An Unusual Presentation of Pleural Effusion in a Relapsed Case of Multiple Myeloma

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Introduction

Multiple myeloma is a neoplastic plasma cell disorder that is characterized by clonal proliferation of malignant plasma cells in the bone marrow, monoclonal protein in the blood and urine with associated organ dysfunction. It is considered to be the most common hematological malignancy after lymphoma, constituting about 13% of blood malignancies. We present an unusual case of a 55 year old male with a previous diagnosis of IgG-lambda multiple myeloma with extramedullary involvement of the posterior fossa, status-post radiation and chemotherapy with complete remission, who presented 17 months later with worsening dyspnea. Subsequent work-up showed multiple myeloma relapse only in the form of malignant plasma cells in the left pleural effusion.

Methods

80cc of tan fluid, obtained from the pleural effusion, was received in pathology. Cytospins were prepared with 2 different staining techniques (Papanicolaou and DiffQuik) and 1 cell block was prepared (H&E). Immunophenotyping by flow cytometry was also performed.

Microscopic and Flow Cytometric Findings

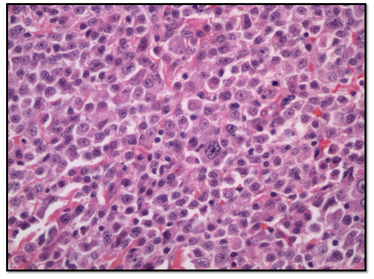

Fig.1 Initial diagnosis with extramedullary involvement of posterior fossa by plasma cells (H&E, 10x)

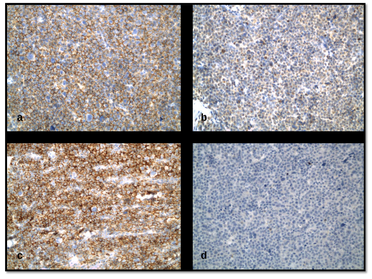

Fig.2 Immunohistochemistry (IHC, 4x) of plasma cells from posterior fossa.
(a) Pos CD38, (b) pos CD138, (c) pos CD56, (d) neg CD19

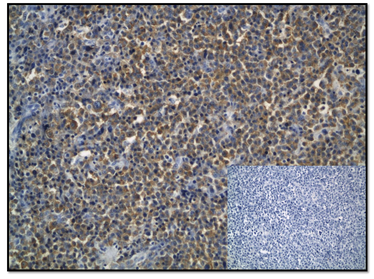

Fig.3 of plasma cells from posterior fossa with monoclonal cytoplasmic lambda light chains [insert: negative kappa IHC] (IHC, 4x)

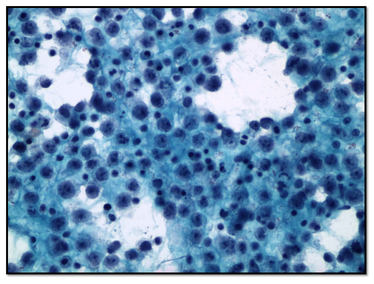

Fig.4 Relapse with pleural effusion showing plasma cells (Cytospin, Pap, 20x)

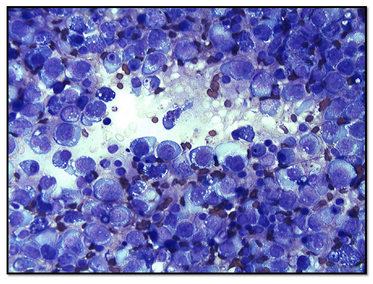

Fig.5 Pleural effusion showing plasma cells (Cytospin, DiffQuik, 20x)

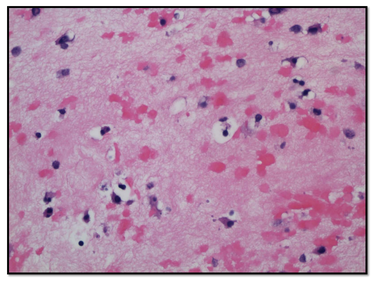

Fig.6 Cell block of pleural effusion showing plasma cells (H&E, 10x)

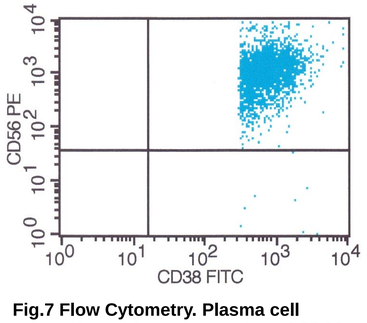

Fig.7 Flow Cytometry. Plasma cell population with co-expression of CD38 and CD56

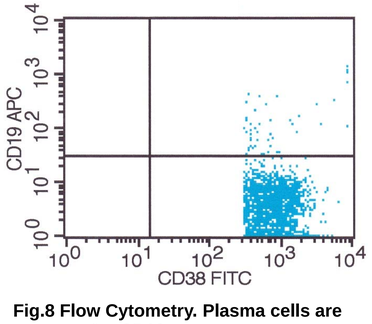

Fig.8 Flow Cytometry. Plasma cells are negative for CD19

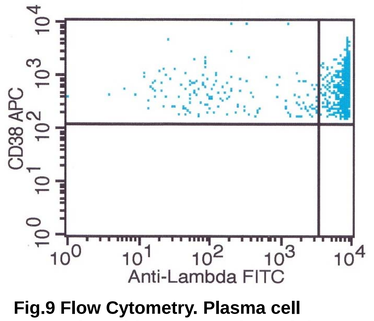

Fig.9 Flow Cytometry. Plasma cell population with cytoplasmic lambda light chain restriction

Results

Cytological examination of the pleural fluid revealed a monotonous accumulation of plasma cells. Flow cytometry showed a large monoclonal plasma cell population that was positive for CD38, and cytoplasmic lambda light-chain restriction. Additionally, these plasma cells were positive for CD56 and negative for CD19. Given the morphologic and flow cytometry findings, a diagnosis of multiple myeloma relapse with malignant plasma cells in pleural fluid was made. A thorough examination including imaging studies failed to show malignant plasma cells in any other sites.

Conclusions

- This case illustrates a rare presentation of multiple myeloma relapse with only malignant pleural effusion following complete remission of an IgG-lambda multiple myeloma.
- To the best of our knowledge, there have been no such previously documented reports.
- This case reinforces the concept that multiple myeloma may have many unique presentations requiring diligence on the part of clinicians and pathologists to establish the diagnosis.

REFERENCES

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