinthine ischemia
   Benign postural vertigo
   Posterior fossa tumors
   Vertebro-basilar insufficiency
   Brain stem vascular occlusion
   Disseminated sclerosis
   Syringobulbia
   Temporal lobe epilepsy
   Migraine

CAUSES OF ACUTE DYSTONIC REACTION (OR EXTRAPYRIMIDAL SYNDROME)

A) DRUG INDUCED DYSTONIA
   Phenothiazines
   Haloperidol
   Metoclopromide
   Diazoxide
   Thioxanthenes
B) ENCEPHALITIS LETHARGICA
C) WILSON'S DISEASE
D) POST-ENCEPHALITIC
E) POST-ANOXIC
F) POST-HEMIPLEGIA
G) IDIOPATHIC

CAUSES OF OCULOGYRIC CRISIS

1) Post-encephalitic parkinsonism
2) Phenothiazine overdose
3) Hysteria
4) Hypoparathyroidism

CAUSES OF HORNER'S SYNDROME

From above downwards

1) Occlusion of internal carotid artery
2) Occlusion of posterior inferior cerebellar artery
3) Syringobulbia/syringomyelia
4) Multiple sclerosis
5) Cervical sympathectomy
6) Pancoast's tumor
7) Aneurysm of aortic arch
8) Klumpke's paralysis
9) Cervical lymphadenopathy
10) Malignant tumors in neck
11) Carotid aneurysm
12) Neurofibroma base of the skull

CAUSES OF NYSTAGMUS

1) EYE DISORDERS
   a) Errors of refraction
   b) Weakness of ocular muscles
   c) Physiological eg in coal miners
2) BRAIN STEM LESIONS
   a) Vascular occlusion
   b) Lucunar infarct
   c) Tumor
3) CEREBELLAR LESIONS
   a) Vascular occlusion
   b) Intra-cerebellar hematoma
   c) Cerebellar tumor
4) CERVICAL SPINAL CORD LESIONS
   a) Vascular lesions
   b) Tumor

5) DRUG-INDUCED
    a) Phenytoin toxicity
6) IDIOPATHIC
7) CONGENITAL

ARGYLL-ROBERTSON PUPIL

1) Neurosyphilis
2) Diabetes mellitus
3) Cerebral lupus
4) Amyloidosis

CAUSES OF LOSS OF FACIAL EXPRESSION (MASK FACIES)

1) Parkinsonism
2) Bilateral facial palsy
3) Scleroderma
4) Facial myopathy
5) Myasthenia gravis
6) Tabes dorsalis
7) Apathetic thyrotoxicosis

CAUSES OF HEADACHE

A) TRAUMA
    Following head injury
B) INFECTIONS
    Meningitis
    Sinusitis
    Cerebral abscess
C) INTRACEREBRAL NEOPLASM
D) VASCULAR CAUSES
    Angioma
    Intracranial aneurysm
    Chronic subdural hematoma
    Migraine
    Temporal arteritis

E) ENDOCRINE CAUSES
- Hypothyroidism
- Cushing's syndrome
- Addison's disease
- Steroid withdrawal
- Contraceptive pill
- Carcinoid syndrome

F) OCULAR HEADACHE
- Hypermetropia
- Astigmatism
- Acute glaucoma
- Iridocyclitis

G) PSYCHIATRIC CAUSES
- Worry and overwork
- Anxiety neurosis
- Depression
- Hypochondriasis

H) MISCELLANEOUS
- Fever
- Hypercapnia
- Hypertension
- Acute anemia
- Cervical spondylosis
- Following lumbar puncture
- Excessive tobacco or alçohol

CAUSES OF BENIGN INTRACRANIAL HYPERTENSION

1) Obesity
2) Hypervitaminosis A
3) Hypocalcemia
4) Iron deficiency anemia
5) Drugs:
   - Steroids
   - Contraceptive pill
   - Tetracycline
   - Nalidixic acid

CAUSES OF SEIZURES (OR CONVULSIONS)

A) CONGENITAL
- Jacob-Creutzfeldt disease
- Lipid storage disease

B) ACQUIRED

- Meningitis
- Encephalitis
  - Viral
  - Treponemal
  - Parasitic eg cysticercosis
- Gram negative septicemia
- Cerebral trauma
- Cerebral abscess
- Cerebral tumor
- Metabolic causes eg
  - hyponatremia
  - water intoxication
  - hypoglycemia
- Toxins eg
  - lead
  - arsenic
- Thyrotoxic storm
- Porphyria
- Hepatic encephalopathy
- Anoxic encephalopathy
- Intractable cardiac failure
- Barbiturate withdrawal
- Old cortical infarcts
- Ruptured aneurysm
- Thrombophlebitis of cerebral veins
- Uremia
- Idiopathic epilepsy

CAUSES OF CEREBELLAR DEGENERATION

1) Hereditary ataxias
2) Tumors of posterior fossa
3) Bronchogenic carcinoma
4) Myxedema

CAUSES OF ENLARGED SELLA TURCICA

1) Pitutary adenoma
2) Craniopharyngioma
3) Meningioma

4) Cysts
5) Metastatic tumor eg breast cancer
6) Granuloma eg tuberculosis
   sarcoidosis
7) Empty sella syndrome
8) Primary hypothyroidism
9) Hypogonadism
10) Rapid increase of intracranial pressure eg glioblastoma multiforme

---

CAUSES OF MICROCEPHALY

1) Congenital rubella
2) Congenital cytomegalovirus infection
3) Congenital toxoplasmosis
4) Perinatal asphyxia
5) Bacterial meningitis
6) Phenylketonuria

CAUSES OF BASAL GANGLIA CALCIFICATION

1) Hypoparathyroidism
2) Turner's syndrome
3) Gardner's syndrome
4) Basal cell nevus syndrome

CAUSES OF PARAPLEGIA

CONGENITAL CAUSES
- Cerebral palsy
- Hereditary spastic paraplegia
- Birth trauma

TRAUMA TO VERTEBRAL COLUMN

INFLAMMATORY
- Poliomyelitis
- Guillain-Barre syndrome
- Transverse myelitis

NEOPLASTIC
- Midline meningioma
- Spinal cord tumor
  - intramedullary
  - extramedullary

·MISCELLANEOUS

Multiple sclerosis
Anterior spinal artery occlusion
Motor neurone disease
Sagital sinus thrombosis
Subacute combined degeneration of spinal cord
Syringomyelia
Friedrich's ataxia
Hysteria

CAUSES OF SUDDEN PARALYSIS OF THE LIMBS

1) Acute infective polyneuropathy (Guillain Barre syndrome)
2) Acute spinal cord compression
3) Dissecting abdominal aortic aneurysm
4) Acute intermittent porphyria
5) Myasthenia gravis
6) Botulism
7) Hypermagnesemia
8) Hypokalemia
9) Hyperkalemia
10) Hypophosphatemia
11) Periodic paralysis

CAUSES OF SPASTIC PARAPARESIS

1) Multiple sclerosis
2) Spinal cord compression
3) Subacute combined degeneration of spinal cord
4) Parasagital cranial mèningioma
5) Transverse myelitis
6) Anterior spinal artery thrombosis
7) Motor neurone disease

CAUSES OF TRANSVERSE MYELITIS

1) Infectious mononucleosis
2) Measles
3) Mumps
4) Following vaccination
5) Syphilis

CAUSES OF DORSAL COLUMN DEGENERATION

1) Subacute combined degeneration
2) Tabes dorsalis
3) Multiple sclerosis
4) Spinal cord compression
5) Friedrich's ataxia
6) Peroneal muscular atrophy (Charcot-Marie-Tooth disease)

CAUSES OF SPINAL CORD COMPRESSION

A) EXTRADURAL (disorders of vertebrae)
- a) Prolapsed intervertebral disc
- b) Collapsed vertebral body
  - carcinoma
  - myeloma
  - osteoporosis
  - T.B.
- c) Abscesses
- d) Paget's disease
- e) Lymphomas
- f) Angiomata
- g) Cervical stenosis

B) INTRADURAL (meningeal disorders)
- a) Neurofibroma
- b) Meningioma

C) INTRAMEDULLARY CAUSES (disorders of spinal cord)
- a) Gliomas
- b) Ependymomas

CAUSES OF PERIPHERAL NEUROPATHY (OR MIXED MOTOR AND SENSORY AND MOTOR POLYNEUROPATHY)

1) Diabetes mellitus
2) B-12 deficiency
   with or without alcoholism
3) Drug induced
   - INH
   - Nitrofurantoin
   - Vincristine

Gold
Phenytoin
Arsenic
Thallium

4) Rheumatoid arthritis
5) Uremia
6) Hypothyroidism
7) Acromegaly
8) Guillain-Barre syndrome
9) Infectious mononucleosis
10) Amyloidosis
11) Sarcoidosis
12) Polyarteritis nodosa
13) Systemic lupus erythematosus
14) Systemic sclerosis
15) Porphyria
16) Diphtheria
17) Leprosy
18) Genetic disorders
    Charcot-Marie-Tooth disease
    Djerine-Sottas disease
    Refsum's disease

CAUSES OF PREDOMINANTLY MOTOR NEUROPATHY

1) Diabetes mellitus
2) Carcinomatous neuromyopathy
3) Guillain-Barre syndrome
4) Infectious mononucleosis
5) Acute intermittent porphyria
6) Diphtheria
7) Lead toxicity
8) Triorthocresyl phosphate poisoning
9) Thallium
10) Following infective hepatitis
11) Polyarteritis nodosa

CAUSES OF PREDOMINANTLY SENSORY NEUROPATHY

1) Diabetes mellitus
2) Neoplastic neuropathy
    Carcinoma bronchus

Carcinoma stomach
Hodgkin's disease
Chronic lymphatic leukemia

CAUSES OF MONONEURITIS MULTIPLEX
(Involvement of multiple large nerve trunks)

1) Diabetes mellitus
2) Sarcoidosis
3) Polyarteritis nodosa
4) Rheumatoid arthritis
5) Systemic lupus erythematosus
6) Systemic sclerosis
7) Myxedema
8) Amyloidosis
9) Acromegaly
10) Leprosy

CAUSES OF OCULOMOTOR PALSY

1) Aneurysm of posterior communicating artery
2) Diabetes mellitus
3) Multiple sclerosis
4) Vascular lesions of the brain stem
5) Encephalitis
6) Syphilis
7) Migraine (transient palsy)

FACIAL PALSY

A) SUPRANUCLEAR OR CENTRAL TYPE
   1) Infarction or hemorrhage in internal capsule
   2) Infarction or hemorrhage of motor cortex

B) INFRANUCLEAR OR PERIPHERAL TYPE
   a) UNILATERAL
      1) Bell's palsy
      2) Herpes zoster oticus
      3) Sarcoidosis

4) Cerebello-pontine angle tumors
5) Infarction or hemorrhage in pons
6) Acute infective polyneuritis (Guillain-Barre syndrome)
7) Diabetes mellitus
8) Acute intermittent porphyria
9) Poliomyelitis
10) Tetanus
11) Basal meningitis
12) Polyarteritis nodosa
13) Leprosy
14) Melkersson's syndrome
15) Infectious mononucleosis
16) Diphtheria
17) Viral hepatitis
18) Lyme disease

b) BILATERAL FACIAL PALSY
1) Bilateral Bell's palsy
2) Sarcoidosis
3) Acute infective polyneuritis (Guillain-Barre syndrome)
4) Poliomyelitis
5) Basal meningitis
6) Polyarteritis nodosa
7) Infectious mononucleosis
8) Diphtheria
9) Viral hepatitis
10) Lyme disease

CAUSES OF THICKENED NERVES IN THE NECK

1) Trauma
2) Sarcoidosis
3) Amyloidosis
4) Neurofibromatosis
5) Hypertrophic polyneuropathy
6) Neoplasms
7) Lymphoma
8) Leprosy

RADIAL NERVE PALSY

1) Local pressure in radial groove (Saturday night palsy)

2) Fracture of the humerus
3) Crutch palsy
4) Diabetes mellitus
5) Sarcoidosis

CAUSES OF LATERAL POPLITEAL PALSY

1) Trauma
2) Fracture upper end of fibula
3) Arthritis knee joint
4) Diabetes mellitus
5) Sarcoidosis

CAUSES OF DELAYED RELAXATION OF DEEP TENDON REFLEXES

1) Hypothyroidism
2) Anorexia nervosa
3) Uremia
4) Diabetes mellitus

CAUSES OF ABSENT KNEE JERKS WITH UPGOING PLANTERS

1) Neurosyphilis
2) Diabetic neuropathy with strokes
3) Guillain-Barre syndrome
4) Amyotrophic lateral sclerosis
5) Freidrich's ataxia
6) Subacute combined degeneration of spinal cord
7) Acute encephalomyelitis

CAUSES OF WASTING OF SMALL MUSCLES OF THE HAND

A) UNILATERAL

Trauma to brachial plexus
Pancoast tumor
Cervical cord compression at T1

B) BILATERAL SMALL MUSCLE WASTING

1) Rheumatoid arthritis
2) Motor neurone disease
3) Syringomyelia
4) Bilateral cervical ribs
5) Old age

CAUSES OF TREMOR AT REST

1) Parkinsonism
2) Thyrotoxicosis
3) Anxiety neurosis
4) Alcohol withdrawal
5) Familial

CAUSES OF MUSCLE CRAMPS

1) Hypothyroidism
2) Sodium depletion
3) Dehydration
4) Lower motor neurone disease
5) Idiopathic

CAUSES OF MUSCLE FASCICULATIONS

1) Motor neurone disease
2) Nerve root compression eg cervical spondylosis
3) Peroneal muscular atrophy
4) Cervical myelopathy due to spondylosis
5) Recovering poliomyelitis
6) Syringomyelia
7) Polymyositis
8) Throtoxic myopathy

CAUSES OF EXCESSIVE MUSCULAR FATIGUABILITY

1) Myasthenia gravis

2) Polymyositis
3) SLE
4) Phosphorylase deficiency (McArdle's syndrome)

CAUSES OF LATERAL RECTUS MUSCLE PALSY

1) Raised intracranial pressure (false localising sign)
2) Intracranial tumor
3) Aneurysm
4) Accoustic neuroma
5) Diabetes mellitus
6) Multiple sclerosis
7) Polyarteritis nodosa
8) Sarcoidosis
9) Syphilis
10) Meningitis

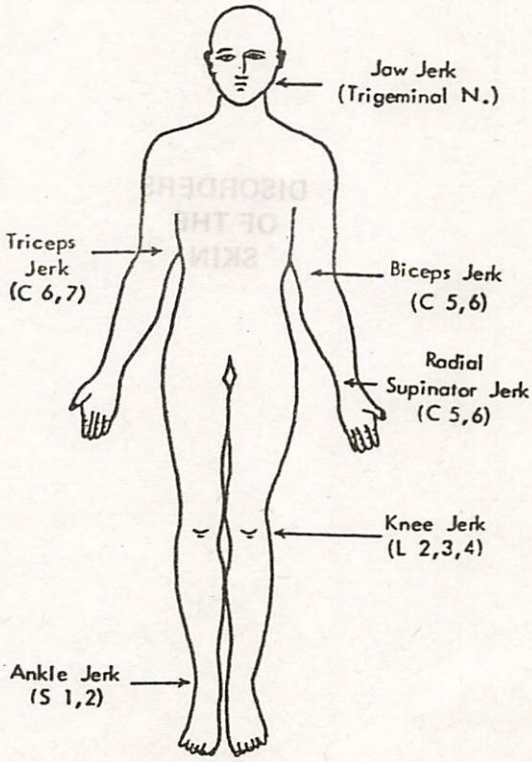
CAUSES OF PAINFUL PROXIMAL MUSCLE WEAKNESS

1) Diabetes mellitus
2) Viral myopathy
    - Influenza
    - Coxsackie virus
    - Herpes simplex
    - Epstein Barr virus
    - Echovirus
    - Adenovirus
3) Rhabdomyolysis

CAUSES OF PAINLESS PROXIMAL MUSCLE WEAKNESS

1) Congenital muscular dystrophy
2) Drug induced
    - Steroids
    - Clofibrate
    - Chloroquin
3) Carcinomatous neuromyopathy
4) Polymyositis
5) Osteomalacia

6) Hypokalemia
7) Cushing's syndrome
8) Hypothyroidism
9) Thyrotoxicosis
    Thyrotoxic myopathy
    Thyrotoxic periodic paralysis
    Myasthenia gravis
10) Hemodialysis
    Phosphate depletion
    Aluminium intoxication
11) Phosphorylase deficiency



ROOT VALUES OF DEEP REFLEXES

SECTION 10

DISORDERS OF THE SKIN

CAUSES OF FACIAL PLETHORA
('red face')

1) Outdoor occupation
2) Carcinoid syndrome
3) Polycythemia
4) Superior vena cava obstruction

CAUSES OF BUTTERFLY RASH OVER BRIDGE OF THE NOSE

1) Systemic lupus erythematosus
2) Lupus pernio
3) Chloasma
   - Pregnancy
   - Contraceptive pill

CAUSES OF MALAR FLUSH

1) Normal
2) Outdoor workers
3) Polycythemia
4) Steroid therapy
5) Mitral stenosis

SKIN SIGNS OF INTERNAL MALIGNANCY

A) SKIN INFILTRATION BY INTERNAL MALIGNANCY
   - Carcinoma
   - Leukemia
   - Paget's disease of breast
   - Lymphoma

B) SKIN CHANGES DUE TO EXPOSURE TO CARCINOGEN THAT ALSO INDUCES INTERNAL MALIGNANCY
   - Arsenical keratosis
   - Bowen's disease

C) SKIN CHANGES DUE TO METABOLIC PRODUCTS OF MALIGNANCY

Carcinoid syndrome (serotonin)
Hyperpigmentation (ACTH)
Dermal melanosis
Fat necrosis
Raynaud's phenomenon
Amyloidosis

D) SKIN CHANGES DUE TO FUNCTIONAL DISTURBANCES IN OTHER SYSTEMS

Jaundice
Purpura
Anemia
Herpes zoster
Herpes simplex
Pyoderma

E) IDIOPATHIC SKIN CHANGES

Acanthosis nigricans
Dermatomyositis
Thrombophlebitis
Ichthyosis
Pruritis
Clubbing
Erythroderma
Erythema multiforme
Urticaria
Pyoderma gangrenosum
Dermatitis herpetiformis

F) HEREDITARY DISEASES WITH SKIN MANIFESTATIONS AND TENDENCY TO DEVELOP INTERNAL MALIGNANCY

Neurofibromatosis
Palmar-planter keratosis (Tylosis)
Tuberous sclerosis

CAUSES OF SPLINTER HEMORRHAGES UNDER THE NAILS

1) Subacute bacterial endocarditis
2) Trauma
3) Severe rheumatoid arthritis
4) Malignant neoplasms
5) Psoriasis
6) Dermatitis
7) Fungus infections

CAUSES OF WHITE MARKS ON NAILS

1) Minor Trauma
2) Chronic arsenic poisoning
3) Chronic liver disease
4) Hypoalbuminemia
5) Chronic renal failure
6) Hodgkin's disease

CAUSES OF YELLOW NAILS

1) Smoking
2) Tetracycline therapy
3) Fungal infections
4) Dyes and chemicals
5) Idiopathic (yellow nail syndrome)

CAUSES OF PALMAR ERYTHEMA

1) Cirrhosis of the liver
2) Pregnancy
3) Rheumatoid arthritis
4) Thyrotoxicosis

HYPERKERATOSIS OF PALMS

1) Manual labor
2) Arsenic poisoning
3) Psoriasis
4) Drugs eg Practolol
5) Syphilis
6) Reiter's disease
7) Tylosis palmaris

RASHES WITH PROMINENT PALMAR OR PLANTER DISTRIBUTION

1) Drug reactions

2) Bacterial eruptions
3) Secondary syphilis
4) Mycoplasma eruptions
5) Rickettsial eruptions
6) Immunologic diseases
    Rheumatic fever
    Erythema multiforme

CAUSES OF GENERALISED PRURITIS

A) DERMATOLOGICAL CAUSES
    Pediculosis
    Scabies
    Onchocerciasis
    Senile atrophy
    Urticaria
    Lichen planus

B) HEPATIC CAUSES
    Obstructive jaundice
    Chronic active hepatitis

C) NEOPLASTIC CAUSES
    Lymphoma
    Carcinoma lung

D) HEMATOLOGICAL CAUSES
    Iron deficiency anemia
    Polycythemia rubra vera
    Chronic granulocytic leukemia

E) ENDOCRINE CAUSES
    Diabetes mellitus
    Myxedema
    Thyrotoxicosis
    Carcinoid syndrome

F) DRUGS
    Morphine
    Cocaine

G) NEUROLOGICAL CAUSES
    Tabes dorsalis
    Multiple sclerosis

H) RENAL CAUSES
Uremia

I) PSYCHOGENIC

CAUSES OF SPIDER ANGIOMAS

1) Cirrhosis of the liver
2) Chronic active hepatitis
3) Acute viral hepatitis
4) Pregnancy
5) Estrogens
6) Weather beaten facies

CAUSES OF CAROTENEMIA

1) Excess carotene intake
   - Mangoes
   - Carrots
   - Pawpaw
   - Oranges
2) Myxedema
3) Hyperbetalipoproteinemia

CAUSES OF LEG ULCERS

1) Varicose ulcers
2) Diabetes mellitus
3) Arterial insufficiency
4) Peripheral neuropathy
5) Edema of legs
6) Ulcerative colitis
7) Spherocytosis
8) Sickle cell disease
9) Leprosy
10) Tabes dorsalis
11) Tropical ulcer (Cutaneous leishmaniasis)
12) Syphilitic gumma

CAUSES OF PENETRATING ULCER

A) UPPER LIMB
- Syringomyelia
- Diabetes mellitus
- Leprosy

B) LOWER LIMB
- Diabetes mellitus
- Tabes dorsalis
- Leprosy

HYPERKERATOSIS OF SOLES

1) Walking bare foot
2) Tylosis
3) Drugs eg Practolol
4) Psoriasis
5) Reiter's syndrome (keratoderma blenorrhagica)

PYODERMA GANGRENOSUM

1) Ulcerative colitis
2) Polyarthritis
3) Paraproteinemia
4) Crohn's disease
5) Chronic active hepatitis

CAUSES OF EXCESSIVE SWEATING

1) Acromegaly
2) Pheochromocytoma
3) Acute intermittent porphyria
4) Thyrotoxicosis
5) Hypoglycemia
6) Autonomic neuropathy eg diabetes mellitus
7) Severe pain
8) Anxiety neurosis
9) Hypercapnia
10) Familial dysautonomia
11) Polycythemia

CAUSES OF ERYTHEMA NODOSUM

A) BACTERIAL INFECTIONS
- Streptococcal
- Primary tuberculosis

B) VIRAL INFECTIONS
- Measles
- Lymphogranuloma venereum
- Cat scratch disease

C) FUNGAL INFECTIONS
- Histoplasmosis
- Blastomycosis
- Coccidiodomycosis

D) DRUG INDUCED
- Sulfonamides
- Oral contraceptives

E) INFLAMMATORY BOWEL DISEASE
- Ulcerative colitis
- Crohn's disease

F) MALIGNANCY
- Hodgkin's disease
- Leukemia

G) MISCELLANEOUS
- Pregnancy
- Sarcoidosis
- Behcet's syndrome
- Chronic active hepatitis
- Idiopathic

CAUSES OF ERYTHEMA MULTIFORME

A) DRUGS
1) Penicillin
2) Sulphonamides

B) INFECTIONS
1) Herpes simplex
2) Enterovirus
3) Mycoplasma
4) Histoplasma

5) Small pox vaccination
C) NEOPLASMS
D) COLLAGEN VASCULAR DISEASE

CAUSES OF BULLOUS ERUPTION

SUB-CORNEAL
- Impetigo

INTRA-EPIDERMAL
- Pemphigus
- Eczema

SUB-EPIDERMAL
- Pemphigoid
- Dermatitis herpetiformis

DRUGS CAUSING EXFOLIATIVE DERMATITIS

1) Barbiturates
2) Phenytoin
3) Phenylbutazone
4) Gold salts
5) Quinidine
6) Sulfonamides
7) Penicillins

CAUSES OF PHOTOSENSITIVITY

1) Pellagra
2) Xeroderma pigmentosum
3) Albinism
4) Vitiligo
5) Porphyria
6) Drug-induced
   - Phenothiazines
   - Diuretics
   - Tetracyclines
   - Sulfonamides

CAUSES OF INCREASED PIGMENTATION

A) PHYSIOLOGICAL
- Racial
- Pregnancy

B) ENDOCRINE DISORDERS
- Addison's disease
- Acromegaly

C) METABOLIC DISORDERS
- Hemachromotosis
- Porphyria

D) DRUG INDUCED
- Oral contraceptives
- ACTH
- Chlorpromazine
- Chloroquin
- Busulphan

E) MALIGNANT CONDITIONS
- Bronchogenic carcinoma secreting ACTH
- Other malignancies

F) MISCELLANEOUS
- Starvation
- Bilary cirrhosis
- Chronic renal failure
- Malabsorption
- Dermatomyositis

CAUSES OF PHOTODERMATITIS

1) Thiazides
2) Frusemide
3) Chlordiazepoxide
4) Phenothiazines
5) Sulfonylurea
6) Oral contraceptives
7) Tetracyclines
8) Griseofulvin

CAUSES OF FIXED DRUG ERUPTION

1) Barbiturates
2) Phenylbutazone
3) Quinine
4) Salicylates
5) Sulfonamides
6) Phenolphthalein

CAUSES OF KOBNER PHENOMENON
(Appearance of lesions at sites of skin trauma)

1) Psoriasis
2) Viral warts
3) Molluscum contagiosum
4) Lichen planus

CAUSES OF ICTHYOSIS
(Dry skin)

A) CONGENITAL
- Dominant
- X-linked

B) ACQUIRED
- Lymphoproliferative disorders
- Sarcoidosis
- S.L.E.

CAUSES OF ABDOMINAL STRIAE

1) Obesity
2) Pregnancy (Striae gravidarum)
3) Cushing's syndrome
4) Drugs
   - Steroids
   - ACTH

SECTION 11

DISORDERS OF THE EYE

BILATERAL LACRIMAL GLAND ENLARGEMENT

1) Mumps
2) Infectious mononucleosis
3) Sarcoidosis
4) Tuberculosis
5) Syphilis
6) Lymphedema
7) Leukemia
8) Sjogren's syndrome

CAUSES OF UNILATERAL EXOPHTHALMOS

1) Retro-orbital hemorrhage
   - Spontaneous
   - Traumatic
2) Retro-orbital cellulitis
3) Retro-orbital neoplasms
   - Primary eg osteoma, meningioma
   - Secondary eg lymphoma, leukemia
4) Retro-orbital aneurysm
5) Arterio-venous fistula
6) Pseudo-exophthalmos
   - Lower motor neurone facial palsy
   - Contra-lateral enophthalmos

BILATERAL EXOPHTHALMOS

1) Thyrotoxicosis
2) Cavernous sinus thrombosis
3) Hand-Schuller-Christian syndrome
4) Craniostenosis
5) Hypertelorism
6) Internal hydrocephalus

7) Superior vena cava obstruction
8) Emphysema
9) Chronic alcoholism
10) Accelerated hypertension
11) Cushing's syndrome
12) Uremia

CAUSES OF PTOSIS

A) LESIONS OF NERVES
1) Oculomotor palsy
2) Horner's syndrome
3) Tabes dorsalis

B) LESIONS OF MUSCLE
1) Dysthrophia myotonica
2) Myasthenia gravis
3) Facio-scapulo-humeral dystrophy

C) MISCELLANEOUS
1) Congenital
2) Functional
3) Bethanidine eye drops
4) Trauma
5) Mechanical ptosis due to inflammation

CAUSES OF UNILATERAL PTOSIS

1) Oculomotor palsy
2) Horner's syndrome
3) Congenital
4) Functional
5) Trauma
6) Mechanical
7) Myasthenia gravis
8) Pseudo-ptosis due to contralateral lid retraction

CAUSES OF BILATERAL PTOSIS

1) Tabes dorsalis
2) Dystrophia myotonica
3) Facio-scapulo-humeral muscular dystrophy
4) Myasthenia gravis
5) Congenital
6) Functional
7) Mechanical

EDEMA OF THE UPPER EYELID

1) Local infection
2) Eczema
3) Angioneurotic edema
4) Cavernous sinus thrombosis

EDEMA OF LOWER EYELIDS

1) Congestive heart failure
2) Renal disease
3) Myxedema

CAUSES OF XANTHELASMA

1) Diabetes mellitus
2) Chronic obstructive jaundice
3) Nephrotic syndrome
4) Myxedema
5) Hyperlipidemia

CONJUNCTIVAL HEMORRHAGE

1) Trauma
2) Infective endocarditis
3) Weil's disease
4) Trichiniasis

5) Pertussis
6) Bleeding diathesis

CAUSES OF CONJUNCTIVITIS

1) Foreign body
2) Contact lenses
3) Localised infection
    trachoma
    non-specific infection
    tuberculosis
    gonorrhea
4) Distant infection
    non-specific urethritis
5) Systemic infection
    measles
    Weil's disease
    Rickettsial infection
6) Bright light
7) Allergy eg hay fever
8) Steven Johnson's syndrome
9) Behcet's syndrome

BLUE SCLERA

1) Infancy (slightly blue)
2) Osteogenesis imperfecta
3) Rheumatoid arthritis
4) Iron deficiency anemia

NODULES ON SCLERA

1) Rheumatoid arthritis
2) Sarcoidosis
3) Polyarteritis
4) Temporal arteritis

KERATITIS

1) Congenital syphilis
2) Herpes zoster
3) Vitamin A deficiency
4) Sjogren's syndrome

CAUSES OF CATARACT

1) Senility
2) Congenital conditions
    1) Rubella syndrome
    2) Atopic eczema
    3) Down's syndrome
    4) Hepatolenticular degeneration
3) Endocrine causes:
    1) Diabetes mellitus
    2) Hypoparathyroidism
    3) Steroid therapy
    4) Cretinism

CHOROIDITIS

1) Syphilis
2) Tuberculosis
3) Sarcoidosis
4) Toxoplasmosis
5) Trauma
6) Primary melanoma malignum
7) Idiopathic

CAUSES OF CONSTRICTED PUPIL

1) Opiates
2) Pilocarpine
3) Pontine hemorrhage
4) Argyll-Robertson pupil

CAUSES OF DILATED PUPIL

1) Mydiatrics
2) Oculomotor palsy
3) Congenital
4) Temporal lobe herniation
5) Holmes-Adie pupil

CAUSES OF UVEITIS

1) Syphilis
2) Sarcoidosis
3) Tuberculosis
4) Ankylosing spondylitis
5) Non-specific urethritis
6) Rheumatoid arthritis
7) Toxoplasmosis
8) Ulcerative colitis

CAUSES OF RETINAL PIGMENTATION

A) UNILATERAL

Acquired toxoplasmosis
Sarcoidosis
Tuberculosis
Syphilis
Diabetes mellitus
Toxocara infection
Senile macular degeneration
Idiopathic

B) BILATERAL

Congenital toxoplasmosis
Retinitis pigmentosa

CAUSES OF PAPILLEDEMA

A) RAISED INTRACRANIAL TENSION

Intracranial neoplasm

Subarachnoid hemorrhage
Extradural hemorrhage
Meningitis

B) HYPERTENSION
C) DIABETES MELLITUS
D) POLYCHTHEMIA VERA
E) HYPERCAPNIA
F) EXTENSION OF RETROBULBAR NEURITIS
Multiple sclerosis
Neurosyphilis
Toxins eg methanol
quinine
tobacco
thallium
ethambutol
Spread of infection from sinuses
B-1 deficiency
B-12 deficiency
Neuromyelitis optica

CENTRAL RETINAL ARTERY OCCLUSION

1) Giant cell arteritis
2) Polyarteritis nodosa
3) Arterial embolus
From atheroma in carotid artery
mural thrombus in the heart
fibrillating L. atrium
atrial myxoma
vegetations of bacterial endocarditis

CAUSES OF OPTIC ATROPHY

A) PRIMARY OPTIC ATROPHY
Contour, cup and cribrosa well defined
Occurs without preceding papilledema

1) Multiple sclerosis
2) Neurosyphilis
3) Temporal arteritis

4) Toxins eg methanol
quinine
tobacco
thallium
ethambutol
5) Spread of infection from sinuses
6) B-1 deficiency
7) B-12 deficiency
8) Neuromyelitis optica
9) Injury to optic nerve
10) Pressure by tumors eg pituitary tumors
11) Hereditary ataxia
12) Leber's disease

B) SECONDARY OPTIC ATROPHY

Contour, cup and cribrosa ill-defined
Occurs following long-standing papilledema

1) Following papilledema due to raised intracranial tension
2) Extension of retrobulbar neuritis
   a) Multiple sclerosis
   b) Neurosyphilis
   c) Toxins
   d) Spread of infection from sinuses
   e) B-1 deficiency
   f) B-12 deficiency
   g) Neuromyelitis
   h) Injury
   i) Pressure eg by pituitary tumor

CAUSES OF ANGIOID STREAKS ON THE FUNDUS

1) Pseudoxanthoma elasticum
2) Sickle cell anemia
3) Paget's disease

(Angioid streaks are breaks in the Bruch's membrane behind the retina).

SECTION 12

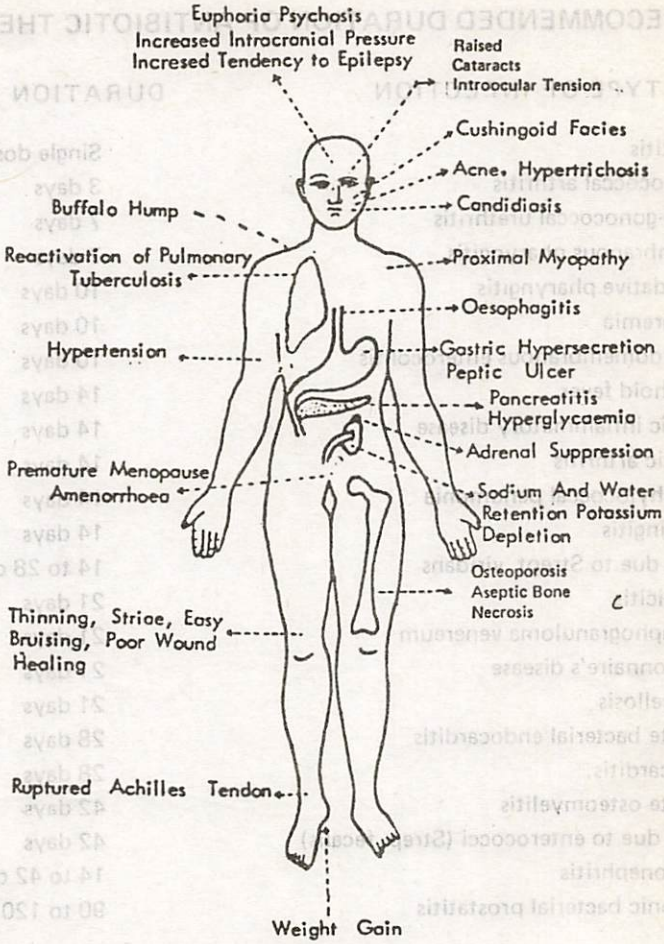
PHARMACOLOGY

DRUGS CAUSING FEVER

1) Barbiturates
2) Phenytoin
3) Quinidine
4) Procainamide
5) Anti-histamines
6) Methyldopa
7) Iodides
8) Sulfonamides
9) Penicillins
10) Cephalosporins

CORTICOSTEROIDS

STEROID	EQUIVALENT DOSE	GLUCOCORTICOID EFFECT	MINERALOCORTICOID EFFECT
SHORT ACTING			
Cortisone	25 mg	0.8	0.8
Hydrocortisone	20 mg	1.0	1.0
INTERMEDIATE ACTING			
Prednisone	5 mg	4.0	0.25
Prednisolone	5 mg	4.0	0.25
Methylprednisolone	4 mg	5.0	plus-minus
Triamcinolone	4 mg	5.0	plus-minus
LONG ACTING			
Paramethasone	2 mg	10	plus-minus
Betamethasone	1 mg	25	plus-minus
Dexamethasone	0.5 mg	30-40	plus-minus



SIDE EFFECTS OF STEROIDS THERAPY

RECOMMENDED DURATION OF ANTIBIOTIC THERAPY

TYPE OF INFECTION	DURATION IN DAYS
Cystitis	Single dose
Gonococcal arthritis	3 days
Non-gonococcal urethritis	7 days
Membranous pharyngitis	7 days
Exudative pharyngitis	10 days
Tularemia	10 days
Pseudomembranous enterocolitis	10 days
Typhoid fever	14 days
Pelvic inflammatory disease	14 days
Septic arthritis	14 days
Staphylococcal penumonia	14 days
Meningitis	14 days
SBE due to Strept. viridans	14 to 28 days
Cervicitis	21 days
Lymphogranuloma venereum	21 days
Legionnaire's disease	21 days
Brucellosis	21 days
Acute bacterial endocarditis	28 days
Pericarditis	28 days
Acute osteomyelitis	42 days
SBE due to enterococci (Strep. fecalis)	42 days
Pyelonephritis	14 to 42 days
Chronic bacterial prostatitis	90 to 120 days

ANTIBIOTICS AND CHEMOTHERAPEUTIC AGENTS RECOMMENDED FOR PARTICULAR ORGANISMS

ORGANISM	FIRST CHOICE	SECOND CHOICE	ALSO EFFECTIVE
Actinomyces	Ampicillin or Cry. penicillin	Tetracycline	Clindamycin
Bacillus anthracis	Cry. penicillin	Tetracycline Erythromycin	
Bacteroides	Clindamycin	Metronidazole	Carbenicillin Cefoxitin Chloramphenicol
Borrelia	Tetracycline	Erythromycin	C. Penicillin
Brucella	Tetracycline	Streptomycin	Chloramphenicol Kanamycin
Campylobacter	Erythromycin	Tetracycline	Clindamycin Gentamycin
Chlamydia	Tetracycline Doxycycline	Erythromycin	

ORGANISM	FIRST CHOICE	SECOND CHOICE	ALSO EFFECTIVE
Clostridia	C. Penicillin	Tetracycline	Erythromycin Chloramphenicol Carbenicillin
Enterococci (Group D Streptococci)	C. Penicillin Ampicillin + Gentamicin	Vancomycin + Gentamicin	Ampicillin
Gonococcus	C. Penicillin	Spectinomycin Erythromycin	Tetracycline Chloramphenicol Cefoxitin
Hemophilus influenzae	Chloramphenicol	Ampicillin	Co-trimoxazole Cefamandole Cefotaxime Maxalactam
Legionella	Erythromycin	Co-trimoxazole	Rifampicin
Listeria	Ampicillin	Erythromycin	Tetracycline Chloramphenicol Streptomycin Gentamicin C. Penicillin

ORGANISM	FIRST CHOICE	SECOND CHOICE	ALSO EFFECTIVE
Meningococcus	C. Penicillin	Chloramphenicol	Tetracycline Erythromycin Sulfonamide
Mycoplasma	Erythromycin	Tetracycline	
Nocardia	Sulfonamide	Minocycline	Cycloserine
Franscisella tularensis	Streptomycin	Tetracycline	Chloramphenicol
Providencia	Amikacin	Co-trimoxazole	Carbenicillin
Pseudomonas aeroginosa	Gentamicin + Carbenicillin	Tobramycin + Ticarcillin	Amikacin
Pseudomonas (other species)	Co-trimoxazole	Chloramphenicol Kanamycin	
Rickettsia	Tetracycline	Chloramphenicol	
Salmonella typhi	Chloramphenicol	Amoxicillin Co-trimoxazole	Ampicillin
Shigella	Co-trimoxazole	Ampicillin	

ORGANISM	FIRST CHOICE	SECOND CHOICE	ALSO EFFECTIVE
Staph. aureus	Nafcillin	Cloxacillin Dicloxacillin	Erythromycin
Staph. aureaus (methicillin resistant)	Vancomycin		Amikacin
Staph. epidermis	Vancomycin	Nafcillin Cephalothin	
Streptococcus pyogenes	C. Penicillin	Erythromycin	
Streptococcus (anaerobic)	C. Penicillin	Erythromycin	Tetracycline Vancomycin Clinidamycin Lincomycin
Pneumococcus	C. Penicillin	Erythromycin	Vancomycin Rifampicin
Yersinia	Gentamicin	Streptomycin	Tobramycin Amikacin Co-trimoxazole

C. Penicillin = Crystalline penicillin or Penicillin G.

SECTION 13

MISCELLANEOUS DISORDERS

WASTING DISEASES

1) Metastatic carcinoma
2) Thyrotoxicosis
3) Uncontrolled diabetes mellitus
4) Chronic infections eg
   Tuberculosis
   Lung abscess
5) Cirrhosis of the liver
6) Pheochromocytoma

DIFFERENCES BETWEEN TRANSUDATE AND EXUDATE

TRANSUDATE	EXUDATE
1) Usually pale yellow in color	May be brownish or blood stained
2) Specific gravity usually below 1018	Specific gravity is usually above 1018
3) Protein content usually below 2.5 G per 100 ml	Usually above 2.5 G per 100 ml
4) It usually does not clot on standing	Clots on standing due to presence of fibrinogen
5) Cells are either or few in number	Large number of leucocytes or RBCs may be present
6) On biopsy of the pleura or peritoneum, no inflammatory changes are found because transudate follows a disease elsewhere or a general condition like hypoproteinemia	Inflammatory changes are found on the surface of the pleura, pericardium or peritoneum

---

CAUSES OF ELEVATED CREATINE PHOSPHOKINASE (CPK)

A) MARKED INCREASE
- Acute myocardial infarction
- Muscular dystrophies
- Myositis
- Rhabdomyolysis
- Shock
- Cardiac catheterisation
- Cardiac surgery
- Cardioversion

B) MODERATE INCREASE
- Muscle injury
- After surgery
- Physical exertion
- Muscle cramp
- Intramuscular injection
- Hypothyroidism
- Alcoholism
- Cerebrovascular accidents
- Head injury
- Drugs: Clofibrate

C) SLIGHT INCREASE
- New borns
- Postpartum
- Artefactual

CAUSES OF ELEVATED LACTIC ACID

A) WITH HYPOXIA
1) Strenous exercise
2) Convulsions
3) Hypothermia with prolonged shivering
4) Inadequate tissue perfusion
   - Myocardial infarction
   - Congestive cardiac failure
   - Hemorrhage
   - Septicemia
   - Volume depletion
   - Pulmonary embolism

B) WITHOUT APPARENT HYPOXIA

1) Congenital causes
   - Glucose 6-phosphatase deficiency
   - Pyruvate dehydrogenase deficiency
   - Primary myopathies
2) Drugs
   - Phenformin
   - Salicylates
   - Sodium nitroprusside
   - Ethanol
   - Epinephrine
   - Glucagon
   - Fructose
   - Sorbitol
3) Alkalosis
4) Uncontrolled diabetes mellitus
5) Leukemia
6) Lymphoma
7) Severe liver disease
8) Pancreatitis
9) Thiamine deficiency
10) Idiopathic

CAUSES OF RAISED PLASMA ALKALINE PHOSPHATASE

A) PHYSIOLOGICAL

1) Children
2) Pregnancy

B) BONE DISEASE

1) Rickets and osteomalacia
2) Primary hyperparathyroidism
3) Paget's disease
4) Secondary carcinoma
5) Osteogenic sarcoma

C) LIVER DISEASE

1) Obstructive jaundice
2) Hepatitis
3) Cirrhosis of liver
4) Hepatic tumors
5) Granulomata

D) MALIGNANT TUMORS

ELEVATED PLASMA ACID PHOSPHATASE

A) MECHANICAL CAUSES
- a) Rectal examination
- b) Passage of catheter
- c) Acute retention of urine

B) INFLAMMATION
- a) Hepatitis

C) NEOPLASMS
- Prostate carcinoma with metastases
- Secondary tumors of bone
- Multiple myeloma

D) VASCULAR CAUSES
- Infarction of prostate

E) MISCELLANEOUS CAUSES
- Hemolysed specimens
- Paget's disease
- Gaucher's disease
- Thrombocythemias
- Idiopathic thrombocytopenic purpura
- Hemolytic crisis
- Thromboembolism
- Hyperparathyroidism
- Obstructive jaundice
- Cirrhosis of liver
- Acute renal failure

SECTION 14

IMPORTANT FORMULAE

IMPORTANT FORMULAE

CREATININE CLEARANCE: $= \frac{\text{Weight in kg. X 146} - \text{Age}}{\text{72 X serum creatinine}}$

NORMAL PARTIAL PRESSURE OF OXYGEN (in mm of Hg) =

$$100 - \frac{AGE}{4} \text{ (plus or minus 11)}$$

PARTIAL PRESSURE OR OXYGEN IN THE ALVEOLUS (PA02) can be estimated by using a simplified alveolar air equation:

$$PA02 = (PB - PH20)\ (FI02) - \frac{(PAC02)}{R}$$

where:
PB is the barometric pressure (760 mm Hg at sea level)
PH20 is the tension of water vapor (47 mm Hg)
FI02 is the concentration of oxygen in the inspired gas (= 20% at room air)
R is the respiratory quotient (usually assumed to be 0.8)

The difference between the partial pressure of oxygen in the alveolus (PA02) and the partial pressure of oxygen in the arterial blood (Pa02: this is determined by withdrawing arterial blood and using a machine to estimate the blood gases) is called the ALVEOLAR TO ARTERIAL OXYGEN GRADIENT or P(A–a)02. The normal value of this alveolar to arterial oxygen gradient is less than 10 to 15 mm of Hg.

Any abnormality in diffusion of ventilation/perfusion matching will widen this gradient and increase the value of P(A–a)02. Examples of conditions leading to a widening of the gradient are:

1) Pneumonia
2) Pulmonary embolism
3) Pulmonary edema
4) Adult respiratory distress syndrome
5) Chronic obstructive lung disease
6) Diffuse interstitial fibrosis

This is an important concept. It is very useful to determine the alveolar to arterial oxygen gradient in certain clinical situations for example a patient with overdose of sedative or hypnotic drugs. These patients should have their arterial blood gases determined if facilities permit. If they are hypoxic (i.e. the arterial oxygen is low) then the next step should be to determine the alveolar to arterial oxygen gradient, using the above formula. If the gradient is NORMAL, it means that the patient's hypoxia is only due to depression of the respiratory center by the drugs which in turn causing hypoventilation and possible elevation of arterial carbon dioxide. If however, the gradient is WIDENED, it suggests the possibility that the patient being unconscious may have aspirated his own secretions or food material resulting in aspiration pneumonitis which causes a ventilation/perfusion mismatch and hence widening of A–a gradient. This information will guide you in managing this patient. If the gradient is normal and the hypoxia is due only to respiratory center depression, the patient may require intubation and artificial ventilation. If the gradient is wide and the carbon dioxide tension is normal, the patient may require only supplemental oxygen (eg by mask or nasal cannula) with possible antibiotic treatment if aspiration pneumonia is thought likely.

SERUM OR PLASMA OSMOLALITY

The osmolality of the plasma or serum is largely determined by the electrolyte concentration and can be calculated from the following formula:

$$\text{Serum osmolality in milliOsmoles/kg} = 2 \times \text{Serum Na} + 2 \times \text{Serum K} + \frac{\text{Urea}}{2.8} + \frac{\text{glucose}}{1.8}$$

Example:
Serum sodium = 130 mEq/L
Serum potassium = 5 mEq/L
Blood urea = 30 mg/dl
Serum glucose = 90 mg/dl

The serum osmolality will be

$$2 \times 130 + 2 \times 5 + \frac{30}{2.8} + \frac{90}{1.8}$$

$$= 285 \text{ mOsm/kg}$$

Normal serum (or plasma) osmality is 275 to 285 mOsm/kg.

HYPONATREMIA

In cases of LOW SERUM SODIUM LEVELS the plasma osmolality should first be calculated from the above formula. It will be found to be LOW. In order to restore the plasma osmolality, and the serum sodium level back to normal the following formula is used:

$$(0.6 \times \text{body weight}) \text{ minus } \frac{0.6 \times \text{body weight} \times \text{Patient's plasma osmolality}}{\text{Normal plasma osmolality}}$$

= the amount of water that should be restricted in order to bring the serum sodium to normal range.

For example, a 60 kg patient has a plasma osmolality of 250 mOsm/kg and you wish to increase his osmolality to 275 mOsm/kg. The amount of water you will have to take out from his body fluids (in other words restrict his free water intake) is equal to:

$$0.6 \times 60 \text{ minus } \frac{(0.6 \times 60 \times 250)}{275}$$

= 5 liters of water.

HYPERNATREMIA

In this case, the plasma osmolality is high. Therefore, free water has to be added to the body fluids to bring the sodium level down. The amount of free water or dextrose water to be given can be calculated from the following formula:

Amount of free water needed to correct the sodium level

$$= \frac{\text{Serum Na minus } 140 \times 0.6 \times \text{body weight in kg.}}{140}$$

For example, a 60 kg patient has a serum sodium level of 160 mEq/L. The amount of free water or 5% dextrose that will be required to restore his serum sodium to normal is:

$$\frac{160 - 140 \times 0.6 \times 60}{140}$$

= 5 liters of free water.

SECTION 15

STAINING METHODS

STAINING METHODS

GRAM'S STAINING

1) First fix the specimen on the slide by gently heating the slide or letting it dry in the air.

2) Cover the slide with METHYL VIOLET or GRAM'S CRYSTAL VIOLET for 1 minute.

3) Wash away with Gram's iodine or Lugol's iodine for 1 minute.

4) Wash off the iodine with RECTIFIED SPIRIT or GRAM'S DECOLORISER till no more violet is removed from the film.

5) Wash well with water.

6) Counter-stain with dilute CARBOL FUCHSIN or SAFFRANIN.

7) Wash in water and dry.

8) Gram positive organisms retain the violet while gram negative ones take up the counter-stain and appear pink.

ZIEHL-NEELSEN STAIN

1) First fix the specimen by heating gently or air drying.

2) Cover slide with CARBOL FUCHSIN. Heat untill steam rises. Stain for 5 minutes, heat being applied at intervals. The stain must not be allowed to dry on the slide.

3) Wash well with water.

4) Decolorise with 20% SULPHURIC ACID. The red color changes to yellowish but returns on washing with water. Decolorisation is continued untill after washing the smear is a faint pink.

5) Wash well in water.

6) Treat with ALCOHOL for 2 minutes.

7) Wash with water.

8) Counterstain with METHYLENE BLUE for 1 minute.

9) Acid fast bacilli eg Mycobacterium tuberculosis and M. leprae are stained red (from carbol fuchsin) while most other bacteria and tissue cells take blue stain.

BLOOD SMEAR FOR MALARIAL PARASITES

A) THIN BLOOD FILM

1) Place a drop of blood obtained by finger prick on slide.
2) Spread with another slide.
3) Stain with LEISHMAN'S STAIN, as follows:
4) Place 0.5 ml of Leishman's stain to cover film.
5) After 30 seconds add 1.5 ml of water.
6) Mix well. Allow to stain for 10 to 20 minutes.
7) Wash off with water.
8) Dry in upright position.
9) Examine under oil emersion lens.

B) THICK BLOOD FILM

1) Place 2 to 3 drops of blood together on slide. Spread it out with a needle, such that if slide is held vertically, blood oozes slowly downward but does not flow. Allow to dry.
2) Stain with FIELD'S STAIN as follows:
3) Hold in Solution A for 5 seconds.
4) Wave for 5 seconds in a jar of tap water.
5) Hold in Solution B for 3 seconds.
6) Wave in tap water for 3 seconds.
7) Drain and leave to dry.
8) Examine under oil emersion lens.

GIEMSA'S STAIN

Useful for staining

a) Viral inclusion bodies
b) Rickettsiae
c) Spirochetes
d) Malaria parasites

A) METHOD FOR BLOOD FILMS

1) Fix smear by covering with METHYL ALCOHOL for 3 minutes.
2) Cover with DILUTED GIEMSA'S STAIN (1 ml stain with 1 ml buffer solution) for half to 4 hours.
3) Wash with distilled water and dry.

B) FOR EXUDATES

1) Fix with methyl alcohol for 3 minutes.
2) Cover with UNDILUTED GIEMSA'S STAIN for 6 minutes.
3) Wash with distilled water.

PAPANICOLAOU SMEAR

Useful for diagnosing precancerous and cancerous conditions of vagina, cervix and endometrium.

Also useful for diagnosing viral vescicular rash. Inclusion bodies can be seen.

PROCEDURE

1) Best time is 5 to 6 days after last menstrual period.
2) Place patient in lithotomy position.
3) The speculum should be lubricated only with water.
4) An AYRE'S SPATULA is used. Use the fish tail end for a nulliparous cervix and the opposite end for a multiparous cervix.
5) Scrape the external os of the cervix and posterior fornix with the wooden spatula.
6) Spread the material on a slide.
7) Spray the CYTOLOGY FIXATIVE over it and send it for staining.
8) DRUGS INTERFERING WITH THE TEST

   Oral contraceptives
   Tetracycline
   Digitalis
   Other factors eg heavy period and infection

TZANK SMEAR

Indications

a) Any skin lesion of presumed viral etiology eg chicken pox or herpes.
b) Pemphigus or pemphigoid.

PROCEDURE

1) Scrape lesion with blade.
2) Smear on slide.
3) Immediately pour 70% ISOPROPYL ALCOHOL over slide.
4) Immerse slide in equal volume of isopropyl alcohol and water.
5) Dry and stain with CRYSTAL VIOLET or WRIGHT'S STAIN.
6) Send a similarly prepared slide to cytology laboratory for a Papanicolaou stain.

NORMAL LABORATORY VALUES OF CLINICAL IMPORTANCE

A) NORMAL HEMATOLOGICAL VALUES

1) Cell counts		
a) Erythrocytes:	males	5.5 millions/cumm
	females	4.8 millions/cumm
b) Leukocytes:	Total	4,000 to 11,000 per cumm
	Neutrophils	50–70% (3000–6000)
	Eosinophils	1–4% (150–300)
	Basophils	0–1% (0–100)
	Lyphocytes	20–40% (1500–2700)
	Monocytes	2–8% (300–600)
c) Platelets		200, 000–350, 000/cumm
d) Reticulocytes		0·5–1.5% of RBCs (25,000–75,000/cumm)
2) Bleeding time		2–6 minutes
3) Clotting time (Lee-White)		5–15 minutes
4) Hemoglobin	males	13–16 G/dl
	females	12–15 G/dl
5) Hematocrit		41–45%
6) Prothrombin time		12 seconds (or plus-minus 2 seconds of control)
7) Partial thromboplastin time		Less than 40 seconds
8) Fibrinogen		200–400 mg/100 ml
9) Fibrin split products		3–8 microgram/100 ml
10) Sedimentation rate	males	0–15 mm/hr
	females	0–20 mm/hr

11) Mean corpuscular hemoglobin (MCH)	27–32 pg
12) Mean corpuscular hemoglobin concentration (MCHC)	33–38%
13) Mean corpuscular volume (MCV)	80–90 cubic microns

B) NORMAL BLOOD, PLASMA AND SERUM VALUES

Serum acetone	0.3–2.0 mg/100 ml
Serum aldolase	35 units/ml
Blood ammonia	40–70 micrograms/100 ml
Serum amylase	80–180 U/dl
Arterial blood gases on room air	
PO2	75–100 mmHg
PCO2	35–45 mmHg
pH	7.38–7.44
Bicarbonate	23–28 MEq/L
Serum bilirubin	
Total	0.3–1.0 mg/100 ml
Direct	0.1–0.3 mg/100 ml
Serum calcium	
Total	9.0–10.5 mg/100 ml
Non-diffusible	35%
Complexed	0.5–1.0 mg/100 ml
Ionised	60% or 4–5 mg/100 ml
Serum carotene	75–300 micrograms/100 ml
Carcinoembyonic antigen	Less than 2.5 ng/ml
Serum ceruloplasmin	25–43 mg/100 ml
Serum chloride	98–106 mEq/L
Serum cholesterol	150–280 mg/100 ml

Serum copper	.....	.....	.....	100–200 micrograms/100 ml
Creatinine phosphokinase (CPK)		.....	.....	12–20 U/ml
Serum creatinine	.....	.....	.....	0.7–1.5 mg/100 ml
Serum folate	.....	.....	.....	6–20 ng/ml
Fasting glucose	.....	.....	.....	70–150 mg/dL
Serum iron	.....	.....	.....	50–150 microgram/100 ml
Total iron binding capacity (TIBC)		.....	.....	250–510 microgram/100 ml
Blood lactic acid	.....	.....	.....	0.6–1.8 mEq/L
Serum lactic dehydrogenase	.....	.....	.....	60–100 U/ml
Blood lead	.....	.....	.....	15–40 microgram/100 ml
Serum lipase	.....	.....	.....	0. to 1.5 U/ml
Serum magnesium	.....	.....	.....	1.5–2.4 mg/dL
Plasma osmolality	.....	.....	.....	275–285 mosmol/kg H20
Serum acid phosphatase	.....	.....	.....	0.5–2.0 U/ml
Serum alkaline phosphatase	.....	.....	.....	5–13 KA U/100 ml (30–85 IU/L)
Serum phosphorus	.....	.....	.....	3.0–4.5 mg/100 ml
Serum phospholipids	.....	.....	.....	6–12 mg/100 ml
Serum potassium	.....	.....	.....	3.5–5.0 mEq/L
Plasma proteins:	Total	.....	.....	6.4–8.3 G/100 ml
	Albumin	.....	.....	3.5–5.5 G/100 ml
	Globulin	.....	.....	2.0–3.5 G/100 ml
		Alpha – 1-globulin	.....	0.2–0.4 G/100 ml
		Alpha – 2-globulin	.....	0.5–0.9 G/100 ml
		Beta globulin	.....	0.6–1.1 G/100 ml
		Gamma globulin	.....	0.7–1.7 G/100 ml
			IgG	640–1430 mg/100 ml
			IgA	30–300 mg/100 ml
			IgM	20–140 mg/100 ml

IgD	Less than 20 mg/100 ml
IgE	6–720 nanogram/ml
Serum sodium	136–145 mEq/L
SGOT (Aspartate transaminase)	10–40 U/ml
SGPT (Alanine transaminase)	10–40 U/ml
Serum triglycerides	0–150 mg/100 ml
Blood urea nitrogen (BUN)	8–20 mg/100 ml
Serum Vitamin B-12	3.0–7.0 mg/100 ml
Serum uric acid	3.0–7.0 mg/100 ml
Blood urea	15–40 mg/100 ml

NORMAL URINE VALUES

Amino acids	200–400 mg/24 hrs
Bilirubin	negative
Amylase	35–260 U/h
Calcium	Less than 250 mg/24 hours
Chloride	80–250 mEq/24 hrs
Copper	0–100 micrograms/24 hrs
Creatine	0–40 mg/24 hrs
Creatinine	15–25 mg/24 hrs
Creatinine clearance	90–140 ml/min
5-hydroxyindoleacetic acid	2–9 mg/24 hrs
Osmolality	38–1400 mosmol/kg H20
Potassium	25–100 mEq/24 hrs
Protein	Less than 100 mg/24 hrs
Sodium	100–260 mEq/24 hrs
Uric acid	250–750 mg/24 hrs
Urobilinogen	1–35 mg/24 hrs
pH	4.6–8.0

Specific gravity	.....	.....	.....	1015–1025
Bacteria	.....	.....	.....	Less than 10,000/hr
Total solids	.....	.....	.....	30–70 G/L

D) CEREBROSPINAL FLUID NORMAL VALUES

Cells	.....	.....	.....	0–5 mononuclears/cumm
Chloride	.....	.....	.....	120–130 mEq/L
Total protein	.....	.....	.....	15–45 mg/100 ml
Glucose	.....	.....	.....	50–75 mg/100 ml
Pressure (opening)	.....	.....	.....	70–180 mm saline

E) NORMAL VALUES FOR FECES

Bulk	.....	.....	.....	100–200 G/24 hrs
Dry matter	.....	.....	.....	23–32 G/24 hrs
Total fat	.....	.....	.....	Less than 6 G/24 hrs
Total nitrogen	.....	.....	.....	Less than 2 G/24 hrs
Water	.....	.....	.....	Approx. 65%

F) NORMAL VALUES IN THE ENDOCRINE SYSTEM

ACTH in serum	.....	.....	.....	Less than 80 pg/ml
Urine aldosterone	.....	.....	.....	5–19 micrograms/24 hrs
Serum cortisol	.....	.....	.....	5–25 microgram/100 ml (8 am)
				Less than 10 microgram/100 ml (5 pm)
Urine cortisol		.....	.....	20–100 micrograms/24 hrs

Plasma growth hormone	Less than 5 ng/ml
Serum insulin	5–20 microunits/m-
17-hydrocorticosteroids (urine)	Male 3–10 mg/24 h
	Female 2–8 mg/24 h
Parathyroid hormone (serum)	150–350 pg/ml
Serum prolactin	Less than 25 ng/ml
Sperm concentration	20–150 million/ml
Sweat sodium and chloride	Less than 60 mEq/L
Serum testosterone	400–1000 ng/ml
131 Radioiodine uptake	5–30% of administered dose/24 hr
TSH	Upto 5 microunits/ml
Total thyroxine	5–12 microgram/100 ml
Free thyroxine	0.8–2.4 ng/100 ml
T3 resin uptake	25–35%

SECTION 17

REFERENCES AND SUGGESTED READING

A) GENERAL MEDICINE

1) Petersdorf RG; Adams RD; Braunwald E; Isselbacher KJ; Martin JB; Wilson JD. Harrison's Principles of Internal Medicine. Tenth Edition. McGraw Hill Book Company, New York.

2) Harvey MA; Johns RJ; McKusick VA; Owens AH; Ross RS. The Principles and Practice of Medicine. Twentieth Edition. Appleton-Centure-Crofts, New York.

3) Macleod J. Davidson's Principles and Practice of Medicine. Eleventh Edition. Edinburgh. 1974.

4) Friedman HH. Problem Oriented Medical Diagnosis. Second Edition. Little Brown and Company. Massachusetts. 1979.

5) Campbell JW; Frisse M. Manual of Medical Therapeutics. Little Brown and Company. Boston, Mass. 1983.

6) Hart DF. French's Index of Differential Diagnosis., 10th Edition. Bristol. John Wright and Sons Ltd. 1973.

7) Krupp MA; Chatton MJ. Current Medical Diagnosis and Treatment. 1980. Lange Medical Publications. Los Altos, Ca.

8) American College of Physicians. Medical Knowledge and Self-Assessment Program VI.

9) Davies IJT. Postgraduate Medicine. Lloyd-Luke Medical Books Ltd. London.

10) Stein JH. Internal Medicine. Little Brown and Co. 1983. Boston.

B) INFECTIOUS DISEASES

1) Reese RE; Douglas GR. A Practical Approach to Infectious Diseases. Little Brown and Company. 1983. Boston.

2) Mandell GL; Douglas RG; Bennett JE. Principles and Practice of Infectious Diseases. New York. John Wiles and Sons.

C) CARDIOLOGY

1) Hurst JW; Logue RB; Rackley CE; Schlant RC; Sonenblick EH; Wallace AG; Wenger NK. The Heart, Arteries and Veins. Fifth Edition. McGraw Hill Book Company. New York.

2) Johnson RA; Haber E; Austen WG. The Practice of Cardiology. Little Brown and Co. Boston. 1980.

3) Julian DG. Cardiology. Third Edition. Bailliere Tindall. London.

4) Goldman MJ. Principles of Clinical Electrocardiography. Lange Medical Publications. Los Altos, Ca.

5) Schamroth L. An Introduction to Electrocardiography. Blackwell Scientific Publications. Oxford, London.

D) RESPIRATORY MEDICINE

1) Cole RB. Essentials of Respiratory Disease. Second Edition. Pitman Medical Publishing Co. Kent, England.

2) Fishman AP. Pulmonary Diseases and Disorders. New York. McGraw Hill Book Company. 1980.

3) Baum GL. Textbook of Pulmonary Diseases. Little Brown and Co. Boston.

E) NEPHROLOGY

1) Wardener H.E.D. The Kidney. An Outline of Normal and Abnormal Structure and Function. Churchill Livingstone. Edinburgh.

F) GASTROENTEROLOGY

1) Sherlock S. Diseases of Lower and Biliary System. Fifth Edition. Blackwell Scientific Publications. Oxford.

2) Sleisenger MH; Fordtran JS. Gastrointestinal Disease; Pathophysiology, Diagnosis and Management. Third Edition. W.B. Saunders Company, Philadelphia. 1983.

G) ENDOCRINOLOGY

1) Felig P; Baxter JD; Broadus AE; Fishman LA. Endocrinology and Metabolism. New York. McGraw Hill Book Company.

2) Williams RH. Textbook of Endocrinology. W.B. Saunders Co. Philadelphia.

H) RHEUMATOLOGY

1) Mason M; Currey HLF. An Introduction to Clinical Rheumatology. Pitman Medical Publishing Co. Ltd. Kent, UK.

2) Kelley WN; Harris ED; Ruddy S; Sledge CB. Textbook of Rheumatology. Philadelphia. W.B. Saunders Company. 1981.

I) NEUROLOGY

1) Bannister, Sir Roger. Brain's Clinical Neurology. Oxford University Press. New York. Toronto.

2) Baker AB; Baker LH. Clinical Neurology. Harper Row Publishers, Philadelphia.

3) Adams RD; Victor M. Principles of Neurology. New York. McGraw Hill Book Company. 1981.

J) DERMATOLOGY

1) Levene GM; Calnan CD. A Color Atlas of Dermatology. Wolfe Medical Publications Ltd. London.

2) Rook A; William DS; Ebling FJG. Textbook of Dermatology. Second Edition. Oxford. Blackwell Scientific Publications. 1972.

3) Moschella SL; Pillsbury DM; Hurley HJ. Dermatology. Philadelphia. W.B. Saunders Co. 1975.

H) OPHTHALMOLOGY

1) Elder ST. Parson's Diseases of the Eye. Churchill Livingstone London.

I) PHARMACOLOGY

1) Laurence DR. Clinical Pharmacology. Churchill Livingstone London.

J) CLINICAL METHODS

1) Hunter D; Bomford RR. Hutchison's Clinical Methods. Bailliere Tindall and Cassell. London.

2) Burton JL. Aids to Postgraduate Medicine. Churchill Livingstone London.

3) Burton JL. Aids to Undergraduate Medicine. Churchill Livingstone London.

K) LABORATORY MEDICINE

1) Zilva JF; Pannall PR. Clinical Chemistry in Diagnosis and Treatment. Lloyd-Luke Medical Books London.

2) Fischbach FT. A Manual of Laboratory Diagnostic Tests. J.B. Lippincott Co. Philadelphia.

L) HEMATOLOGY

1) Penington D; Rush B; Castaldi P.G.C. de Gruchy. Clinical Hematology in Medical Practice. Blackwell Scientific Publications. Oxford, London.

2) Leavell BS; Thorup OA. Fundamentals of Clinical Hematology. W.B. Saunders Co. Philadelphia.