

Iron Deficiency Anaemia

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Definition of anaemia

Reduction of haemoglobin concentration of blood below the normal level in respect to age and sex.

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Classification Anaemia

- Morphological classification
 - Normochromic normocytic anaemia
 - Microcytic hypochromic anaemia
 - Macrocytic anaemia
- Etiological Classification
 - Anaemia due to blood loss
 - Haemolytic anaemia
 - Anaemia due to impaired red cell production

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- Anaemia due to blood loss
 - Acute: Trauma
 - Chronic: GIT and gynaecological bleeding
- Haemolytic anaemia
 - Intracorpuscular defect
 - Extracorpuscular defect

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- Impaired red cell production
 - Defect in proliferation and differentiation of stem cells: aplastic anaemia, pure red cell aplasia, renal failure, endocrine disorder etc.
 - Defect in proliferation and maturation of erythroblasts
 - Defect in DNA synthesis - Vit B12 and folic acid: megaloblastic anaemia
 - Defect in Hb synthesis
 - Defect in haeme synthesis: Iron deficiency anaemia
 - Defect in globin synthesis: Thallasaemia
 - Unknown: Sideroblastic anaemia, anaemia of chronic infection

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Iron Deficiency Anaemia

- Causes of iron deficiency
 - Dietary lack
 - Impaired absorption
 - Increased requirement
 - Chronic blood loss

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- Dietary lack
 - Infant: human milk contains less iron, cows milk contains more iron but less bioavailability
 - Children: increased demand
 - Elderly: restricted meat, poor dentition
- Impaired absorption: sprue, steatorrhea, chronic diarrhea, gastrectomy
- Increased requirement: Growing infant & children, adolescent, pregnant mother, multiple pregnancy, frequent pregnancy.

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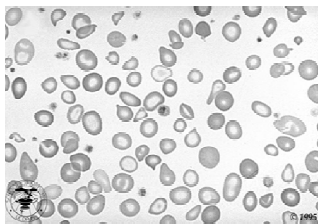
- Chronic blood loss: most common cause of IDA
 - Internal haemorrhage (can recycle Hb synthesis)
 - External haemorrhage
 - GIT: peptic ulcer, haemorrhagic gastric ulcer, gastric carcinoma, colonic carcinoma, haemorrhoids, hookworm infestation
 - UT: Renal, pelvic or bladder tumour
 - FGT: Menorrhagia, uterine cancer

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Effects of Iron Deficiency

- Due to deficiency of haem RBC become microcytic and hypochromic



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- Due to depletion of essential iron containing enzymes in cells throughout the body develop other changes - koilonychia, alopecia, atrophic change in tongue and gastric mucosa, intestinal malabsorption

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Haematological Findings in Iron Deficiency Anaemia

- Hb level - Decreased
- Haematocrit - Decreased
- Serum iron - Decreased
- Serum ferritin - Decreased
- Iron binding capacity - Increased
- PBF - Microcytic, hypochromic RBC and pencil cells.

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- Bone Marrow Findings (usually not required)
 - Erythropoiesis is hyperactive (mild to moderate) and normoblastic.
 - Disappearance of stainable iron from mononuclear phagocytic cells (Prussian blue stain)

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