Clinical Image
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Dysplastic Changes in Bone Marrow in Megaloblastic Anemia

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Clinical Image

We present a case of 60 year female with pancytopenia (1 month duration), Hemoglobin -5.4g/dl, WBC count- 1740/mm^3 and Platelet count-24,000/mm^3. The bone marrow aspiration showed hypercellularity with erythroid hyperplasia showing megaloblastic maturation, 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

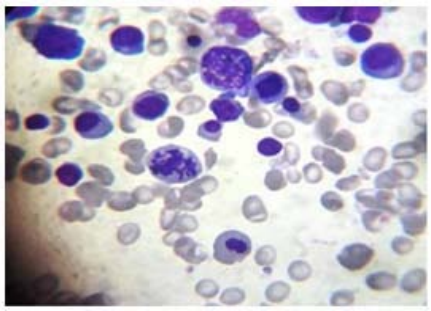

Figure 1: Karyorrhexis.

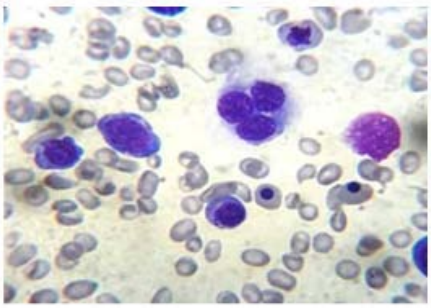

Figure 2: Trinucleation.

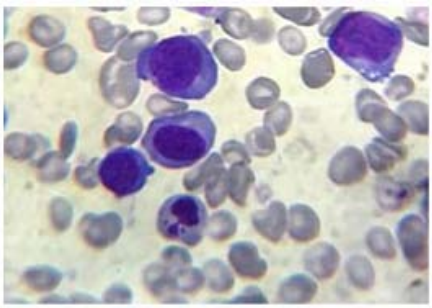

Figure 3: Howell–Jolly body.

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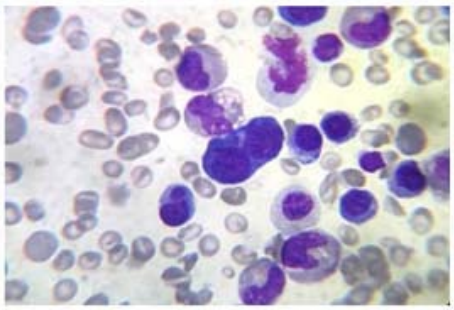

Figure 4: Intranuclear bridging.

bridging (Figure 4). These changes poses 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 dyserythropoieyic 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.

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