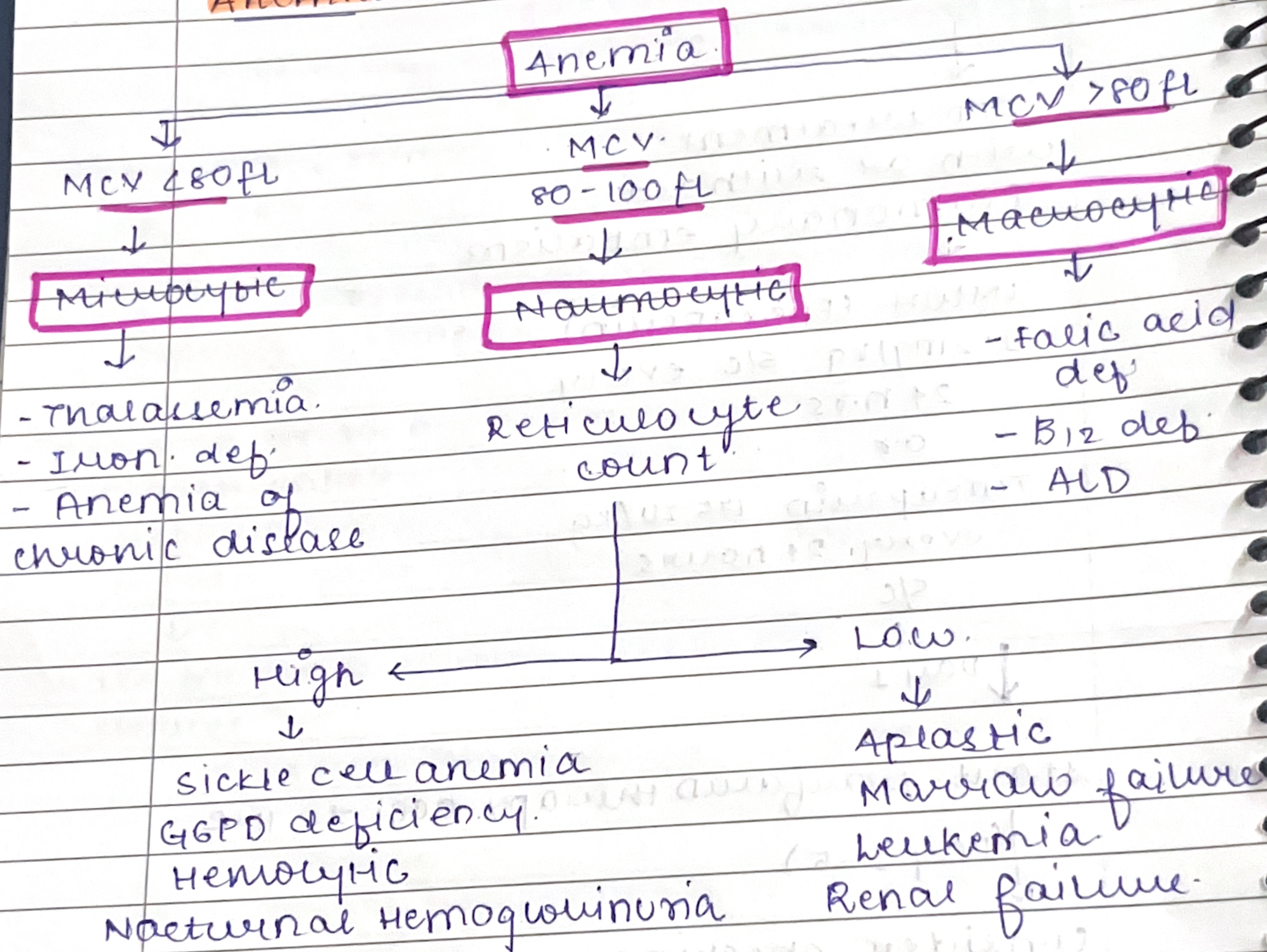


Date

Anemia.



'A condition in which there is a decrease in number of RBCs or hemoglobin.'

When the body does not produce enough red blood cells, it is unable to get enough O_2 .

- There are 6
- (1) Iron def.
 - (2) Anemia
 - (3) Folic acid
 - (4) B12 deficiency
 - (5) Sickle cell
 - (6) Aplastic

⇒ Pathophysiology

various

↓ RBC

↓

Organ

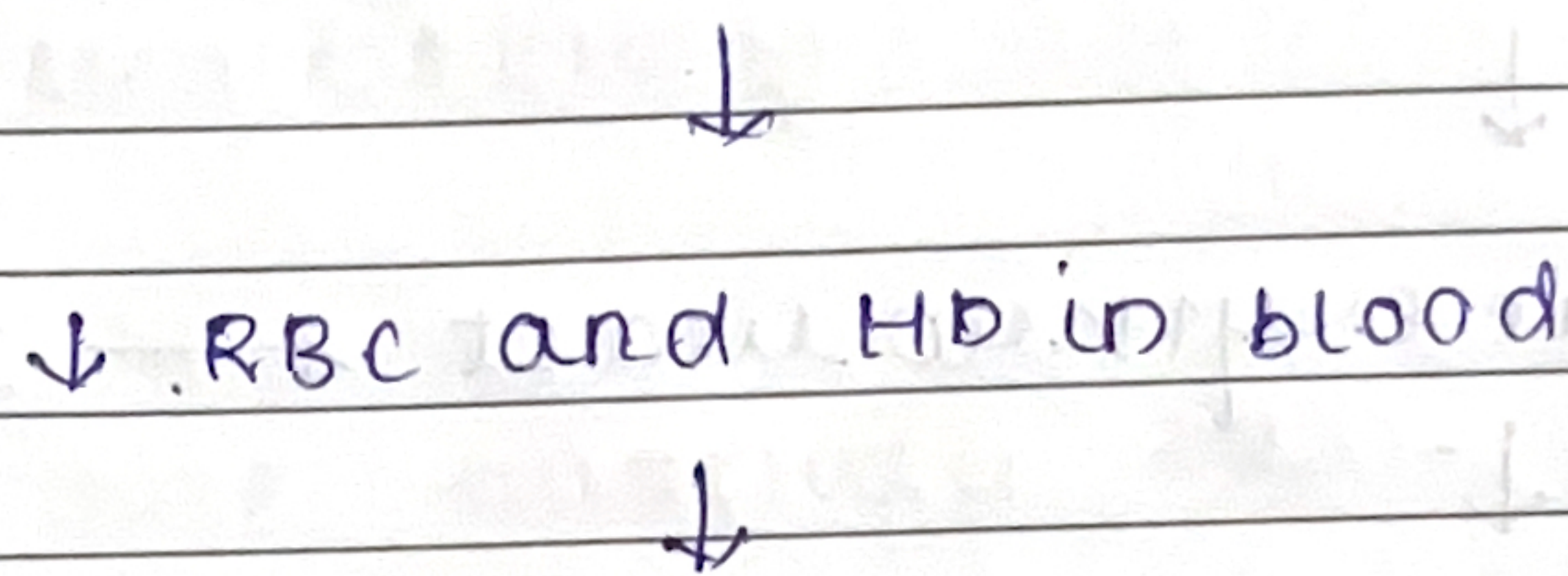
cell

There are 6 types of Anemia. They are:

- (1) Iron def. anemia
- (2) Anemia of chronic disease.
- (3) Folic acid deficiency anemia.
- (4) B12 deficiency anemia
- (5) Sickle cell anemia.
- (6) Aplastic anemia

⇒ Pathophysiology :

various causes affect RBC & Hb levels



↓ RBC and Hb in blood

↓ O_2 carrying capacity

Myrobia

Organ dysfunction.

Organ failure. ← | → symptoms.
↓
cell death.

(1) Iron deficiency Anemia:

• Anemia caused due to lack of Iron in the body is known as "Iron deficiency anemia".

• Iron plays an important role in the formation of RBC.
(Erythropoiesis.)

• BFU - E



CFU - E



Precursor of RBC ← Iron.



Red Blood cells.

• The RBCs formed with an iron deficiency have abnormal O_2 carrying capacity.

⇒ Signs and symptoms:

(1) Brittle nails.

(2) Cold hands & feet.

(3) S.O.B.

(4) Swelling on legs.

(5) Rapid H₂O₂.

(6) Fatigue.

(7) Headache.

(8) Dizziness.

lack of Iron
as Iron

ant role in

Iron.

an iron
na₂O₂

⇒ Etiology:

- (1) Blood loss.
- (2) Hemorrhage.
- (3) Poor diet.
- (4) Insufficient consumption of Iron-rich food.

⇒ Diagnostic tests:

- (1) CBC
- (2) Peripheral blood smear
- (3) Iron studies.
(Transferrin, Ferritin & TIBC)
- (4) ↓ MCV (< 80 fl)

⇒ Treatment:

- (1) Ferrous sulphate: ~~325~~ - 600mg
PO (BD.)

Ferrous gluconate 320mg PO (BD.)

Ferrous fumarate 325mg PO (BD.)

- (2) Iron supplement with vitamin C.

- (3) IV Iron infusion 5mg

- (4) Iron-rich food: kidney Beans.
Brown rice.

Turkey leg
Peanut butter.

- (5) Blood transfusion.

(2) Anemia of chronic diseases:
 "Anemia associated with the chronic infection or inflammatory disorders"

The anemia here can be mild to moderate or severe.

• It can be caused by two different pathologies.

They are:

- (1) Inadequate RBC production or abnormal Red cell destruction.
- (2) Inhibition of intestinal absorption of Iron.

⇒ Signs and symptoms:

- (1) Fatigue
- (2) Anemia.
- (3) Tiredness
- (4) Confusion
- (5) Headache
- (6) S.O.B

⇒ Etiology:

- (1) Infections.
- (2) HIV
- (3) TB.
- (4) Rheumatoid arthritis.
- (5) SLE
- (6) IBD
- (7) Malaria

⇒

Diagnosis

- (1) MCV -
- (2) S. Iron
- (3) S. Ferr
- (4) MCV /
- (5) Mawr

⇒

Treatment

- (1) Blood
- (2) Iron s
- (3) Emyt
- (4) Daru

(3)

Folic ac

• These
 anem
 Red mo
 larg

⇒

signs ar

- (1) The n
- maski
- (2) S.O
- (3) Me
- (4) DM
- (5) Los
- (6) Tinc
- (7) Dia
- (8) Glo
- (9) Pau
- (10) Ict

⇒ Diagnostic tests :

- (1) MCV - ↓
- (2) S. Iron - ↓
- (3) S. Ferritin - ↓
- (4) MCV / RBC ratio - ↑
- (5) Marrow invasion

⇒ Treatment :

- (1) Blood transfusion
- (2) Iron supplements.
- (3) Erythropoietin : 10000 units 3 times a week (IV)
- (4) Darbepoetin - 6.75g/kg SC × 3 week.

(3) Folic acid and Vit. B₁₂ deficiency anemia :

- These are the type of Megaloblastic anemia in which the size of the Red blood cells is abnormally large.

⇒ signs and symptoms :

- (1) The most common symptom of Megaloblastic anemia is Fatigue
- (2) S.O.B.
- (3) Muscle weakness.
- (4) Dry mouth on some.
- (5) Loss of appetite
- (6) Tingling in hands and feet.
- (7) Diarrhoea
- (8) Glossitis.
- (9) Pallor
- (10) Icterus
- (11) Splenomegaly (10-15%)
- (12) Hair color change

⇒ Etiology :

- (1) Folate deficiency.
- (2) Vitamin B₁₂ deficiency
- (3) Poor diet.
- (4) Age
- (5) Alcohol
- (6) Indigestion.
- (7) Malabsorption.
- (8) Pregnancy.

⇒ Diagnostic tests :

- (1) CBC
- (2) S. Folate
- (3) Vit. B₁₂ concentration.
- (4) MCH ↓
- (5) MCV ↑

⇒ Treatment:

- (1) Folic acid and Vit. B₁₂ supplements.
- (2) Folic acid - 400 mcg
- (3) Vitamin B₁₂ - 2 to 4 mcg PO
- (4) Dexamethasone - 200 mcg IV/SC.
or
0.45 unit/kg TDS.
- (5) Vitamin B₁₂ - 1mg IM every 2-3 months.
- (6) Cyanocobalamin - 50 to 150 mg BD

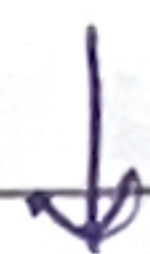
(4) Sickle cell anemia:

- A condition in which there are no healthy red cells to carry O_2 .

A Genetic condition. In which the shape of RBCs is not round but sickle-shaped.

⇒ Pathophysiology:

When normal cell transfer O_2 , the Hb sticks with the tissue.



This creates tension in cell.



RBC forms is rigid, inflexible and sickle-shaped

⇒ Signs and symptoms:

- (1) Fatigue.
- (2) GI hemorrhage.
- (3) Head ache.
- (4) Chest pain
- (5) Jaundice.
- (6) Bed wetting.
- (7) Infection

⇒ Biology:

- (1) Genetic
- (2) High level of HbS
- (3) Metabolic degradation.
- (4) Decrease in pH

⇒ Diagnostic tests:

- (1) CBC.
- (2) HbS test.
- (3) High reticulocyte count.
- (4) X-ray of skull.
- (5) Blood filming

⇒ Treatment:

- (1) Blood transfusion.
- (2) Oxygen supplementation.
- (3) Gene therapy.
- (4) Erythraemic 5-15g/kg x 2 week
- (5) Voxelator 1500mg x 4 week