

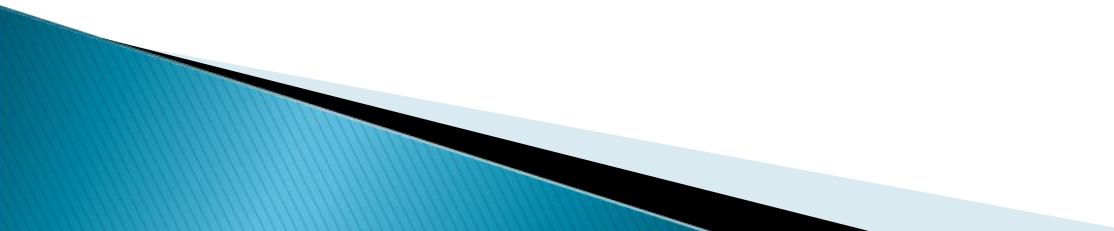
# Red Blood Cells

## Diseases Involving The Red Blood Cells

DEPT OF ORAL PATHOLOGY AND  
MICROBIOLOGY,

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# LEARNING OBJECTIVES:

- ✱ At the end of lecture student should be able to
  - ✱ Define anaemia
  - ✱ Enlist various types of anaemia
  - ✱ Describe clinical features of pernicious and aplastic anaemia
  - ✱ Lab investigations of pernicious and aplastic anaemia
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# ANEMIA

- Defined as abnormal reduction in the number of circulating RBCs, the quantity of hemoglobin and the volume of packed red cells in a given unit of blood.

# About RBC's

- Biconcave discs , No nucleus

- Life span- 120 days

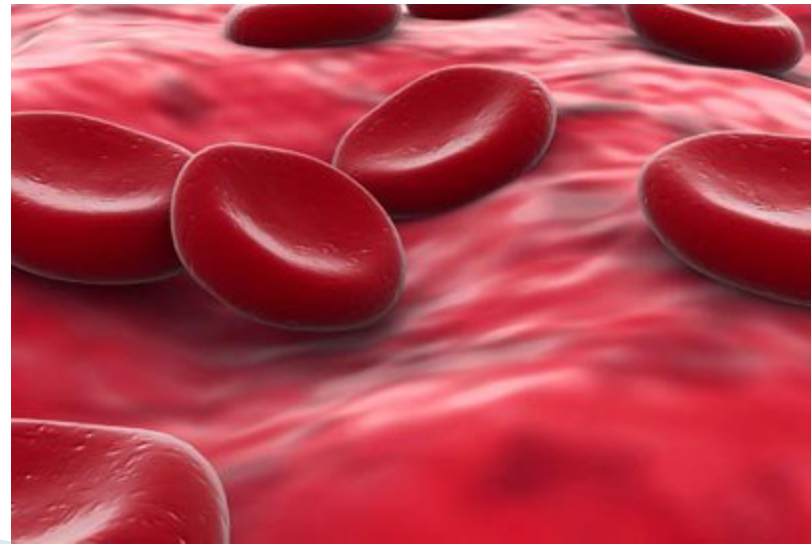
- Precursor stages:

1. Pro erythroblast

2. Normoblast

3. Reticulocyte

4. Erythrocytes



# Morphologic classification of Anemia

## ★ Macrocytic

- Megaloblastic A

## ★ Normocytic

- Hemorrhage
- Hemolysis

## ★ Microcytic

- Infections
- Inflammatory diseases

## ★ Hypochromic and Microcytic

- Fe def.A

# Signs and symptoms (GEN)

## ✿ Values indicative of anemia

- Up to puberty –  $\text{Hb} < 11.0 \text{ g/dl}$
- Adult females –  $\text{Hb} < 11.5 \text{ g/dl}$
- Adult males –  $\text{Hb} < 13.5 \text{ g/dl}$

## Symptoms of Anemia

Red = In severe anemia

**Eyes**  
- Yellowing

**Skin**  
- Paleness  
- Coldness  
- Yellowing

**Respiratory**  
- Shortness of breath

**Muscular**  
- Weakness

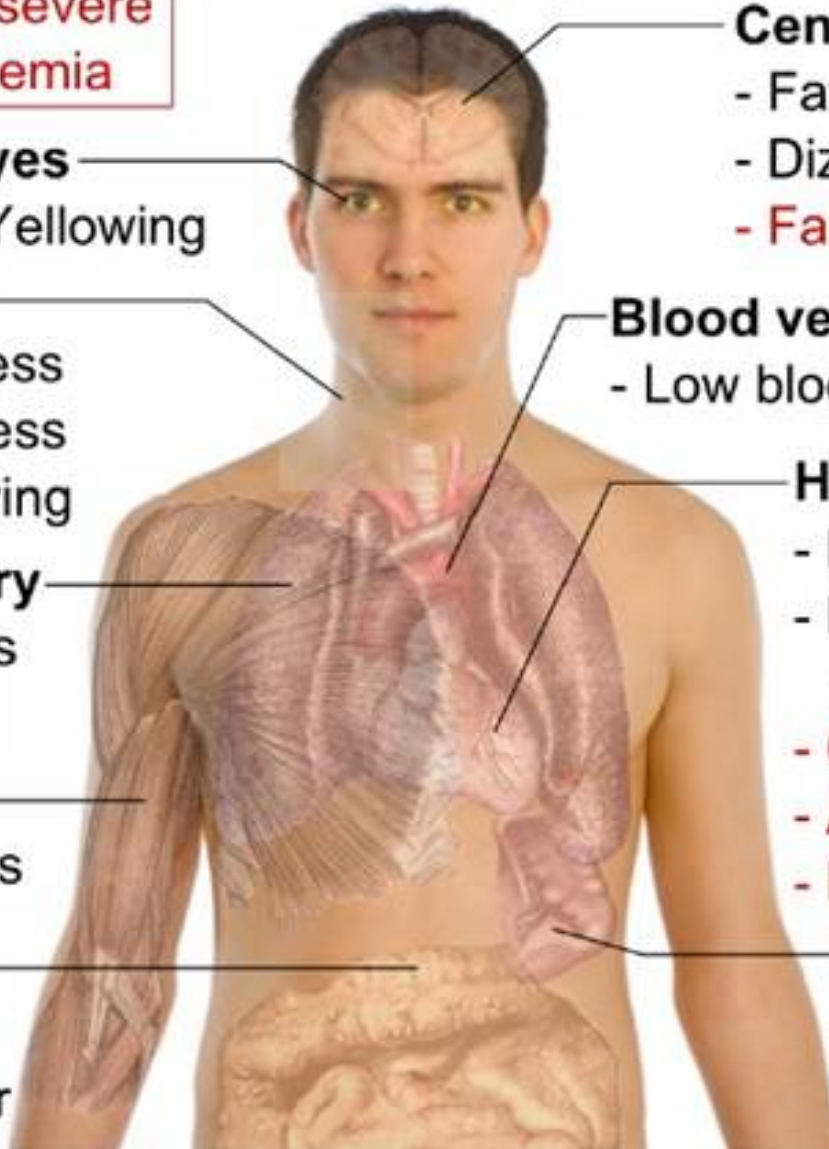
**Intestinal**  
- Changed stool color

**Central**  
- Fatigue  
- Dizziness  
- Fainting

**Blood vessels**  
- Low blood pressure

**Heart**  
- Palpitations  
- Rapid heart rate  
- Chest pain  
- Angina  
- Heart attack

**Spleen**  
- Enlargement





# Investigations

✱ Hb level estimation

✱ Peripheral blood

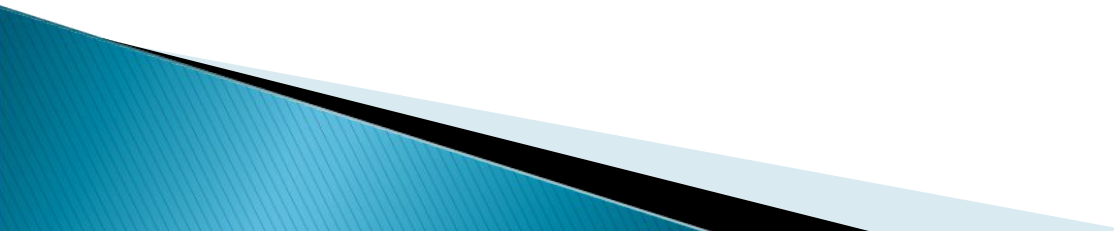
- Blood film
- Reticulocyte count
- Platelet count
- WBC count

✱ Bone marrow examination

- Cellularity
- Type of erythropoiesis
- Infiltration of the marrow
- Iron stores



# Pernicious anemia

- ✿ It is an adult form of anemia
  - ✿ Associated with gastric atrophy and loss of intrinsic factor.
  - ✿ Lack of absorption of vit B12
  - ✿ Rare before the age of 30 years
  - ✿ Females are commonly affected
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# Pernicious anemia

## ★ Clinical features: Characteristic Feature

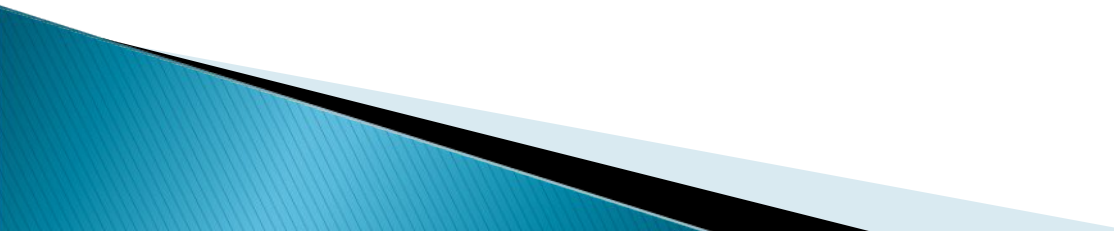
- Generalized weakness
- Sore and painful tongue
- Numbness or tingling of the extremities
- Patients with severe anemia shows yellowish tinge of skin or/and sclera.



# Other clinical features

1. Fatigability
  2. Loss of appetite
  3. Dizziness
  4. Nausea
  5. Vomiting
  6. Diarrhea
  7. Headache
  8. Loss of weight
  9. Pallor
  10. Abdominal pain
- Nervous system involvement- 75% cases
  - Consists of weakness, stiffness, difficulty in walking, general irritability, depression or drowsiness.

# Oral manifestations

- Glossitis
  - Inflamed tongue
  - Beefy red in color, either entirely or in patches over dorsum and lateral border of tongue.
  - Small ulcers resembling aphthous ulcers on tongue
  - With glossitis, glossodynia and glossopyrosis
  - Gradual atrophy of papillae-Blad or smooth tongue-Hunter's glossitis or Moeller's glossitis
- 



**Aphthous like ulcers**



**Beefy red tongue**

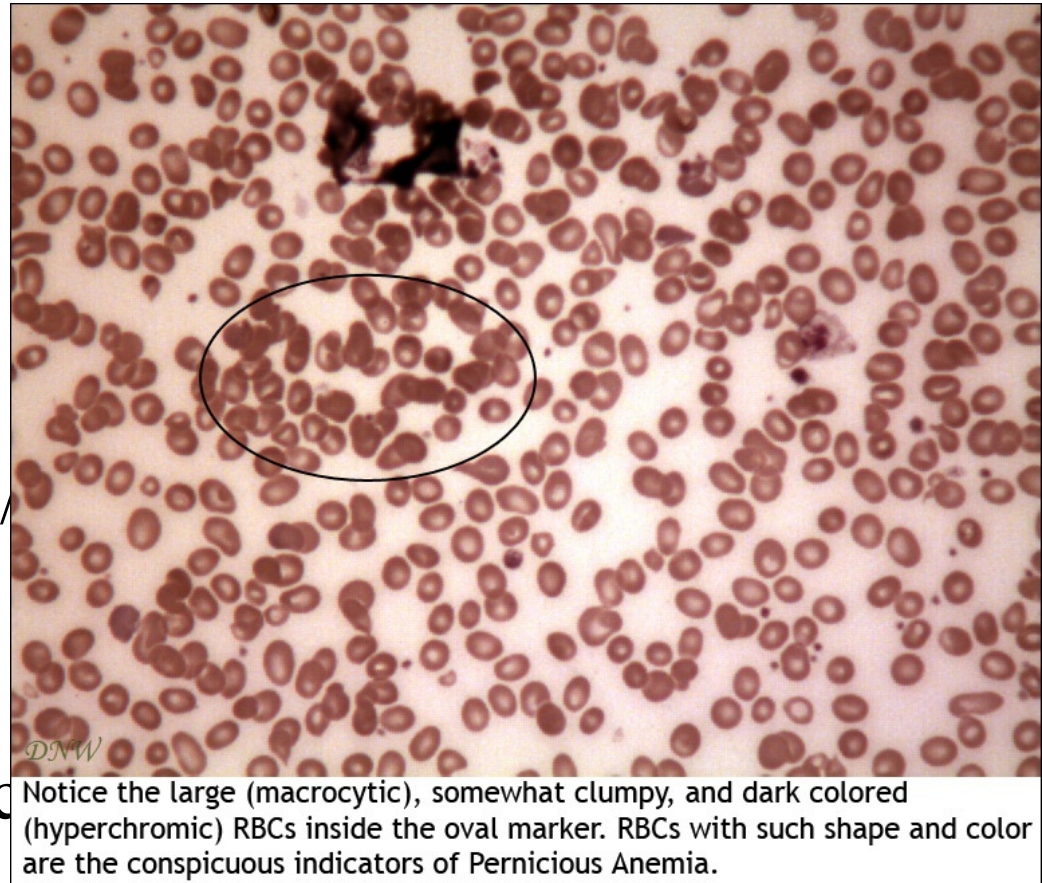


**Hunter glossitis**



## Investigations:

- RBC- decreased
- Macrocytosis
- Poikilocytosis
- Serum vit B12 < 50ng/ml
- Serum folate level normal or high
- RBC folate level reduced






# Aplastic anemia

✱ It is a bone marrow failure syndrome characterized by peripheral pancytopenia and general lack of bone marrow activity.

✱ Two types:

1. **Primary** -unknown etiology, mostly in young adults, develops rapidly and fatal.
2. **Secondary** - Known etiology, occurs at any age, good prognosis, if cause is removed.

# Aplastic anemia – C/F

- ✱ Onset usually gradual
  - ✱ Some times sudden & of great severity
  - ✱ Anemia – weakness, pallor, dyspnea
  - ✱ Thrombocytopenia – petechiae & echymoses of skin and mucous membrane
  - ✱ Granulocytopenia – persistent minor infection or chills and fever
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# Aplastic anemia – oral manifestations

- Petechiae
- Purpuric spots or frank hematomas
- Bleeding gums
- Ulcerative lesions of oral mucosa or pharynx .(lack of resistance to infection)
- Ulcerative lesions may resemble gangrene



# SUMMARY:

- Definition

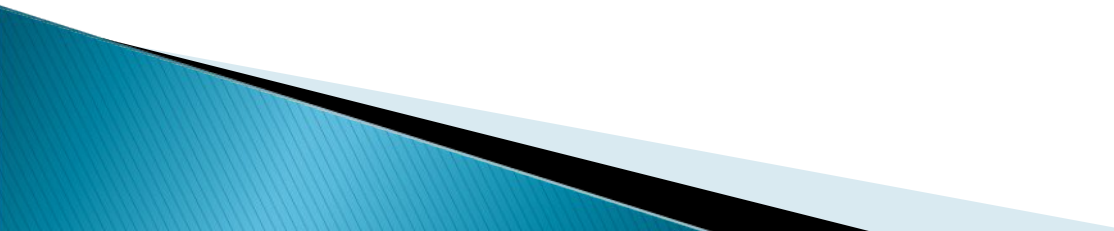
- Types of Anemia - Pernicious ,Aplastic

- Clinical features

- Lab investigations



# References

- ✿ Basic Pathology. Kumar, Cortan, Robbin. sixth edition.
  - ✿ Shafers Oral Pathology.
  - ✿ Basics of hematology. Kwathilkar. 3<sup>rd</sup> edition.
  - ✿ Neville Oral Pathology
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Thank You!

