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In Collaboration with Hong Kong College of Pathologists

Film Remarks on the Educational Material #IQ 2511

Peripheral blood film showed mild lymphocytosis. The lymphocytes were small in size, with regular round nuclei, clumped chromatin and indistinct nucleoli. Some smear cells were seen in the background. Marked anaemia with red cell agglutinations were evident. There was marked polychromasia and moderate spherocytosis. Direct antiglobulin test was positive. Overall features were compatible with autoimmune haemolytic anaemia associated with lymphoproliferative disease. Immunophenotyping was performed and the lymphoid cells were CD5+CD23+ clonal B-cells, which express LEF1 but not cyclin D1 on trephine biopsy. The features were those of chronic lymphocytic leukaemia (CLL). FISH analysis for trisomy 12 and copy number change at 13q, ATM and TP53 was negative. IGHV mutated status was confirmed by next generation sequencing.

Chronic lymphocytic leukaemia (CLL) is the most common lymphoproliferative diseases. The diagnosis of CLL is established by the presence of ≥5 × 109/l monoclonal B lymphocytes in the peripheral blood. The leukaemia cells found in the blood smear are characteristically small, mature-appearing lymphocytes with a narrow border of cytoplasm and a dense nucleus lacking discernible nucleoli and having partially aggregated chromatin. CLL cells co-express the B-cell surface antigens CD19 and CD20 together with CD5, CD23 and CD200. The levels of surface CD20, surface immunoglobulin (Ig) and CD79b are characteristically low compared with those found on normal B cells. Each clone of leukaemia cells is restricted to expression of either kappa or lambda Ig light chains, or has no apparent expression of either of the two. Autoimmune hemolytic anemia (AIHA) is a well-known complication of chronic lymphocytic leukemia (CLL), occurring in about 5-15% of the patients during the course of the disease.

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