

Abstract:

CONTEXT: Dysplastic changes are well documented in myelodysplastic syndromes (MDS). However, they are also observed in non-MDS hematological conditions. **AIMS:** To evaluate the megakaryocytic alterations in the bone marrow aspirations in cases of non-MDS related thrombocytopenia. **SETTING AND DESIGN:** A prospective study of 144 bone marrow aspirates was conducted in the department of pathology, Kasturba Medical College, Mangalore. The aspirates were studied to assess the number and morphology of the megakaryocytes in non-MDS related thrombocytopenia and evaluate their significance when compared to changes in MDS. **MATERIALS AND METHODS:** The bone marrow aspiration smears were stained with Leishman stain and examined under light microscope. **Statistical Analysis Used:** Fisher's exact test. A P value less than 0.05 was considered significant. Sensitivity and specificity was calculated for those features which were significant in the relevant hematological disorders. **Results:** The sensitivity of immature megakaryocytes, dysplastic forms and micromegakaryocytes in cases of immune thrombocytopenic purpura was 100%, 89% and 42% respectively. The specificity of emperipolesis was 74%. In cases of infection-associated thrombocytopenia, immature megakaryocytes had a sensitivity of 100% and cytoplasmic vacuolization were 86% specific. The sensitivity of the dysplastic forms in megaloblastic anemia was 75%. However, no platelet budding was observed. The presence of micromegakaryocyte had a specificity of 83% in MDS, and was statistically significant when compared to cases of non-MDS conditions (P 0.05). **CONCLUSIONS:** Careful understanding of the morphological changes of megakaryocytes in bone marrow aspirates can improve the diagnostic accuracy for a wide range of hematological disorders thereby enabling proper therapeutic interventions.