



Introduction

We report the case of a 56 year old female who presented with a left femoral neck fracture. Imaging studies revealed multiple lytic bone lesions, including the left femoral neck and the right scapula. The patient was diagnosed with multiple myeloma based on the combined laboratory and clinical data. Immunophenotyping of the lytic lesions showed an unusual restriction of both surface and cytoplasmic kappa light chains.

Materials and Methods

Diagnostic specimens included the femoral head biopsy, received after hemi-arthroplasty, and a biopsy of the right scapula lesion. Hematoxylin-eosin stained slides of the biopsies were evaluated. Immunophenotyping of the left femoral head biopsy and the right scapula was also performed. Subsequent workup included a bone marrow aspirate and biopsy.

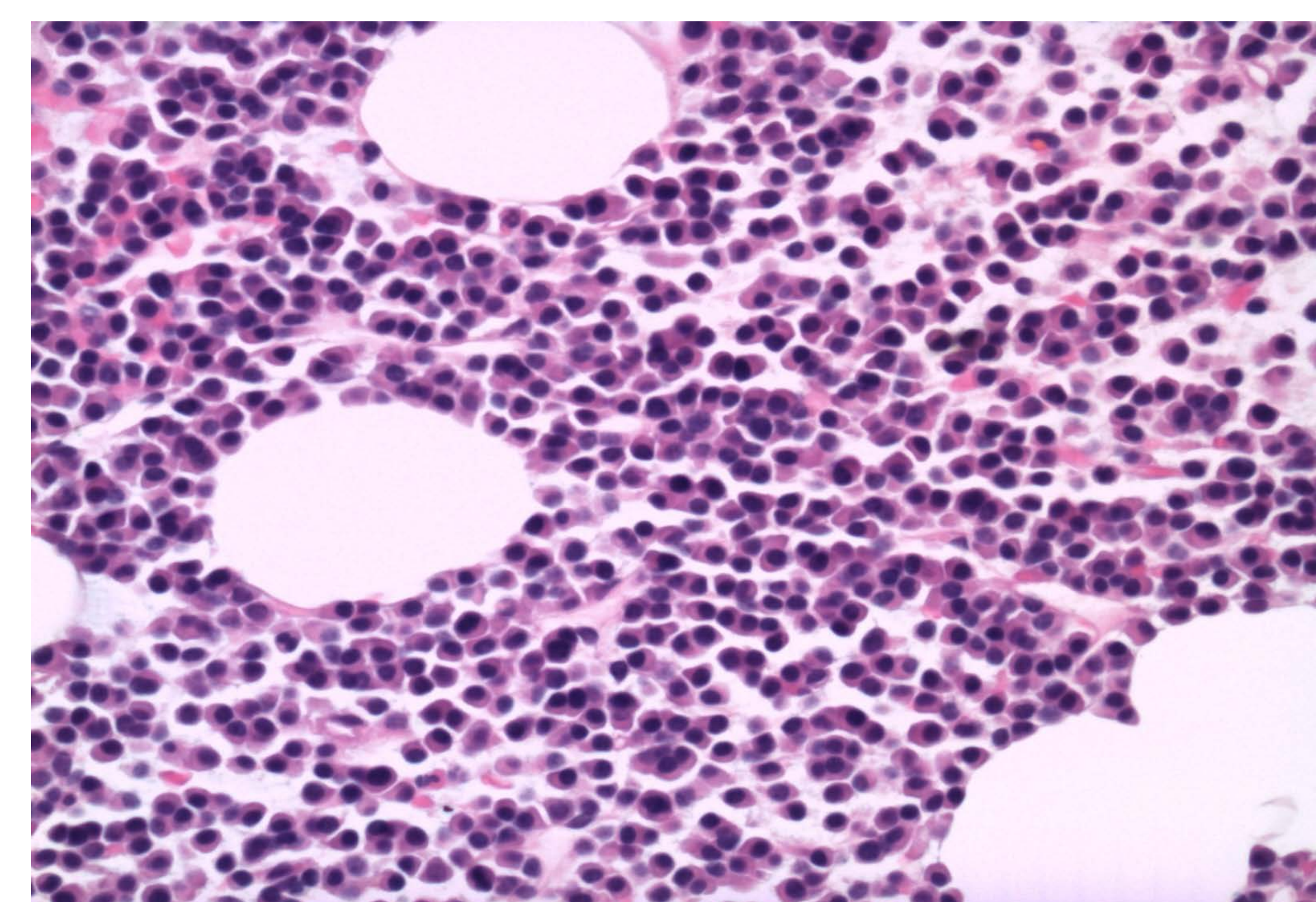


Fig. 1 (20X). Bone marrow biopsy showing diffuse infiltration of plasma cells with mature cytological features.

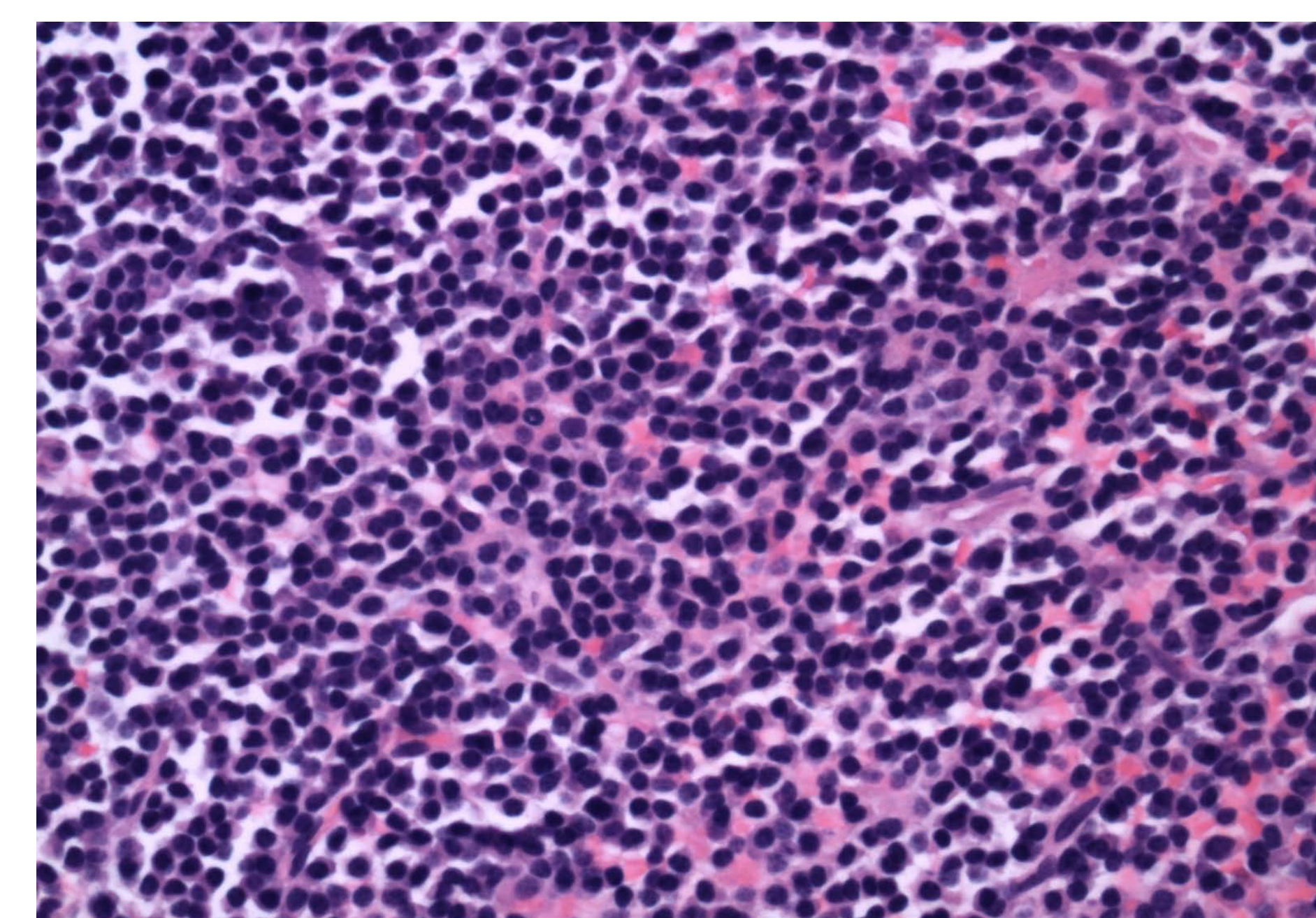


Fig. 2 (20X). Femoral head biopsy showing diffuse infiltration of plasma cells with similar features.

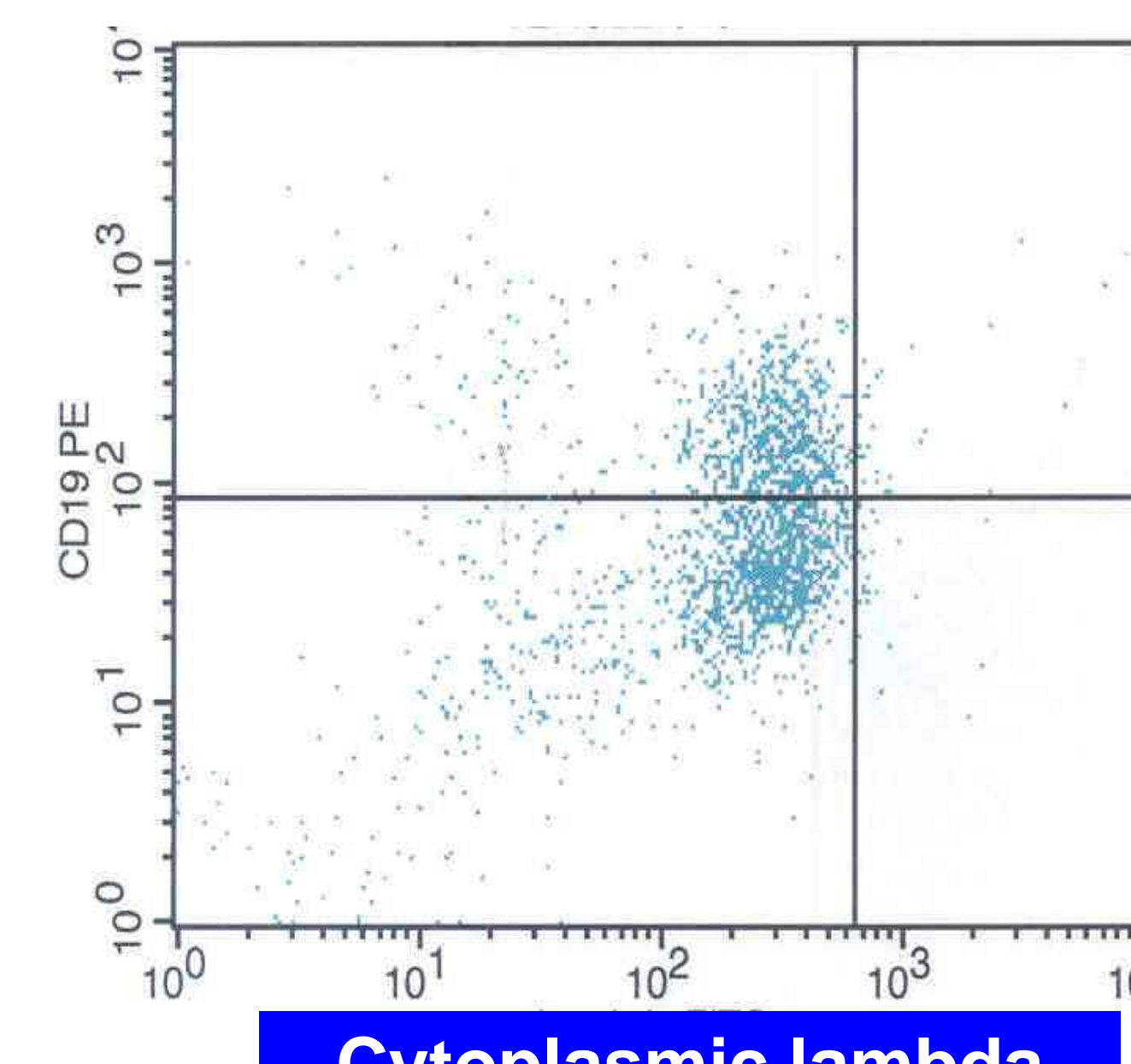
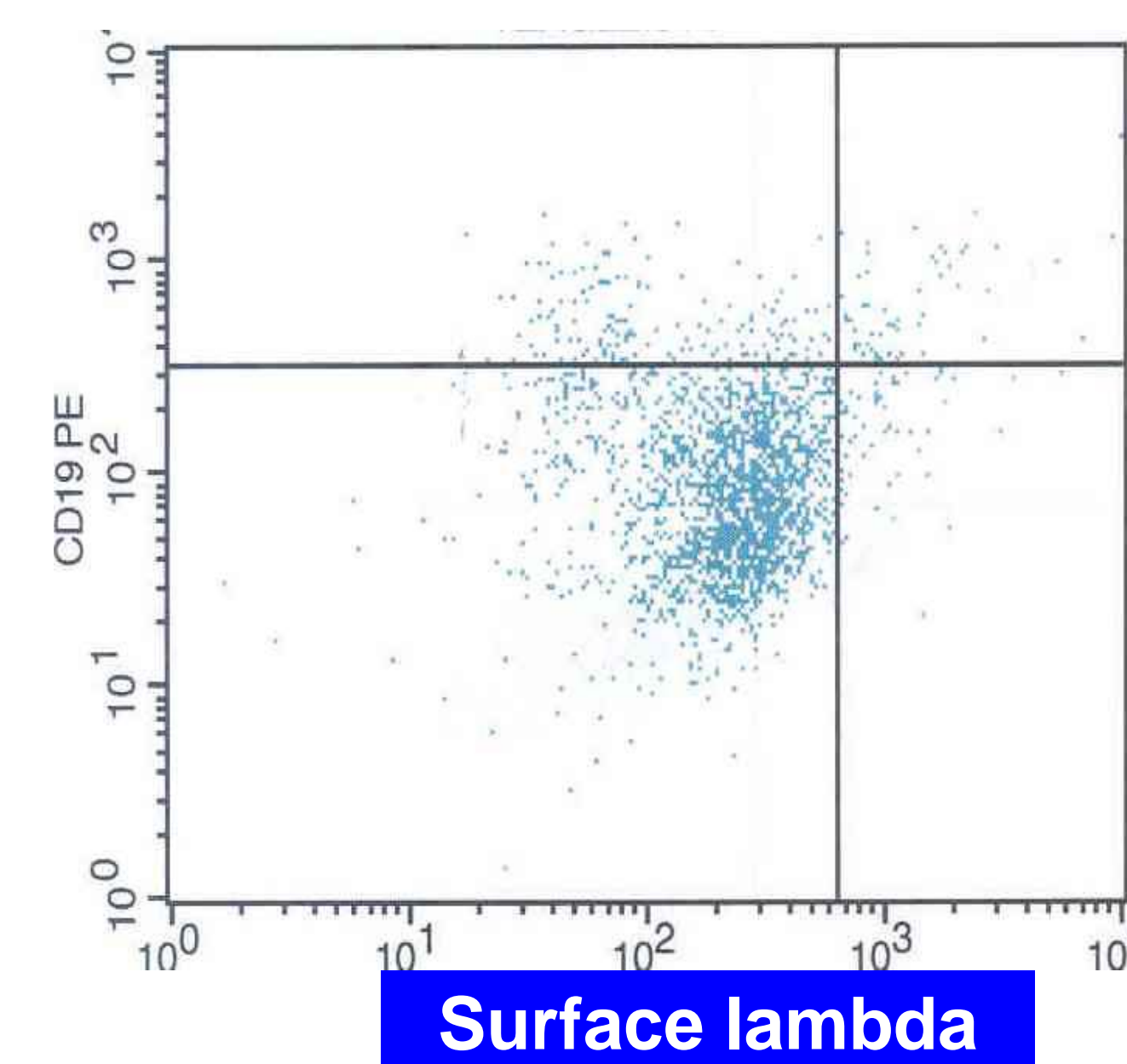
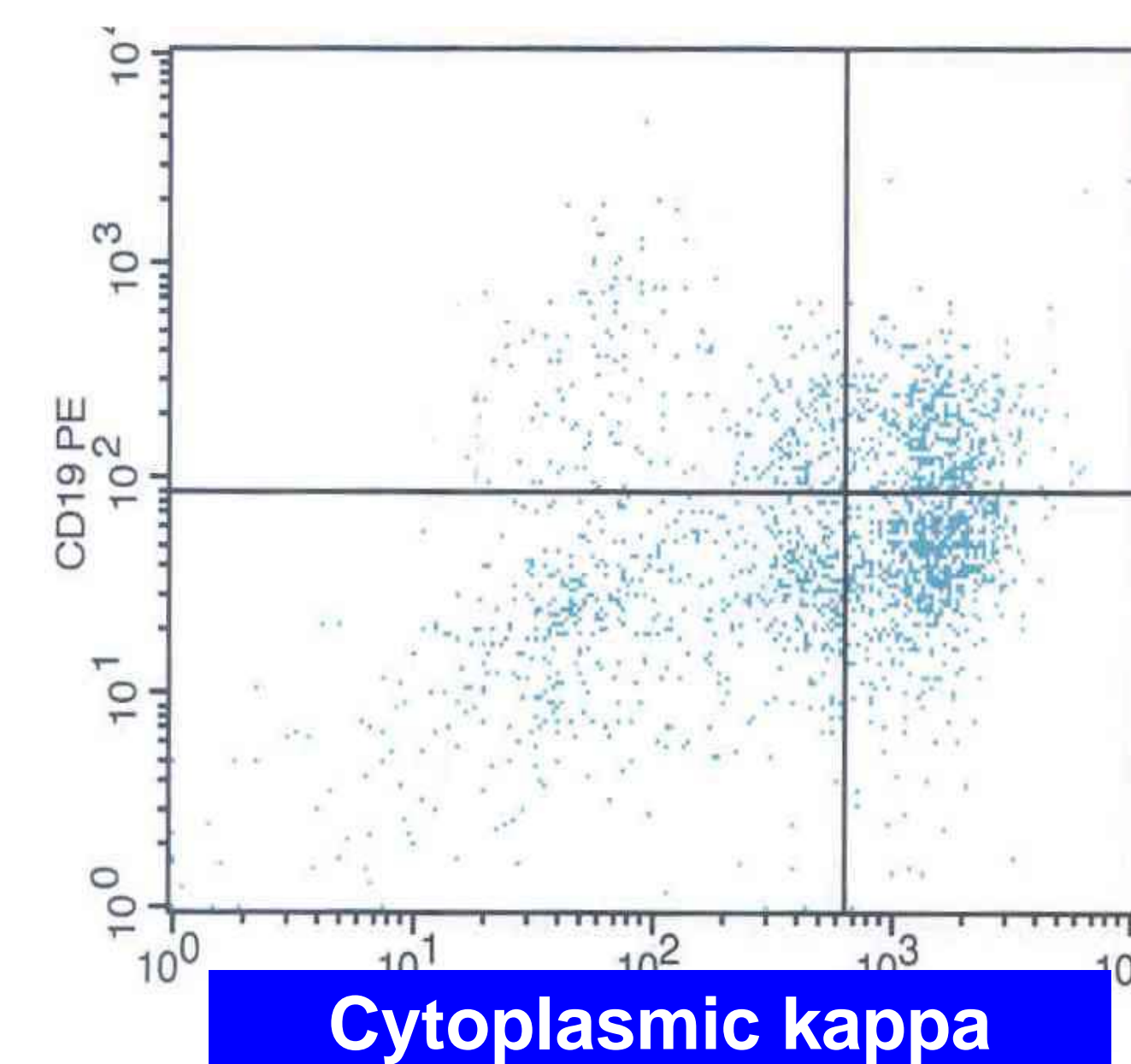
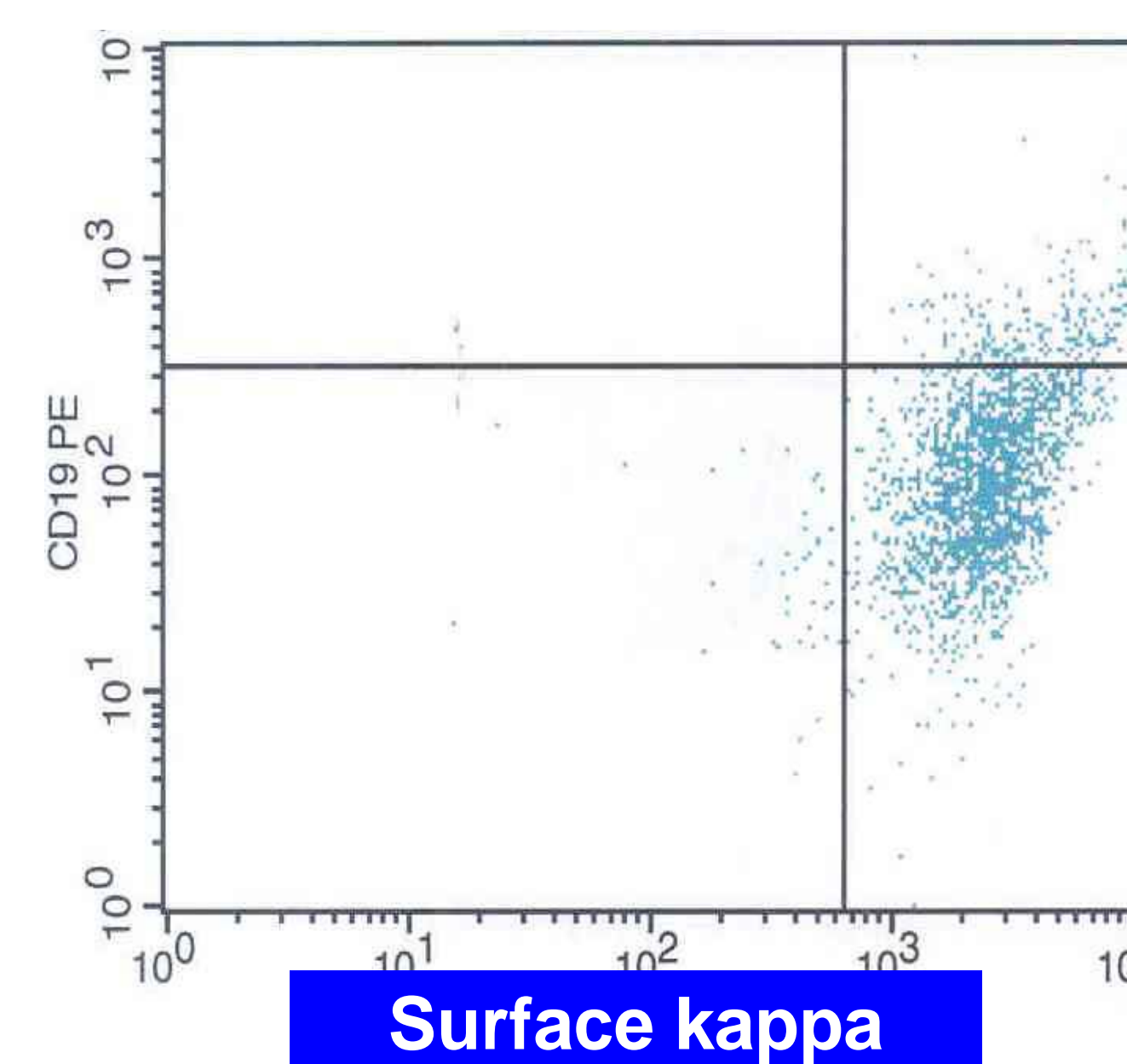


Fig. 3. Flow cytometry study showing surface and cytoplasmic kappa light chain restriction.

Results

Histologic sections of both biopsies showed diffuse infiltration of plasma cells with mature cytological features (figs. 1 and 2). Immunophenotyping of both lesions confirmed the presence of a predominant monoclonal plasma cell population (fig. 3). As would be expected in a typical plasmacytic neoplasm, the plasma cells showed CD38 positivity with cytoplasmic kappa light-chain restriction in conjunction with CD45 negativity. An unexpected finding in this case was the aberrant restriction of surface kappa light-chain. Additionally, the malignant plasma cells were positive for CD7, CD19, CD20, and negative for CD56. The lymphocytes in flow cytometric analysis were small in number and showed normal immunophenotypes (polyclonal B cells and T cells). In addition, serum protein electrophoresis was negative, but immunofixation revealed a monoclonal kappa light chain process. A paraprotein was identified on urine protein electrophoresis, and immunofixation confirmed spillage of free monoclonal kappa light chains. Subsequent bone marrow biopsy showed aggregates of plasma cells with consistent flow cytometric features.

Conclusions

The diagnosis of multiple myeloma is based on a combination of laboratory and clinical features. Despite the unusual marker profile of the monoclonal plasma cells in this case, the clinical and histologic evidence firmly established the diagnosis of multiple myeloma. To the best of our knowledge, the unusual restriction of both surface and cytoplasmic light chains has not previously been described in multiple myeloma patients.

REFERENCES

- Jaffe ES, Harris NL, Stein H, Vardiman JW. Pathology and Genetics of Tumours of the Haematopoietic and Lymphoid Tissues. Lyon:IARC Press, 2008