

Myocardial Involvement by Precursor B-Lymphoblastic Lymphoma: an Unusual Presentation

Reenu K. Malhotra, M.D.; Andy N.D. Nguyen, M.D.; Min Wang, M.D.

Department of Pathology and Laboratory Medicine, University of Texas-Houston Medical School

ABSTRACT

We report a case of precursor B-lymphoblastic lymphoma (B-LBL) with unusual myocardial involvement found in the autopsy of a 21-year old female. The autopsy revealed involvement of most organs including the heart by a monomorphic population of lymphoblasts. The most frequent sites of involvement by B-LBL are skin, bone, soft tissue and lymph nodes. It rarely presents as a mediastinal mass. Involvement of the mediastinum is much more frequent in precursor T-lymphoblastic lymphoma than in B-LBL. A review of literature reveals only a few cases of mediastinal involvement by B-LBL. In these cases, the thymus or the mediastinal lymph nodes are the preferred sites of involvement. The myocardial involvement by B-LBL in this report represents an unusual presentation.

CASE HISTORY/ PATHOLOGICAL FINDINGS

This patient was a 21 year old female who was diagnosed with stage IV Non-Hodgkin's Lymphoma (B-LBL) with cervical lymph node biopsy. The patient was started on chemotherapy and subsequently developed tumor lysis syndrome due to extensive tumor burden. A complete autopsy revealed massive involvement of lymph nodes and extranodal sites including pleura, ovaries, kidneys, stomach, colon, urinary bladder, spleen, mediastinum and anterior wall of the myocardium (Figs 1-3). Immunoperoxidase stains showed that the lymphoblasts were positive for CD20, CD79a, CD10, TdT, and negative for CD3, CD5 (Figs. 4-6). Immunophenotyping by flow cytometry revealed an abnormal population of B cells (99% of the cells analyzed), which were positive for CD19, CD20, CD10, HLA-DR and negative for CD5, CD23, CD13, CD33, CD34; also no evidence of surface light chains restriction (Figs. 7-9). The hematological findings in this case revealed minimal involvement of the bone marrow with no evidence of blasts in the peripheral blood.

GROSS & MICROSCOPIC FINDINGS

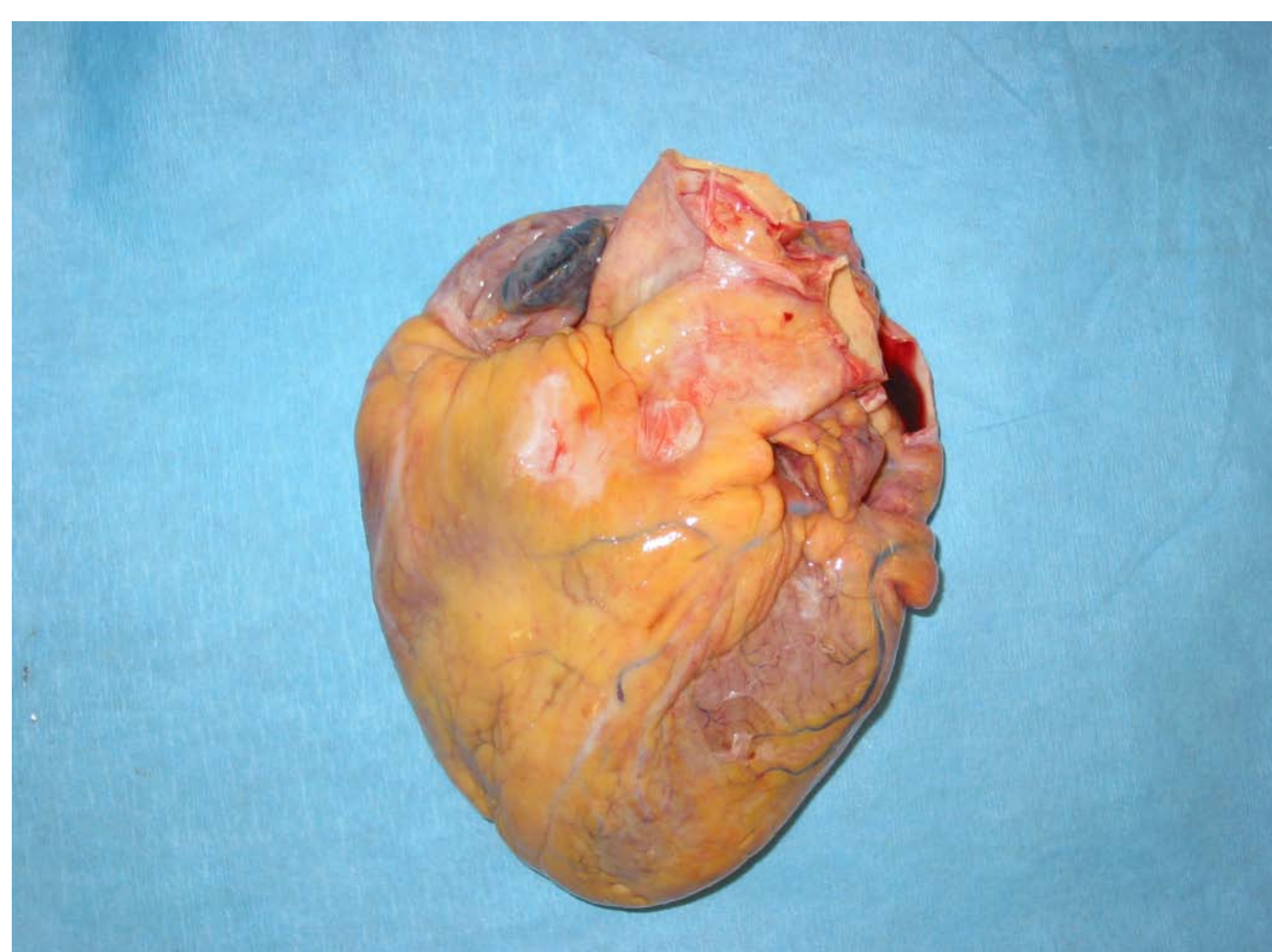


Fig. 1. The heart with mild cardiomegaly

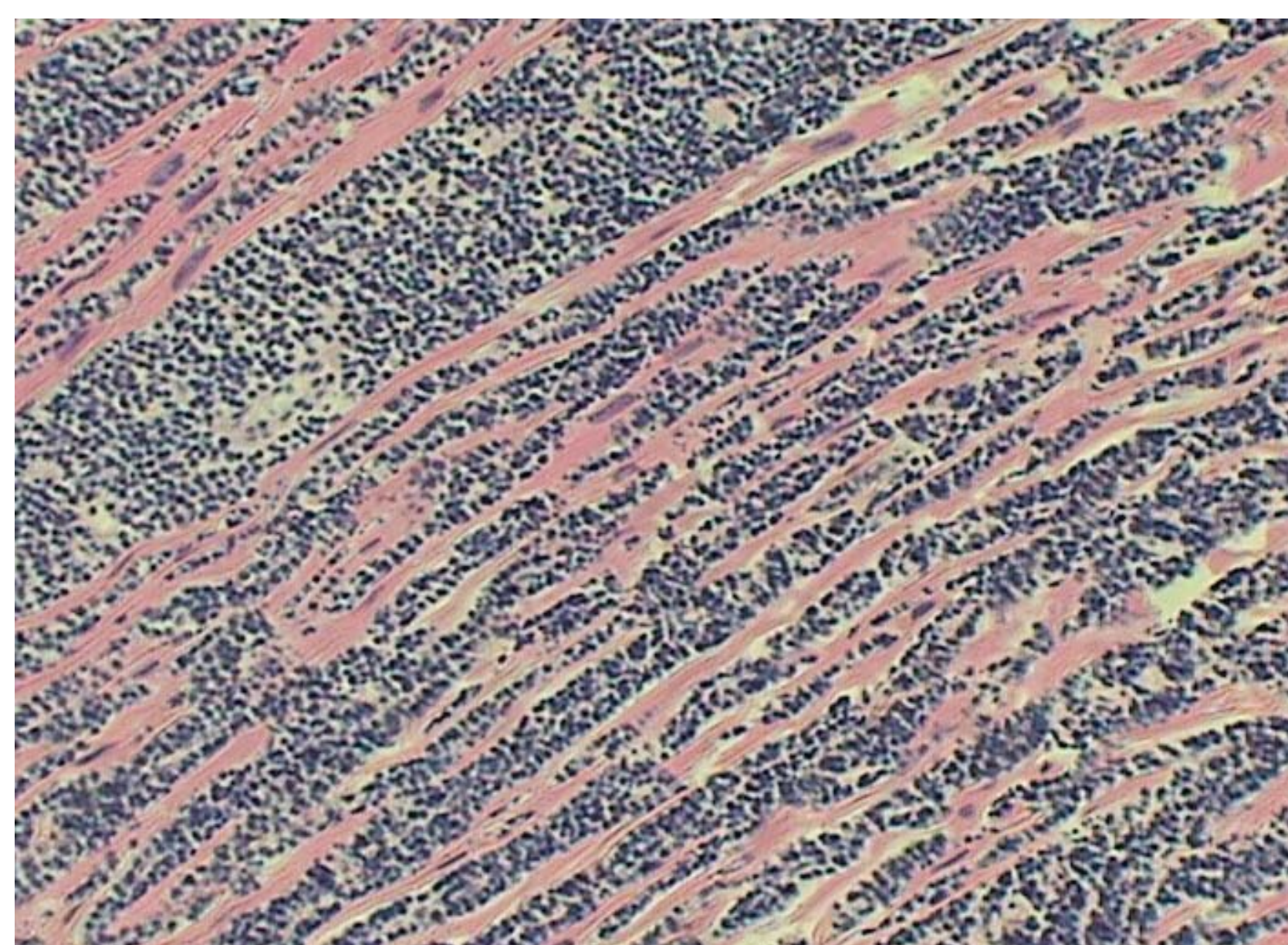


Fig. 2. The myocardium with lymphoid infiltrates (H&E X10).

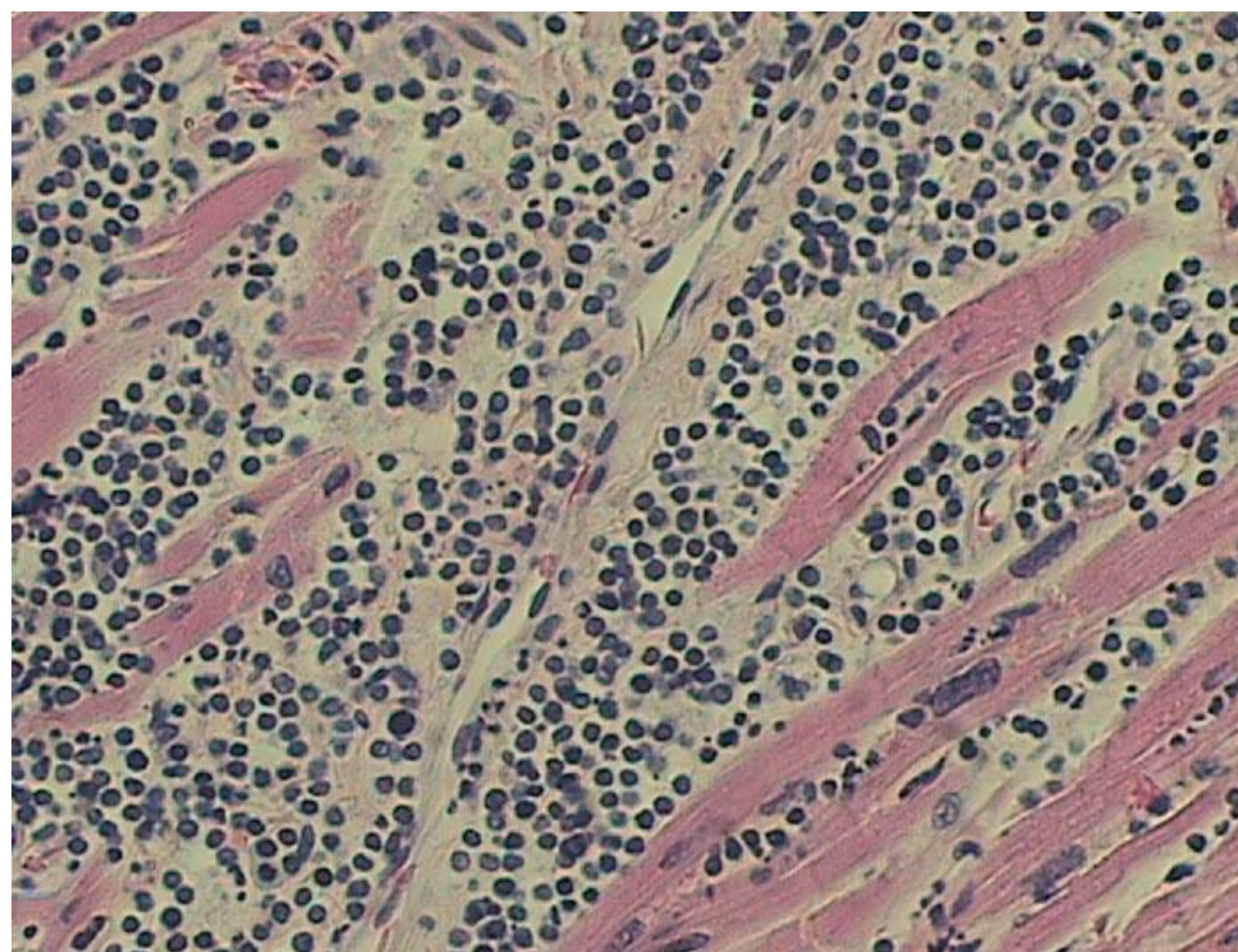


Fig. 3. Diffuse infiltration of the myocardium by monomorphic neoplastic lymphoid cells (H&E x20).

IMMUNOPEROXIDASE STAINS

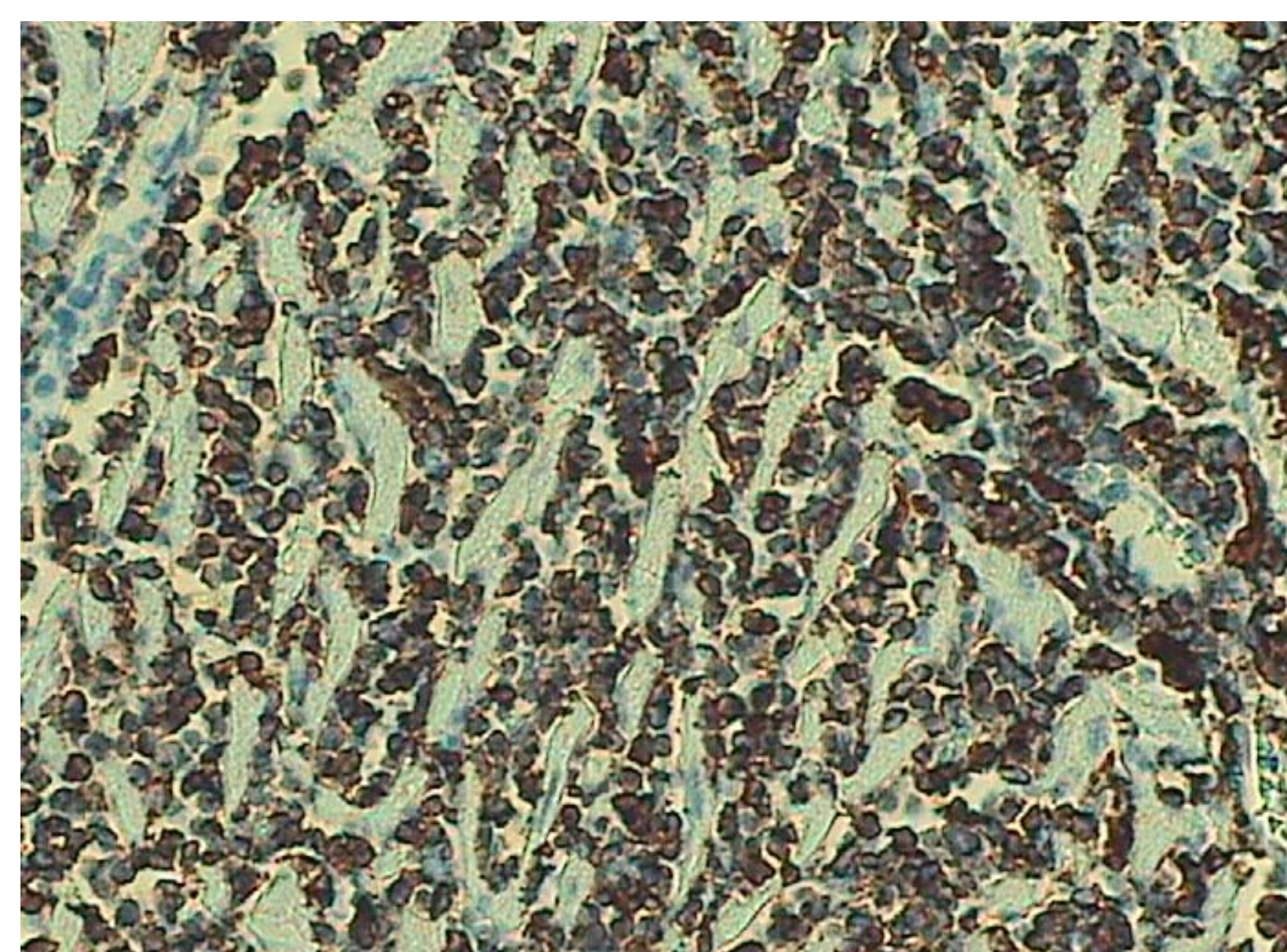


Fig. 4. Positive CD10 staining of the neoplastic lymphoid cell population (x20).

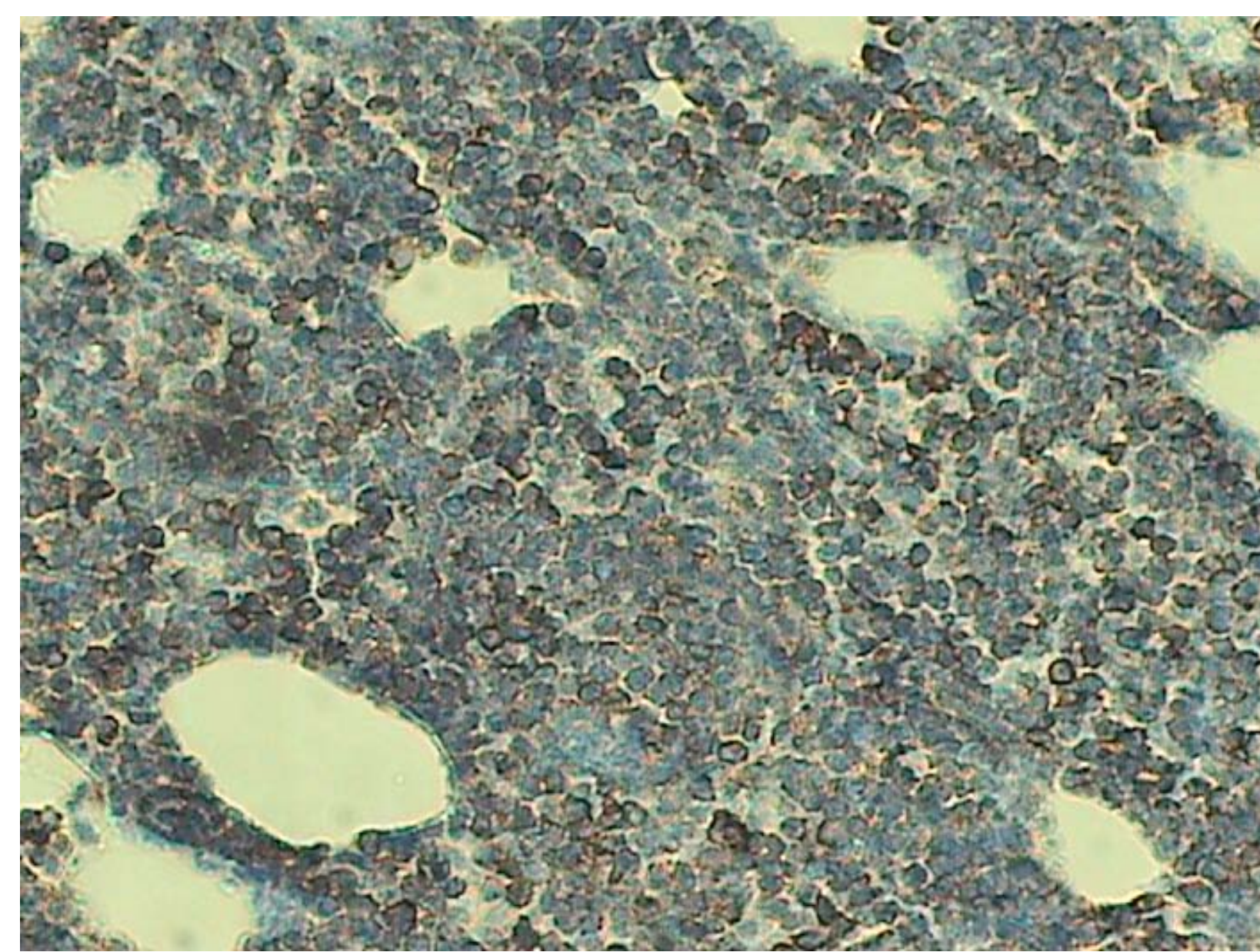


Fig. 5. Positive CD20 staining of the neoplastic lymphoid cell population (x20).

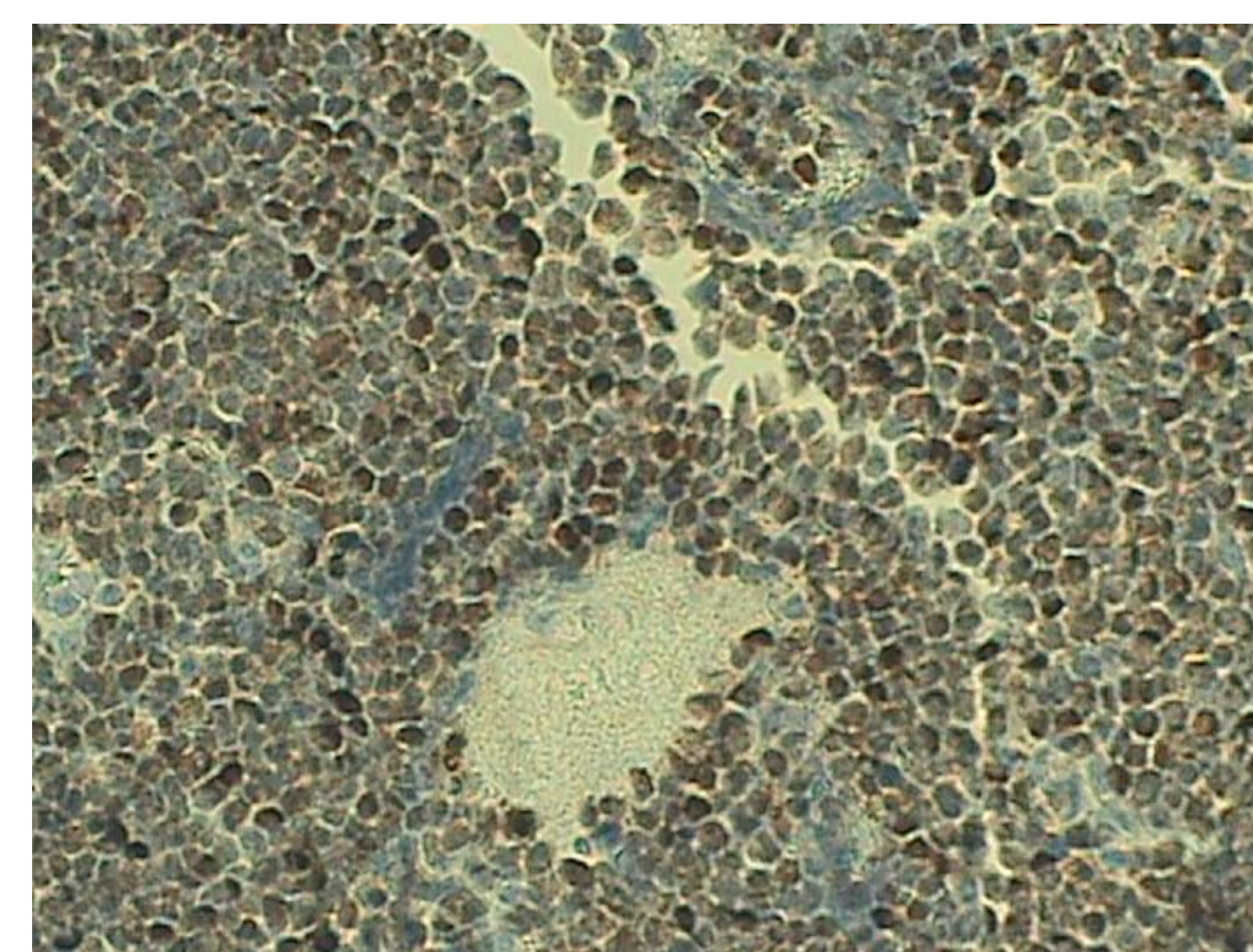


Fig.6. Positive TdT staining of the neoplastic lymphoid cell population (x20).

FLOW CYTOMETRY RESULTS

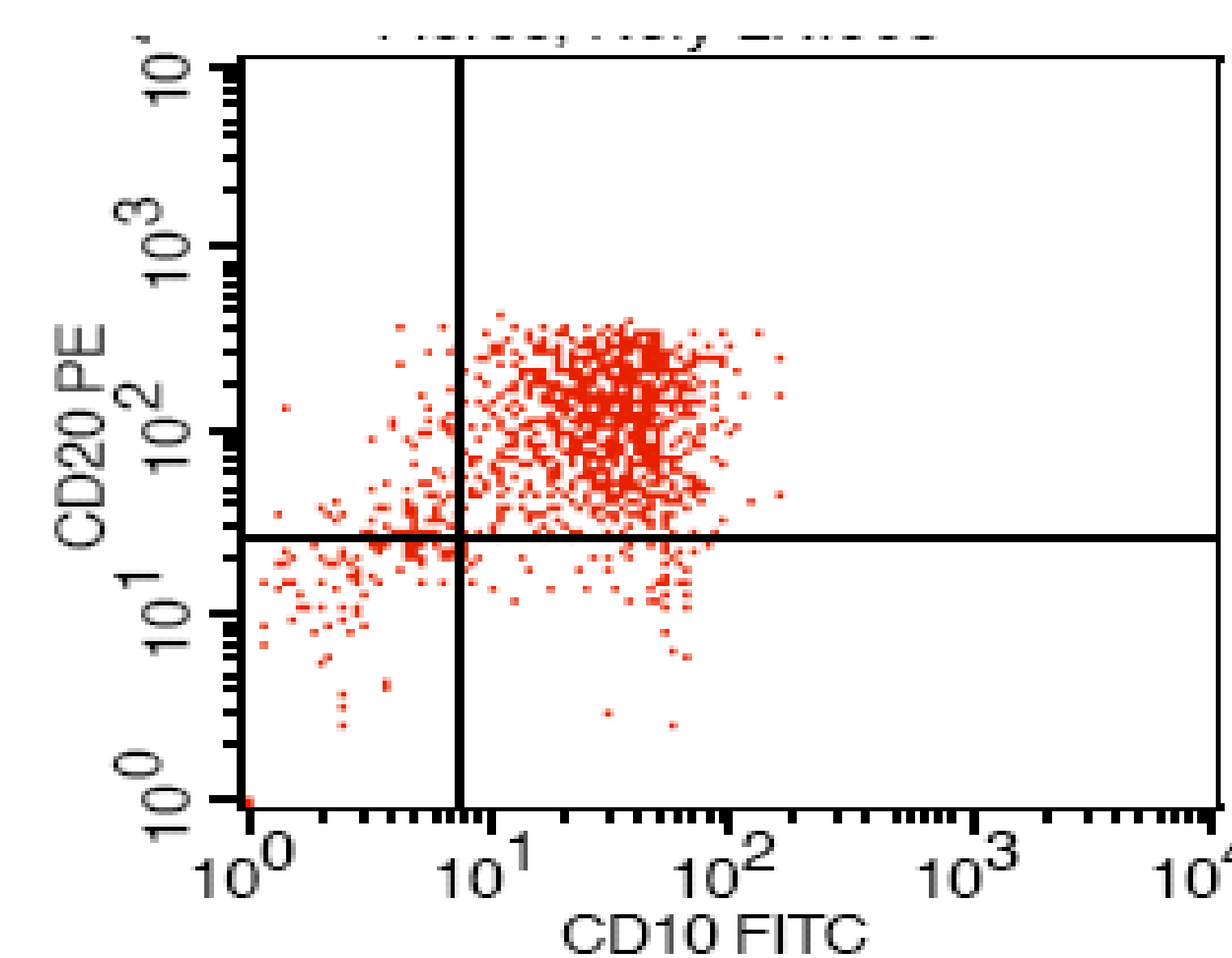


Fig. 7. CD10 and CD20 positivity.

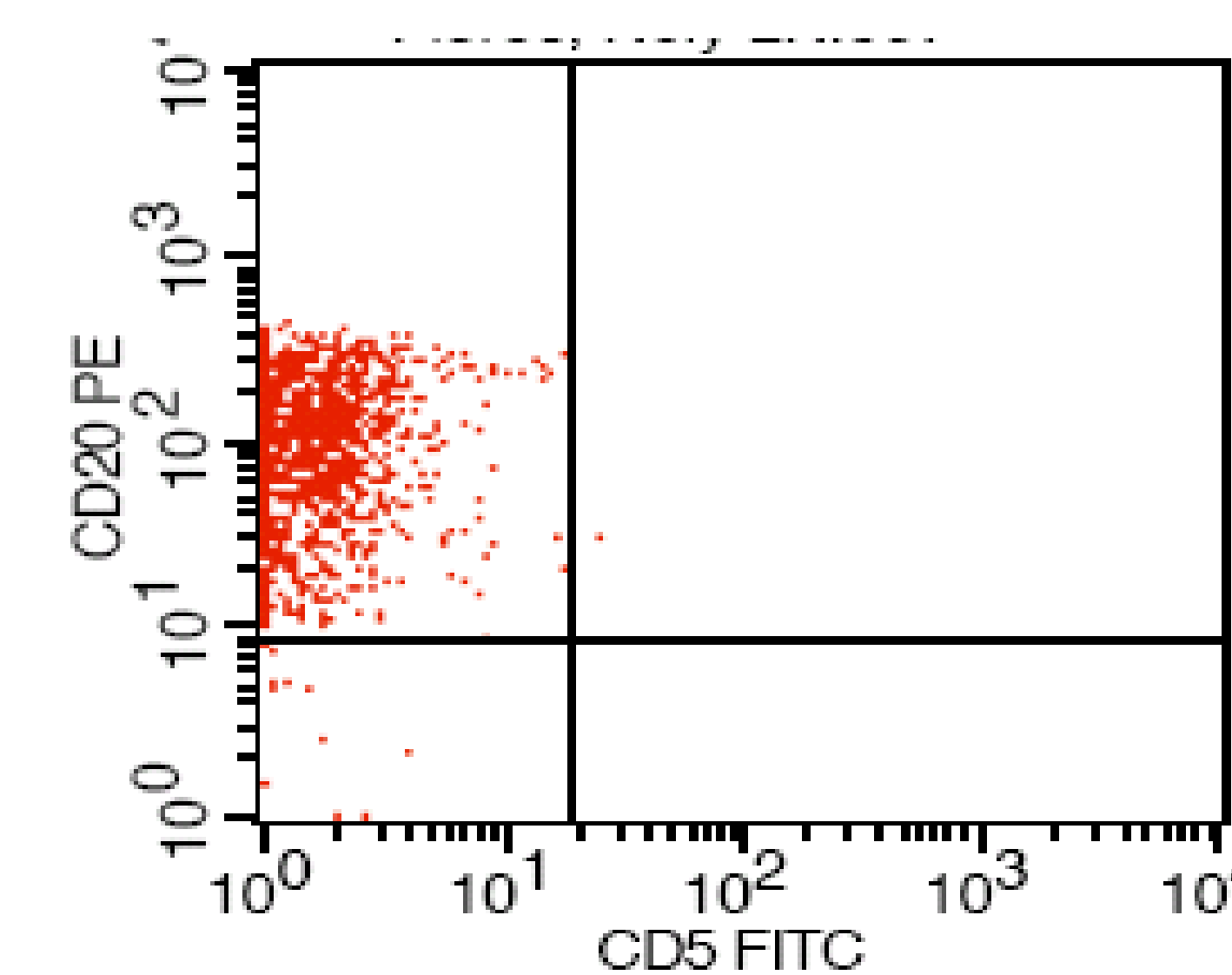


Fig. 8. CD5 negativity

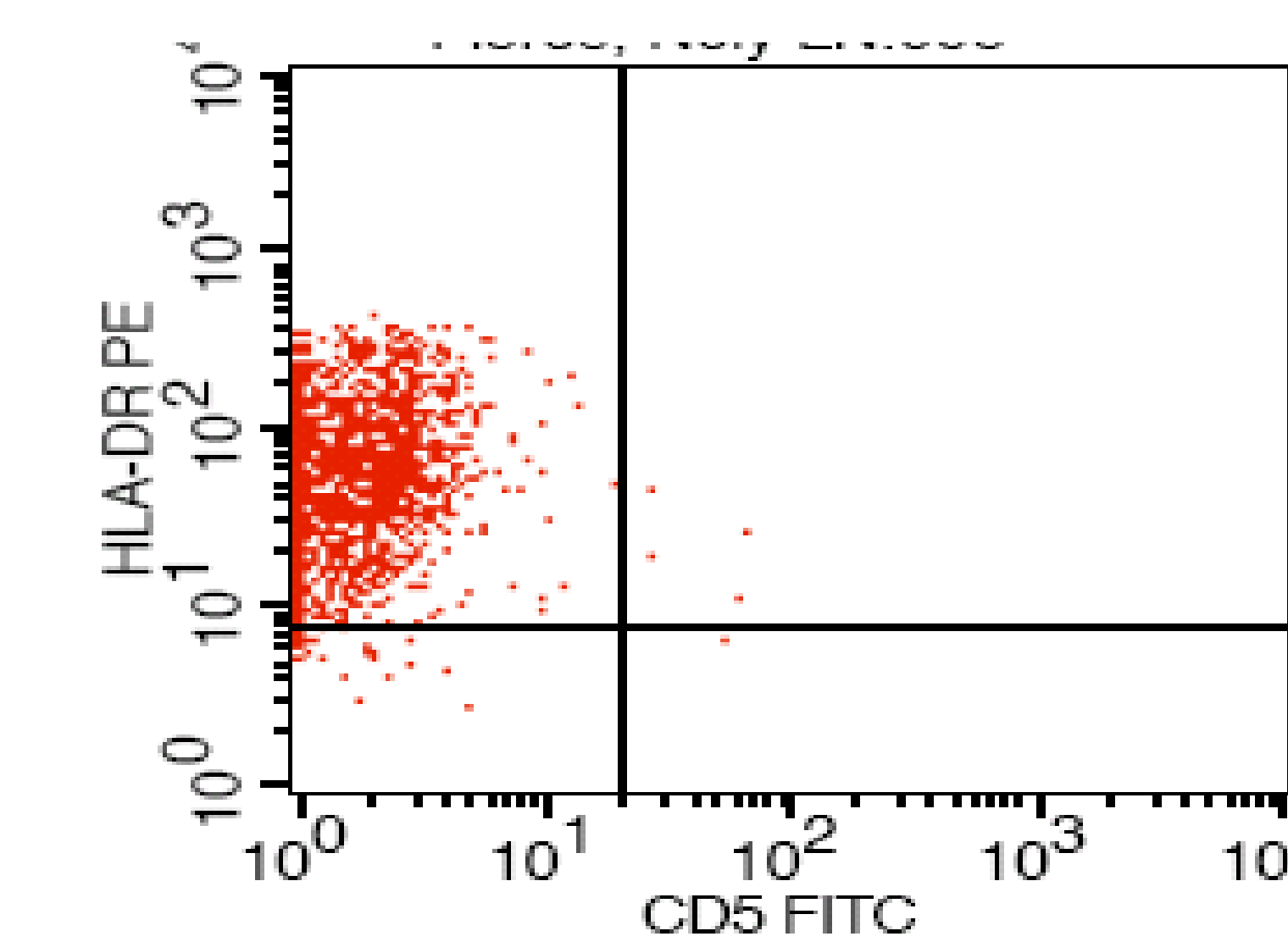


Fig. 9. HLA-DR positivity

DISCUSSION

B-LBL is an uncommon type of lymphoma and constitutes approximately 10% of the cases of lymphoblastic lymphoma. The median age is 20 years (range 5-68 years) with male predominance. B-LBL is a neoplasm of the lymphoblasts committed to B-cell lineage. With aggressive chemotherapy, patients with B-LBL rarely develop leukemic phase and appear to have better prognosis than patients with precursor B lymphoblastic leukemia. Unlike precursor T lymphoblastic lymphoma, which commonly involves the mediastinum, B-LBL rarely presents as mediastinal mass. A review of literature revealed 105 cases of B-LBL with the most common sites of involvement being skin, bone, soft tissue and lymph nodes. Mediastinal involvement is uncommon. In these cases, the thymus or the mediastinal lymph nodes are the preferred sites of involvement. The myocardial involvement by B-LBL in this report represents an unusual presentation.

References

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