Anemia in pregnancy

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Definition of Anemia during Preg.

Hemoglobin below 11gm/dl in 1st and 3rd trimester and below 10.5gm/dl in second trimester.

Classification according to severity

- Mild : 10-11 gm/dl
- Moderate : 7-10 gm/dl
- Sever : 4-7 gm/dl
- Very sever : <4 gm/dl

Classification

- Physiologic
- Pathologic:

  a. Deficiency: Iron, Folic A., Vitamin B12

  b. Hemorrhagic: APH, Hookworm

  c. Hereditary: Thalassemia, Sickle, H. Hemolytic Anemia

  d. Bone Marrow Insufficiency: Aplastic Anemia

  e. Infections: Malaria, TB

  f. Chronic Renal Diseases or Neoplasm.

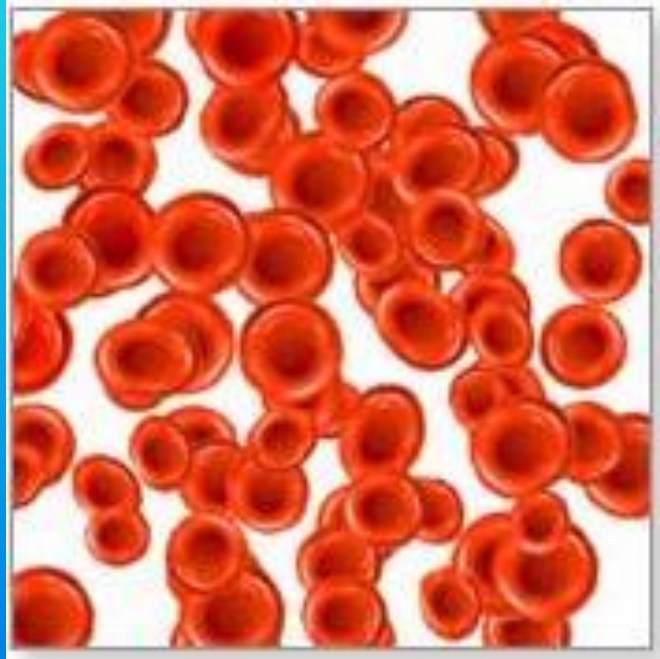
Concept of Physiologic Anemia

- Disproportionate increase in plasma vol, RBC vol. and hemoglobin mass during pregnancy
- Marked demand of extra iron during pregnancy especially in second trimester

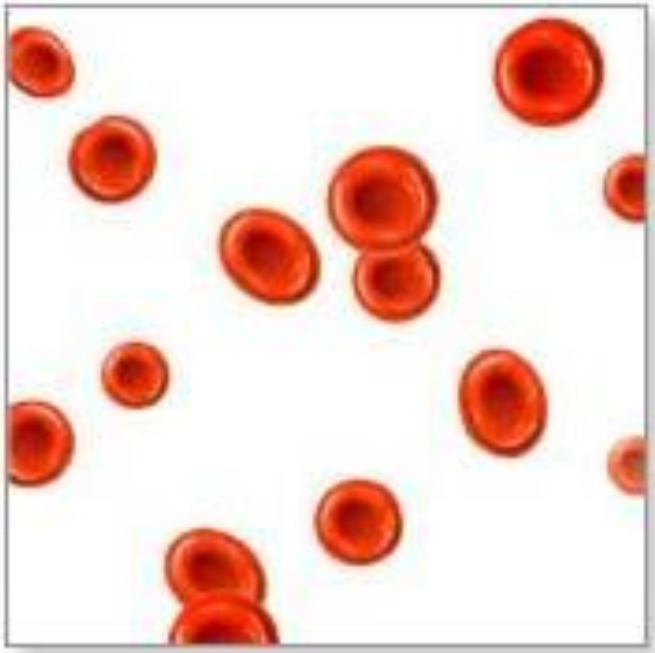
Criteria for Physiologic Anemia

- Hb: 10gm%
- RBC: 3.2 million/mm3
- PCV: 30%
- Peripheral smear showing normal morphology of RBC with central pallor

Normal amount of red blood cells



Anemic amount of red blood cells



Iron deficiency anemia

- it is microcytic hypochromic anemia
- most common type in pregnancy
- poor diet,multiparity,menorrhagia are the commonest causes
- Symptoms:the pregnant woman may present with vague complain of ill health,fatigue,loss of appetite,digestive upset,dyspnea,palpatition.
- On examination:she is paller,pale nail,koilonychias,pale tongue,in sever case they may have odema


1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0

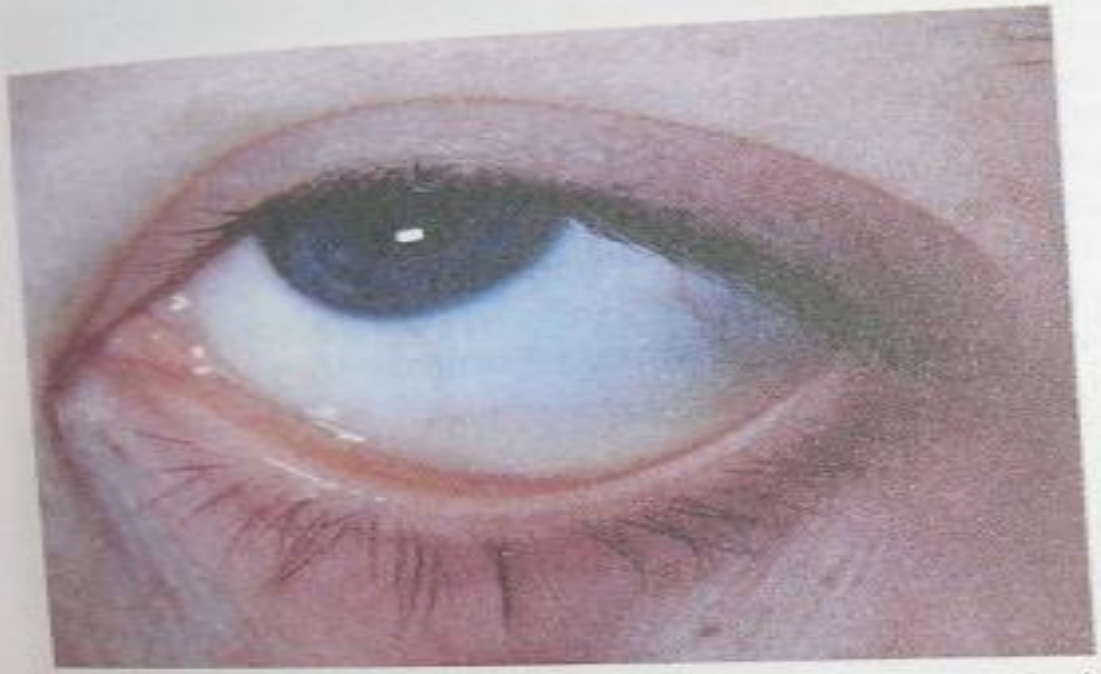


Fig 1. 'Conjunctival pallor', *the* classic sign of anaemia, is a confusing term as the conjunctiva is translucent, transmitting the colour of the structures under it. The 'pallor' in fact refers to the vasculature on the inner surface of the lid which lacks haemoglobin.

It is this colour , whereas it should be more like this: .

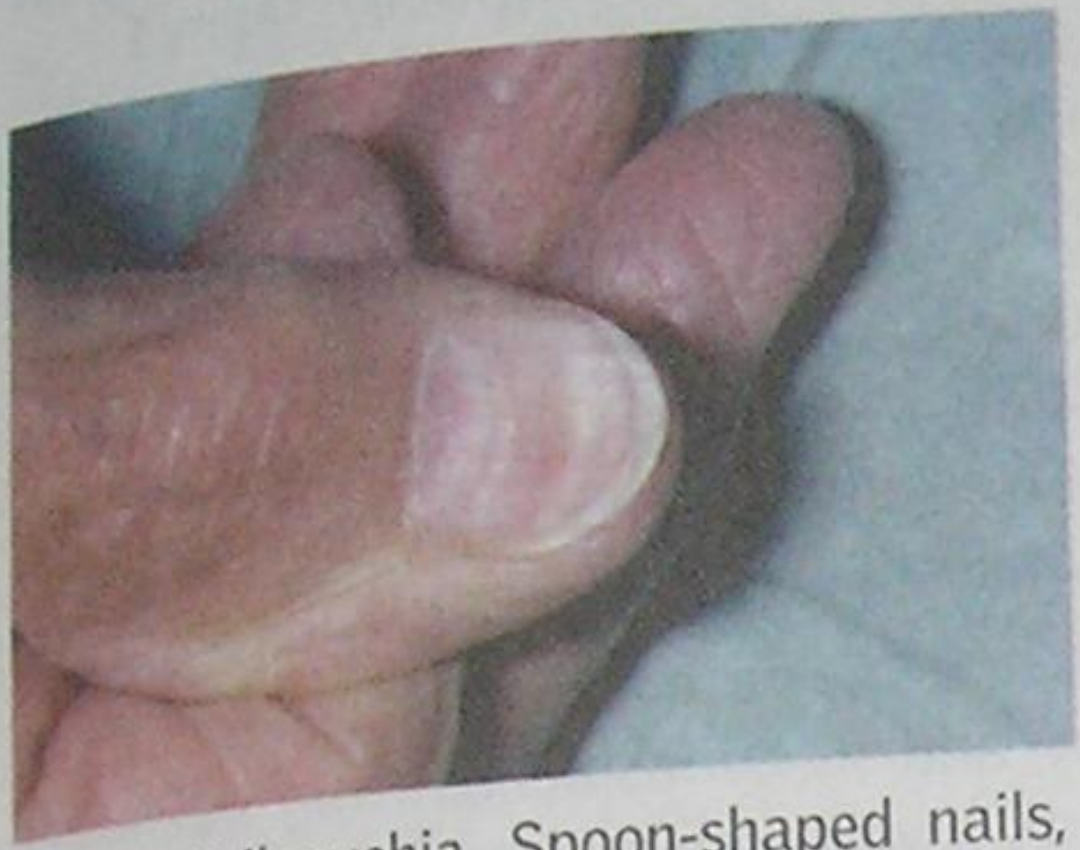


Fig 1. Koilonychia. Spoon-shaped nails, found in iron deficiency anaemia.

Investigation

- Low HB,RBC,PCV,MCH,MCV
- Blood film will show hypochromic microcytosis
- Low serum iron,low serum ferritin,high TIBC,these tests confirm the dignosis

Treatment

- Oral iron is the treatment of choice
- 60 mg tablet daily should take
- If the pregnant is unable to tolerated oral therapy because of side effect such as nausea,vomiting,diarrhea,abdominal pain,other perperation can use such as liquid formula
- Other routes for iron supplement are intramuscular injection and intravenous infusion
- Blood transfusion should avoided due to risk for AB production and transfusion reaction

Prophylaxis

- It is advisable to build up iron store before woman married and becomes pregnant.this can achieved by:
- routine screening for anaemic for adolescent girls form school day
- encouraging iron reach food
- providing iron supplemention from school days
- annual screening for those risk factor

Macrocytic anemia

- it cause by deficiency in folic acid and vitB12
- folic acid is important for nucleic acid formation and inadequate level lead to reduction in cell proliferation

causes of folic acid deficiency

- 1.poor diet,excessive sickness→reduce intake
- 2.gastrointestinal upset&oral antibiotic→diminished absorption
- 3.lack of vitC&hepatic disease→diminished storage power
- 4.analgesia&antibiotic→diminished utilization
- 5.multiparity,multiple pregnancy,Rh incompatibity,infection→increase demand

Sign and symptoms

- Insidious onset, mostly in last trimester
- Anorexia and occasional diarrhoea
- Pallor of varying degree
- Ulceration in mouth and tongue
- Hemorrhagic patches under the skin and conjunctiva
- Enlarged liver and spleen

Invesigation

- Low Hb,RBC,PCV.high MCV
- Blood film will show magaloblaste cell and hypersegmented neutrophile
- Low serum folic acid

Treatment

- Established deficiency should be treated with oral folic acid 5 mg three times daily throughout pregnancy
- The use of folic acid during pregnancy prophlaxis for prevention NTD reduce risk of anemia in pregnancy

VitB12 deficiency is other cause of megaloblastic anemia in pregnancy but it is rare,and in sever case associated with infertility,but if Dx the case should treated with injection VitB12 during gastation

Haemoglobinpathies

- Is group of gentic disorder of globin synthesis
- The two common haemoglobinpathise are sickle cell disease and thalassemia

Sickle cell disease

- Is an autosomal recessive red blood cell disorder
- Abnormal Hb(HbS)contain beta-globin chain with amino acid substitution that resulting it precipitating when in its reduce state
- The RBC becomes sickle shape and occlude small BV this known sickling
- Is sever condition in pregnancy and high risk for complication

- Risk to mothers

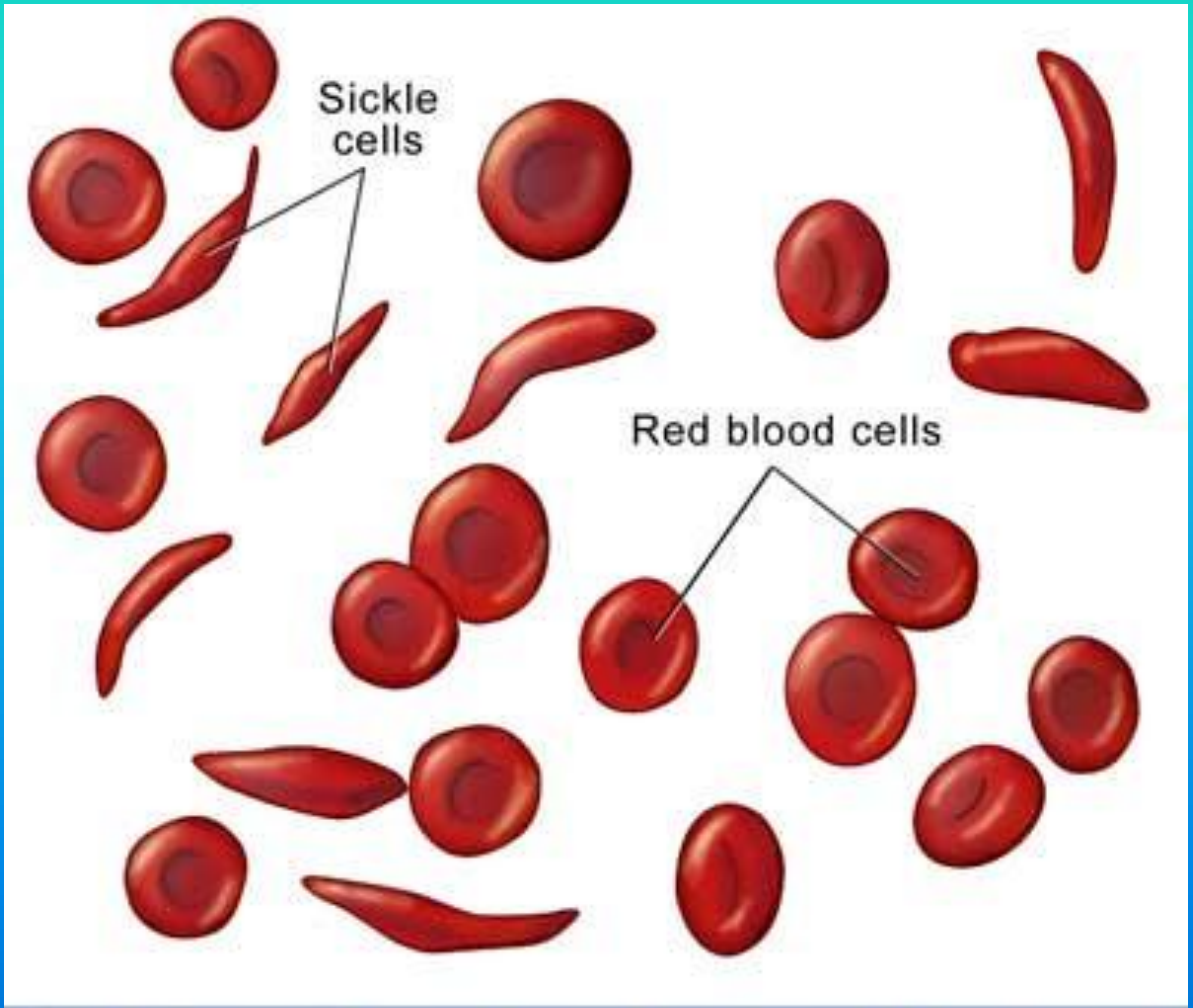
1- increase incidence of sickle cell crises result in episode of sever pain mainly bone and chest,crises precipitated by infection,Hge,hypoxia,stress

2- increase risk of miscarriage,preterm labour,chest and urinary tract infection and pre-eclampcia

- risk to fetus:

1- fetal loss

2- gowth restriction



- C.F:
  - anemia
  - pain episoide
  - increase risk of infection
  - heart and renal failure
  - stroke and brain damge

Sickle cell triat

- SC triat have 1:4 risk of having baby with SCD if partner also have SC triat
- Carrier usually fit and well but increase risk of urinary tract infection

Management

- All women should screen for haemoglobinpathies
- If woman found hetrozygote for haemoglobinpathies,her partner should tested
- Non specific ttreatment for SC crises by avoided precipitited factor such as hypoxia,infection,stress,treat by analgesic,antibiotic,O2,rehydration

- Blood transfusion may increase percentage of normalHb
- Vaginal delivery with epidural anaesthesia advised to decrease stress during labour
- During labour care should taken by avoided dehydration,cooling,hypoxia,Hge,
- Continous fetal assessment
- Postnatal period also there are risk for develop SCcrises due to stressful condition

Thalassemia

- Thalassemia is hereditary abnormalities of haemoglobin production
- Is quantitative deficiency of:
- Either beta-globin, leading to B-thalassemia
- Either alpha-globin,leading to α-thalassemia

Alpha-thalassemia

- There are minor and major
- Minor thalassemia when there are one of two normal alpha gene required for Hb production deletion
- Individual have chronic anemia and rare cause obstetric complication

- If partner also affected,there are 1:4chance of fetus to developed alpha thalassemia major
- Alpha thalassemia major there is No functional alpha chain and no normal Hb synthesis and also this condition
- Fetus developed hydrope fetalis and dead after few hours after delivery

- Pregnancy complication
  - polyhydroaminos
  - preterm delivery
  - pre-eclampsia due to enlarge and hydropic placenta

B-thalassemia

- It is inherited as autosomal recessive disorder
- Result from defect in normal production of beta chain
- If one gene of HbA1 is missed the individual have B-thalassemia minor,it is hetrozygote and asymmtomatic and have no problem antenatal
- Woman have mild anemia and low MCV
- Iron and folat supplement should given and partner should screen

- If both partner have B-thalassemia minor there is 1:4 chance the fetus developed B-thalassmia major
- B-thalassemia major:
- It is more sever and there is no HbA1
- In utero fetus have HbF ,and there is no problem
- Postnatal life there is no HbA1 and suffer from sever anemia and need frequent blood transfusion that may cause iron overload and death

- C.F:
  - sever anemia
  - distortion in bone of skull and face
  - hepatosplenomegaly

if not treated death occur •

- Treatment:
- Blood transfusion :but total body iron level will increase and lead to iron deposition in liver,pancreas and lead to gradual failure these organ
- Bone marrow transplantion is curative method

Thank you