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Clinical Image

Atypical Lymphocytes – Masquerade

Sareen R*

Department of Pathology, Santokba Durlabhji Memorial Hospital, India

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1. Clinical Image

We report a case of a 23 year old female with history of fever and malaise since 3 days. We received her blood sample for complete blood count along with peripheral blood smear examination. The blood test showed leukocytosis 23,500 cells/uL, Hemoglobin- 12.2 gm/dl and Platelet count 1, 58,000/Ul. The peripheral blood examination showed marked lymphocytosis with presence of 24% atypical lymphocytes along with 46% lymphocytes and 30% Neutrophils. Based on the peripheral blood examination we suggested testing for viral markers in view of presence of atypical lymphocytes. The atypical lymphocytes seen were highly pleomorphic cells, large in size (larger than lymphocytes), with diameter up to 15-30um and have abundant strongly basophilic cytoplasm. Some of the cells had large prominent nucleoli as well. The presence of nucleoli often causes confusion with immunoblasts or with blasts seen in acute lymphocytic Leukemia. Nuclei were round, oval, lobulated and in other cases it could be clover leaf like. The chromatin was partly or diffusely condensed. Cytoplasm was vacuolated, foamy showing occasional granulation with marked to moderate basophilia. The cytoplasmic margins showed scalloping and peripheral condensation. This cytobasophilia could also be seen in lymphoma cells, apoptosis and mitosis. The differential diagnosis includes large granular lymphocytes, plasma cells and plasmacytoid lymphocytes. Immunomarker are often applied to ascertain the exact nature of these atypical lymphocytes.

In our case the viral marker for Ebstein Bar Virus, EBV VCA was positive and a diagnosis of Infectious mononucleosis was made. The atypical lymphocytes are seen in viral infections (EBV, Measeles, Hepatitis, CMV infection), Bacterial infections (Tuberculosis, Typhoid, Brucella, Rickettsia, Scrub Typhus, M Pneumoniae), Parasitic infections (Malaria, Toxoplasma), Drug induced (Dapsone, Phenytoin, Sulfasalazine, Streptokinase) and Diseases like (SLE, Sarcoidosis, Hodgkin's Lymphoma, Hemophagocytic syndrome).

A careful examination of peripheral blood smear examination is of vital importance for appropriate timely diagnosis (Figure 1 & 2).

The atypical lymphocytes are highly pleomorphic cells, large in size (larger than lymphocytes), with diameter up to 15-30um having abundant strongly basophilic cytoplasm, with vacuolation, sometimes foamy with or without granulation. Cytoplasmic margins showed scalloping and peripheral condensation. Nuclei are bizarre shaped lobulated or other clover leaf like with partly or diffusely condensed chromatin and occasional prominent nucleoli.

***Corresponding Author (s):** *Rateesh Sareen, Department of Pathology, Santokba Durlabhji Memorial Hospital, Bhawani Singh Road, Jaipur, India, Tel: 9414216471; E-mail: drrateesh-sareen@yahoo.co.in*

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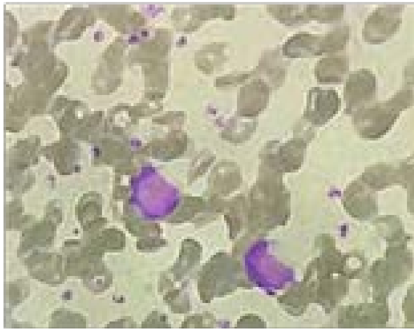

Figure 1: PBF showing atypical lymphocytes

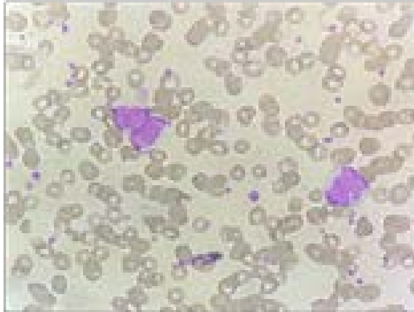

Figure 2: PBF showing atypical lymphocytes

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