Iron deficiency anemia:

It is the most common cause of anemia in every country of the world.

Causes of Iron deficiency anemia:

1. Diet: subjects taking a largely vegetarian diet.
2. Increased physiological iron requirements: Iron deficiency is common in infancy, when demands for growth may be greater than dietary supplies. It is aggravated by prematurity, infections and delay in mixed feeding. It is also frequent in adolescence, in females and in pregnancy
3. Blood loss: is the most common cause of iron deficiency in adults.
4. Malabsorption: as in gluten induced enteropathy (Celiac disease).

When iron deficiency anemia develops, the following Lab findings will be seen:

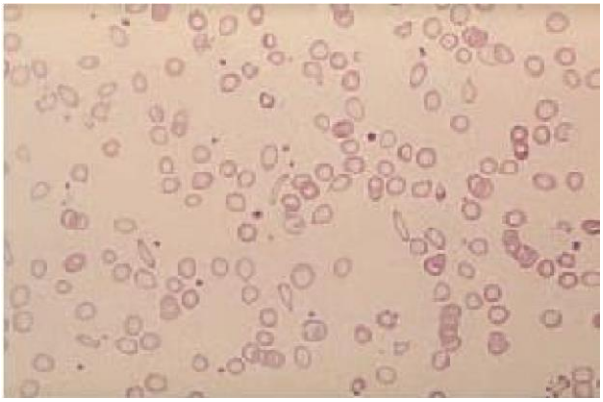
- Hb and PCV are low.
- Blood film: red cells (which are basically containers for Hemoglobin) become microcytic and hypochromic, poikilocytosis, and target cells may be present; and platelets are frequently increased.
- Red cell count is low.
- Reticulocyte % is low for the degree of anemia (as this is a nutritional anemia).
- Red cell indices: MCV and MCH are reduced; and red cell count is frequently reduced.
- RDW increase.
- Serum TIBC rises and serum iron falls, so that the transferrin saturation percentage is usually less than 10% (serum Iron / TIBC * 100).

- Serum ferritin: the serum ferritin concentration correlates with iron stores. Values for serum ferritin concentration below 15μg/l are virtually specific for storage iron depletion, but normal values do not exclude it.
- Serum soluble transferrin receptor increase.
- Bone marrow study: the erythroblasts are smaller and have a ragged and vacuolated cytoplasm (micronormoblasts). The bone marrow shows a total absence of sideroblasts and macrophage iron.

Management of Iron deficiency anemia:

(i) Identification and treatment of the underlying cause.

(ii) Correction of the deficiency by therapy with inorganic iron (in the form of ferrous).



Iron deficiency anemia peripheral blood film showing hypochromic microcytic red cells and poikilocytosis.

Normal Values:

Red blood cell (RBC) count	
Men	$4.5 – 5.5 \times 10^{12}$/l
Women	$3.8 – 4.8 \times 10^{12}$/l
Hemoglobin (Hb)	
Men	13 - 17 g/dl
Women	12 - 15 g/dl
Packed cell volume (PCV)	
Men	40 – 50 %
Women	36 – 46 %
Mean cell volume (MCV)	78 - 95 fl
Mean cell hemoglobin (MCH)	27 - 32 pg
Mean cell hemoglobin concentration (MCHC)	31 - 35 g/dl
Red cell distribution width (RDW)	
As coefficient of variation (CV)	11.5 – 16 %
Reticulocyte %	0.5–2.5%
White blood cell (WBC) count	$4.0–10.0 \times 10^{9}$/l
Serum Iron	10–30 µmol/l
TIBC	40–75 µmol/l
Transferrin saturation	16–45%
Ferritin	
Men	30–300 µgl/l
Women	15–200 µg/l
Platelets count	$150–400 \times 10^{9}$/l