

Aplastic anemia



Aplastic anemia, (hypoplastic) anaemia is defined as pancytopenia resulting from aplasia of the bone marrow. It is classified into primary (congenital or acquired) or secondary types, men and women are affected with equal frequency.

Pathophysiology

Bone marrow failure result from severe damage to the hematopoietic cell compartment. There is replacement of the bone marrow by fat.

Causes of aplastic anemia

Primary

1-Congenital (Fanconi, Shwachman (Diamond syndrome), Reticular dysgenesis, Amegakaryocytic thrombocytopenia, Familial aplastic anemias and Preleukemia).

2-Idiopathic acquired.

Secondary

1-Ionizing radiation: Accidental exposure (radiotherapy, radioactive isotopes, nuclear power stations).

2-Chemicals: Benzene, organophosphates, other organic solvents, and other pesticides.

3-Drugs: Those that regularly cause marrow depression (e.g. busulfan, melphalan, cyclophosphamide, anthracyclines, nitrosoureas). Those that occasionally or rarely cause marrow depression (e.g. chloramphenicol, sulphonamides, anti-inflammatory, antithyroid, psychotropic, anticonvulsant/antidepressant drugs).

4-Viruses: Viral hepatitis.

Signs and symptoms:

Bleeding is the most common early symptom. Easy bruising, oozing from the gums, epistaxis, heavy menstrual flow, and sometimes petechie (massive hemorrhage is unusual), symptoms of anemia are also frequent, including lassitude, weakness, and shortness of breath.

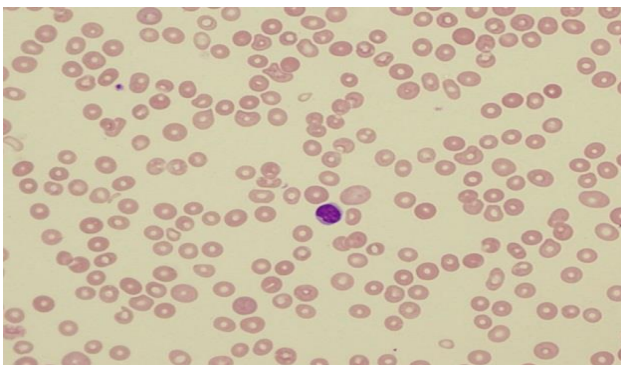


Laboratory diagnosis:

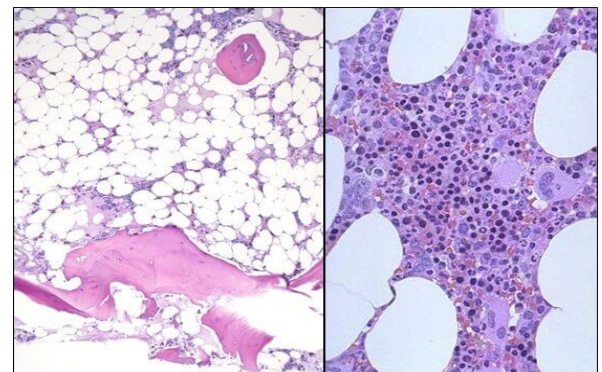
1-Complete blood count: Low in RBC, WBC, Platelets, Hb and hematocrit

2-Blood Smear shows **large** erythrocytes and a paucity of platelets and granulocytes, reticulocytes are absent or few.

3-Bone marrow, fatty biopsy specimen may be grossly pale Dilute smear "Dry tap" instead suggests fibrosis.



Blood smear



Boone marrow biopsy

References

- 1-Hoffbrand AV, Steensma DP. Hoffbrand's essential haematology. John Wiley and Sons; 2019 Dec 31.
- 2- Hoffman, R., Benz, E. J., Silberstein, L. E., Heslop, H. E., Weitz, J. I., Anastasi, J., & Abutalib, S. (2017). Hematology: basic principles and practice. Elsevier inc.
- 3- arabic reference:, Al-shaer, A.,M., et al., (1991). book of blood science, AL-AHLYIA publisher, Jordan.