Dysplastic Changes in Bone Marrow in Megaloblastic Anemia

Kapil M1, Sareen R1* and Gupta GN2

1D.N.B Pathology, Department of Pathology & Transfusion Medicine, Santokba Durlabhji Hospital, Jaipur, India
2Head of Department, Department of Pathology & Transfusion Medicine, Santokba Durlabhji Hospital, Jaipur, India

Clinical Image

We present a case of 60 year female with pancytopenia (1 month duration), Hemoglobin -5.4g/dl, WBC count- 1740/mm³ and Platelet count-24,000/mm³. The bone marrow aspiration showed hypercellularity with erythroid hyperplasia showing megaloblastic maturatio, giant myelo and meta myelocytes with adequate megakaryocytes. The erythroid series showed features of dysplasia. Erythroid precursors showed megaloblastic changes. Dysplasia in erythroid precursors is frequently seen in megaloblastic marrow [1]. These dysplastic changes include Karyorrhexis (Figure 1), Binucleation, multinucleation (Figure 2), Howell Jolly bodies (Figure 3) and occasional nuclear

Figure 1: Karyorrhexis.

Figure 2: Trinucleation.

Figure 3: Howell–Jolly body.
bridging (Figure 4). These changes pose difficulty in differentiating megaloblastic anemia from Myelodysplastic syndrome or other causes of dysplasia like exposure to heavy metals particularly Arsenic, lead, benzene, drugs (isoiazid, Mycophenolate mofetil, Granulocyte colony-stimulating factor), Zinc administration, Congenital dyserythropoietic anemia, Paroxysmal Nocturnal Hemoglobinuria, Parvo B19 infection and few connective tissue disorders [2].

They are generally known to occur in post mortem smears but as pathologist rarely makes bone marrow smear on autopsy material they are less frequently reported in literature [3]. They may also occur in normal individuals and as a storage artifact at room temperature [4].

Our case illustrates the importance of good quality smear and staining as well as trained eyes of pathologist for appreciating this morphological changes leading to prompt correct diagnosis.

References


