

# General Examination

## \* PALLOR -

Waxy appearance of skin & mucous membrane which depends upon thickness and equality of skin & amount of blood in capillaries.

Sites: Inner palpebral conjunctiva  
dorsum of tongue  
hard palate  
nail bed  
palms & soles.

Pallor but no anaemia - Myxedema  
Nephritic  
Vasovagal attacks  
Peripheral circulatory failure.

Polythemia:- Males > 18g% Hb  
or > 52% PCV

Females: 16.5g% Hb  
> 48% PCV

Causes of polythemia -

- 1° - polythemia rubra vera
- 2° - DH ↑ EPO → COPD  
High altitude  
CCHD

Inappropriate EPO: RCC  
Hepatoma  
Fibroid  
Congenital cyanotic HD  
COPD

\* Icterus: Sites: ① Upper bulbar conjunctiva  
② under surface of tongue  
③ Soft palate  
④ palms, soles

DDs: Carotenemia  
Phenol  
Quinacrine

\* Normal serum bilirubin: 0.2-0.8 mg/dL  
Latent jaundice - 1-2 mg/dL  
Evident jaundice - > 3 mg/dL

## \* Clubbing:

Bulbous swelling of the terminal part of fingers & toes with an ↑ in soft tissue mass & ↑ AP & transverse diameter of nail with obliteration of onychodermal angle (Lovibond angle)

## \* Degree of clubbing:

Grade I: ↑ fluctuation

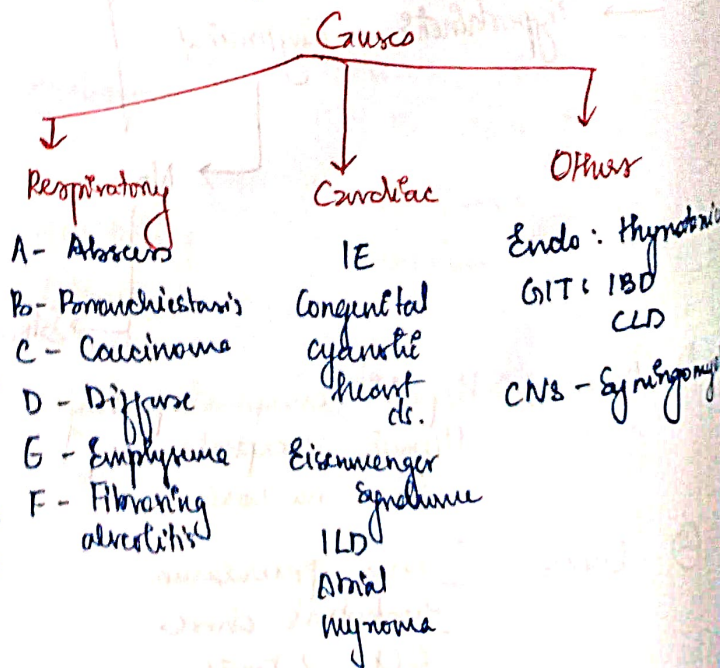
Grade II: Obliteration of onychodermal angle

Grade III: Parrot beak or drumstick appearance

Grade IV: Hypertrophic pulmonary osteoarthropathy

## \* SCHAMROTH SIGN -

Obliteration of the normal diamond shaped gap when nails are opposed.



\* Differential clubbing: PDA  
 Clubbing ⊕ in legs, absent in hands)

\* Pseudo clubbing - hyperparathyroidism  
 Scleroderma  
 Leptony

**CYANOSIS**

Central

Peripheral

Sites: tongue & periphery  
 Clubbing ⊕  
 Warm limbs  
 Hypoxemic hypoxia

Sites: periphery  
 (lip, ear lobes, nose  
 tip, fingers)  
 Usually not present  
 Cool limbs

**CAUSES -**

CVS: Congenital cyanotic  
 heart ds  
 Eisenmenger  
 Pul. edema.

Stagnation  
 hypoxia

Lung: severe asthma, COPD, fibrosing  
 alveolitis, tension pneumothorax

**Lymphadenopathy**

Levels: ① 1a: submental nodes  
 1b: submandibular nodes

② Upper jugular nodes (upper 1/3rd of jugular  
 vein)

③ Middle jugular node (thyroid → cricoid)

④ Lower jugular node (cricoid → clavicle)

⑤ Post. cervical

⑥ Ant. compartment nodes

⑦ Nodes of upper mediastinum

Significant: size > 2cm - jugular  
 > 1.5 - axillary  
 > 1cm - cervical

Causes: Infections: TB, IMN, Borna disease  
 HIV

Leukemia: ALL, CLL  
 Lymphoma: Hodgkin's & Non-Hodgkin's

**Edema**

- Causes :- ① CHF (↑ hydrostatic pressure &  
 Na retention)  
 ② CLD (↓ oncotic pressure)  
 ③ Nephrotic syndrome (↓ oncotic pressure)  
 ④ Cellulitis (inflammation)  
 ⑤ Angioneurotic edema  
 ⑥ PGM

Ull pedal edema :- IVT  
 cellulitis  
 fibrosis (non-pitting)  
 → myxedema

RESP :- ① Cor pulmonale

Chronic lung ds → chronic hypoxia → pulmonary  
 vasoconstriction

Systemic venous congestion ← RHF ← pul. HTN

↓  
 Bil pitting pedal edema

DLT - COPD, ILD, Bronchiectasis  
 Severe hypoxemia, OSA.  
 Chronic PE

② All PE

③ Severe Pul. HTN

④ ARDS

⑤ SVC obstruction due to lung Ca  
 ↓  
 localized edema

**VITAL SIGNS**

**PULSE**

↓  
 Aortic  
 Coarctation Arteries  
 Takayasu  
 arteritis

↓  
 Rate

Physio

Arrhythmia  
 Exercise  
 Children

Patho:

AF  
 Thyroid  
 drugs

① Bradycardia  
 < 60/min

Relative  
 ↑  
 L - leptos  
 Y - yellow fever  
 M - meningitis  
 E - enteric fever

Physio :-  
 Athlete  
 Sleep  
 Patho  
 Hypo  
 Gbs. Fungal  
 G Myx.

Rhythm: Regularly irregular : Extrasystole  
Ventricular bigeminy

Irregularly irregular : AF  
multiple ventricular ectopics

→ force every 1 rise in temp. → pulse ↑ by 10  
↳ Resp ↑ by 4

Volume: → high : Anxiety  
fever  
B<sub>2</sub>B<sub>2</sub>  
Thyrotoxicosis  
AR  
PDA

↓  
low  
Stenotic lesion  
MS  
AS

Theory: ① Pulsus parvus - MS  
low A, slow rising pulse

② Pulsus parvus et tardus - AS  
slow rising, late peaking, low A

③ Collapsing pulse: large vol. pulse  
rapid upstroke & downstroke

④ Pulsus bisferiens : 2 peaks in systole  
AS & AR  
Severe AR  
HOCM  
→ seen in PDA  
AR  
AV fistula

⑤ Pulsus alternans : Severe LV dysf.

⑥ Pulsus bigeminy

⑦ Pulsus paradoxus.

# BACK TO BASICS

## PULSE

\* Pulse:

Pressure disturbance wave produced by contraction of left ventricle against a partially filled aorta which is transmitted to periphery and is felt on a peripheral A. against a bony prominence.

Characteristics:-

- Rate } Radial A.
- Rhythm } Radial A.
- Volume } Radial A.
- Character or quality } Corotid
- Radio-radial or Radio-femoral delay } Corotid
- whether all peripheral pulses are equally felt. } Corotid
- Condition of vessel wall } Corotid

**RATE**

⇒ NORMAL PR: 60 - 100 beats

< 60 (Bradycardia)

- Physio:- Athletes  
Sleep
- Patho:- Severe hypothyroidism  
Hypothyroidism, myxedema  
Obstructive jaundice  
Hypothermia  
Sick sinus syndrome  
Beta-blockers, verapamil & digoxin  
Heart block  
Reduced ICT  
(Aortic regurgitation)

> 100 (Tachycardia)

- Physio:- Infants  
Children  
Emotion  
Exercise  
Anxiety
- Patho:- tachyarrhythmias
- Hypertension:- Severe anemia
- Hyperthyroidism  
Pheochromocytoma  
Paget's dx  
Cirrhosis of liver  
AV fistula  
Cardiac failure  
Catecholamine shock  
Tox: Adrenaline, norepinephrine, salbutamol

\* Relationship b/w Pulse & Temp:  $\uparrow 1^\circ\text{F} \uparrow$  PR  $\uparrow$  by 10.

Relative tachy.

- ① Ac rheumatic conditis
- ② Diphtheria myocarditis
- ③ TB

Relative brady.

- ① Yellow fever (Faget's sign)
- ② Dengue fever
- ③ first wk of enteric fever
- ④ Typhoid meningitis
- ⑤ Bone marrow
- ⑥ Legionella
- ⑦ Psittacosis
- ⑧ Typhus
- ⑨ Q fever
- ⑩ Leptospirosis

**RHYTHM** N: Regular

- I) Regularly irregular
- ① Atrial tachyarrhythmias with fixed AV block
  - ② Sinus arrhythmia
  - ③ Partial / 2nd degree blocks
  - ④ Ventricular bigeminy & trigeminy

- II) Irregularly irregular
- ① Ventricular ectopics / VPC
  - ② Atrial fibrillation (AF)
  - ③ Atrial tachyarrhythmias  $\bar{c}$  varying AV block

Arrhythmias  $\bar{c}$  Regular Rhythm:-

- ① AFlutter
- ② Vent. tachycardia
- ③ 1<sup>o</sup> & 2<sup>o</sup> HB

Pulse deficit > 10 → AF  
< 10 → Ventricular premature beats

**VOLUME** : measure of pulse pressure.  
 NORMAL: 30-60 mmHg.

< 30 mmHg: Hypotensive

> 60 mmHg: Hypertensive

- CCF
- Hypovolemia
- Shock
- MS
- AS (pulmo minimum)
- Constrictive pericarditis

Physi :- Fever, preg.  
 alcoholism, & exercise.

Patho :-

High Output: Anemia  
 Beriberi

Hypercarbia

Cirrhosis liver

Thyroidosis

AV fistula

Paget dis of bone

Cardiac: Pulmo Magnus

↳ AR

↳ Severe MR

↳ Complete heartblock

↳ PDA

↳ Rupture of sinus valvulae

Grading Of Pulse :-

0 - Complete absence

1 - Small feeble

2 - Palpable but diminished compared to other side

3 - Normal. (N)

4 - Large or high volume

\* Normal radial pulse is felt 5-10ms. later than femoral.

CHARACTER

① Cataerotic pulse: (N)

② Pulsus parvus et tardus: (N) with slow rising & late peaking (tardus) → Severe AS

③ Pulsus anacroticus - Single peak low vol  
 ↳ Severe AS

④ Spike & dome → 100mm pulse

⑤ Water hammer or Collapsing pulse: High volume pulse sharp rise, fullness sharp fall  
 PP = 60mmHg

↓  
 Seen in AR, PDA, Aortopulmonary window rupture of sinus valvulae, AV fistula, Severe MR

⑥ Pulsus bigeminus: 2 peaks in systole bigemine  
 ↳ Severe AR, Mod. AR + AS, MOD

⑦ Pulsus alternans: One peak in systole diastolic Other peak in diastole  
 ↳ Typhoid fever  
 ↳ Severe LVF  
 ↳ Dehydrates  
 ↳ Dilated cardiomyopathy  
 ↳ endotoxic shock

⑧ Pulsus alternans  
 ↓  
 LVF

⑨ Pulsus bigeminus - Digoxin toxicity.

⑩ Pulsus paradoxus: SBP falls more than 10mmHg during insp.  
 ↳ Constrictive pericarditis  
 ↳ A/c severe asthma, COPD  
 ↳ CT, tension pneumothorax

# RESPIRATION

→ (16-20)  
Normal PR: RR ⇒ 4:1

Tachypnea > 20

Bradypnea < 10

## Physiological:

Anxiety  
Emotion

## Pathological

Emphysema  
Pneumothorax  
A/C Resp. disten.  
Pleurisy  
Pul. embolism  
Metabolic acidosis  
Cardiac insuff.  
Anemia  
Hyperthyroidism  
Weakness of Resp. muscle.  
Obesity  
Restrictive chest wall dis.

CNS depressant drugs  
↳ Opiates, Benz. barbiturates  
alcohol.

↑ ICT  
uremia  
hypothermia  
hypothyroidism

## ABNORMAL PATTERNS OF BREATHING:

Regular

① Cheyne Stokes  
(periods of apnea alternating with hyperpnea)

LVE → rate  
Raised ICP  
Pons/medulla lesions

Kussmaul's  
(Rapid deep breathing)

DKA & RF

Irregular

Poist  
Meningitic

Atanic  
↳ Brainstem disord.

⇒ Pursed lip breathing: COPD  
↳ mechanism of auto PEEP

BP: CO X PR

## Paroxysmal HTN:

- ① Pheochromocytoma
- ② Panic disorder
- ③ Labile HTN
- ④ Carcinoid
- ⑤ Clonidine withdrawal
- ⑥ Hyperthyroidism
- ⑦ Conn's insuff.
- ⑧ Cluster / Migraine headaches

## HYPO TENS ION:

BP < 90/60 mmHg

Causes :- Younger Adult

Pregnancy.  
Vasovagal syncope.  
Situational "  
1° amyloidosis  
1° autonomic failure

Any adult

CLD  
Diabetic autonomic neuropathy  
2° amyloidosis  
Addison's  
Hypopit.  
Sec. hypothyroidism

Older

Parkinson's  
Vit. B12 def.  
Carotid sinus synch.

## \* Physical Examination: (Nailbed Hb < 8g/dL)

PALLOR: Conditions causing pallor w/o anemia:

Hypopituitarism  
Hypothyroidism  
Hypogonadism  
Shock  
LVF

Sn ↓  
\* IDA: Pica, dysphagia, restless leg syndrome & melena  
Signs: Bald tongue, koilonychia, Blue sclera.

# Anemia

## \* Clues for etiology of anemia:

1) IDA: Pica, dysphagia, restless leg syndrome and melena

Signs: Pale tongue, koilonychia & blue sclera

PS: Microcytic hypochromic anemia

Specific: Iron studies, PBM staining for iron, stool/wine for occult blood & endoscopy

## 2) Megaloblastic Anemia:

Symptoms: Tingling & numbness  
Sensory ataxia

Signs:- Glossitis, keratole pigmentation  
absent deep tendon reflexes  
sensory loss, positive Romberg's.

PS:- macrocytic RBCs,  
hypersegmented neutrophils  
pancytopenia

Specific: Serum vitamin B12 levels  
Red cell folate levels  
PBM examination  
Schilling's test

## 3) Anemia of Chronic Dis:

HTN, AV fistula → CKD

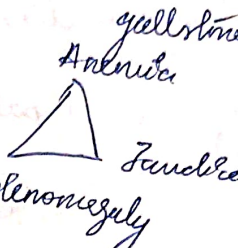
Signs of liver failure → CLD

Signs of RA/SLE

Specific: RFT, LFT, autoantibodies  
raised serum ferritin

## 4.) Hemolytic anemia

Symp:- Hb associated jaundice  
developmental delay  
family h/o +ve  
recurrent blood transfusion

Signs:-   
gallstones

PS: microcytic hypochromic  
microspherocytes  
Sickle cells  
Reticulocytosis

Specific:- Hb electrophoresis  
Coombs

Sickling test

Osmotic fragility

## 5) Aplastic anemia:

Symp: Recurrent infections  
Bleeding manifestations

Signs:- Signs of pancytopenia  
H/o organomegaly

# ICTERUS

S-bilirubin levels & jaundice:

0.3 - 1.2 mg/dl →  $\textcircled{N}$

1.2 mg/dl - 2.5 mg/dl → latent jaundice

> 2.5 mg/dl → clinically appreciated

Yellowish discoloration w/o jaundice -

1) Hypercarotenemia

2) Hypothyroidism

3) Excessive exposure to phenols/nitric acid

4) Quinacrine intake

# CYANOSIS

Lemon yellow: Hemolytic  
 Dark yellow: Obstructive jaundice  
 Greenish dark yellow - longstanding  
 obstructive jaundice

\* Diff. families based on clinical & lab

Symp + Lab	Hemo (Hc)	Hepatic	Post hep
Urine	(N)	Yellow	Yellow Pale
Spleen	(N)	(N)	Clay
Pruritis	-	+	++

## Examinations

Paroxysmal	-	-	+
Falter	Present absent	-	-
Jaundice	mild	Moderate	Severe
Splenomegaly	+ve	variable	Absent
Palpable gallbladder	±	-	++
Features of liver cell failure	Absent	+	±

## Lab

	↑ UCB	↑ UCB + ↑ CB	↑ CB
S-bilirubin	↑ UCB	↑ UCB + ↑ CB	↑ CB
enzymes	↑ LDH	AST ↑ ALTA	ALP ↑
U-bilirubin	-	+	+
unconjugated bilirubin	+	+	-
Enzymes:	Thalassaemia SCA Spherocytosis Malaria Immune hemolytic anemia	Hepatitis Infective mononucleosis leukemia hepatitis	CPD stone Helminths in the CPD Ca-head of pancreas PBC PSC

Deoxy Hb > 5g% or abnormal Hb :  
 Sat<sub>L</sub> < 85%

ETIOLOGY:- TRUE CYANOSIS

Central cyanosis:-

Cardiac: Cyanotic heart disease

- ① Tricuspid atresia
- ② Transposition of great arteries
- ③ Total anomalous pulmonary venous connection (TAPVC)
- ④ Tetralogy of Fallot
- ⑤ Tricuspid atresia
- ⑥ Ebstein's anomaly
- ⑦ Eisenmengerization

Pulmonary: Asthma

COPD

Cox-pulmonale

RF of any cause like pneumonia, tension pneumothorax, massive pleural effusion & acute pulmonary edema.

Others: High altitude  
Polycythemia  
Methemoglobinemia  
Sulphhemoglobinemia  
Carbonyl

Peripheral

- low CO
- local vasoconstriction
- arterial or venous obstruction
- hyperviscosity condition (multiple myeloma, polycythemia)
- cryoglobulinemia

MIXED WF

\* Hyperoxia

After giving  
 a repeat  
 < 150 m  
 of pab.

Definition:  
 by distal  
 subse  
 blo

Therapies

① PDGF

② Neu

③ Hypo

Grades

Grade  
grade

Grade

Grade

Grade

Lemon yellow: Hemolytic  
 Dark yellow: Obstructive jaundice  
 Greenish dark yellow - longstanding obstructive jaundice

\* Diff- jaundice based on clinical & lab

Symp + Lab	Hemo (Hct)	Hepatic	Post hep
Urine	(N)	Yellow	Yellow Pale
Stools	(N)	(N)	Clay
Pruritis	-	+	++

Examination

Paraly	-	-	+
Pallor	Present <del>Absent</del>	-	-
Jaundice	mild	Moderate	Severe
Splenomegaly	+ve	variable	Absent
Palpable gallbladder	+	-	++
Features of liver cell failure	Absent	+	+

Lab

S-bili	↑UCB	↑UCB + ↑CB	↑CB
enzymes	↑LDH	AST ↑ ALTA	ALP ↑
U-bili	-	+	+
urobilinogen	+	+	-

Examples: Thalassemia  
 SCA  
 Spherocytosis  
 Malabsor  
 Immune hemolytic anemia

Hepatitis  
 Infiltrative disorders  
 Ischemic hepatitis

COPD status  
 Helminths in the COPD  
 Ca-head of pemercals  
 PBC  
 PSC

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 Sulfhemoglobinemia  
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- cryoglobulinemia

MIXED: WF

\* Hypoxia test (Archie vs. Pulmonary Cyanosis)

after giving 100% O<sub>2</sub> for 10 minutes,  
a repeat ABG is done if PaO<sub>2</sub> is  
< 150 mmHg → CARDIAC  
if PaO<sub>2</sub> > 200 mmHg → Resp

## CLUBBING

Definition: Selective bulbous enlargement  
of distal segment of digits with  
subsequent loss of normal angle  
b/w the nail & the nail bed

Theories of clubbing:

- ① PDGF (factor of platelet) → macrophages lodge in tips of digits & locally release PDGF &
- ② Neurogenic - persistent vagal stimulation causes vasodilation & clubbing (eg. lung carcinoma)
- ③ Hypoxic :- Causes opening of deep AV fistula in fingers (eg. tetralogy of fallot)

Grades of Clubbing:

Grade 1: fluctuation of nail bed

Grade 2: loss of normal angle  
Hippocratic sign  
Schamberg sign

Grade 3: parrot beak  
Drumstick fingers

Grade 4: Pain along the distal ends  
of long bones d/t subperiosteal  
new bone formation.

→ Bronchogenic Ca

Grade 5: Glossy Δ in nails & adjacent skin

\* Causes of Clubbing:

\* Respiratory causes:

Malignancies :- Bronchogenic Ca  
Mesothelioma

Suppurative :- Bronchiectasis  
Lung abscess  
Empyema

Interstitial lung disease.

TB: 30% cases as a sequelae to  
complication

Sarcoidosis

## CARDIAC

- ① Subacute bacterial endocarditis
- ② Atrial myxoma
- ③ Cyanotic heart dis.
- ④ Acyanotic dis - Eisenmenger's.

## GIT

IBD → ulcerative colitis  
→ Crohn's

1° biliary cirrhosis  
Hepatocellular Ca.

## Neuro

- ① Syringomyelia
- ② Median n. injury
- ③ Hemiplegia

Miscellaneous :- Pachydermo-periostosis  
(pan-digital hereditary clubbing)  
Touraine-Solente-Gile syndrome

# Atypical presentation of clubbing:

- 1) Acute clubbing -
- ① Subacute bacterial endocarditis
  - ② Lung abscess
  - ③ Empyema

- 2) U/L clubbing -
- ① Hemiplegia
  - ② Aneurysm of subclavian (A)
  - ③ Pancoast tumor

- 3) Pseudo clubbing -
- ① Limbony
  - ② Leukocyte infiltration
  - ③ Hyperparathyroidism
  - ④ Thyroid acropachy
  - ⑤ Sclero dactyl

- 4) Pseudo clubbing: Paraneoplastic Ca  
Subacute BE  
Lung abscess.

- 5) Pseudo clubbing: Lung abscess -  
Empyema

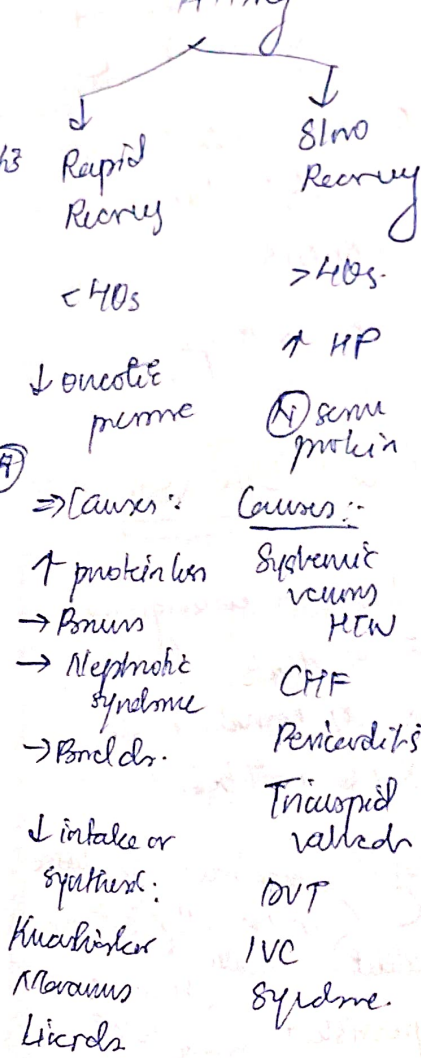
- 6) Clubbing & cyanosis: Cyanotic heart dr  
ILD

## EDEMA

Abnormal accumulation of fluid in interstitium

### Grading:-

- 1+ : 2mm depression, immediate rebound
- 2+ : 4mm depression, few seconds to rebound
- 3+ : 6mm deep pit, 10-12 s. to rebound
- 4+ : 8mm deep pit, >20s. to rebound.



### Non-pitting (brown)

Skin shows hyperkeratosis  
lymphedema.  
lymphatic obstruction

- Causes: ① Myxedema - hypothyroid  
② Prethoracic lympho - Cancer
- UL: BC  
Radiation induced