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LETTER TO THE EDITOR

Would you think of histiocytic sarcoma in this fine-needle aspiration?

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Dear Editor,

Morphological criteria of histiocytic sarcoma (HS) are similar in biopsies and fine-needle aspirations (FNA) [1]. Generally, this disease is a hypothesis that pathologists do not think of at first sight. Thus, in a cytological exam, besides the difficulty of considering this disease a possibility, the absence of an architectural pattern is another complicating factor [2].

The figure represents a FNA (Fig. 1a–f) of an enlarged inguinal lymph node of a 53-year-old man with left hemicranial headache associated with diplopia, bilaterally increased inguinal lymph nodes, and a monoclonal peak in gamma in his protein electrophoresis. Computed tomography demonstrated osteolytic lesions at the left base of the skull and in vertebral bodies and the left acetabulum, besides disseminated increased lymph nodes.

The FNA resulted in large atypical cells with a multivacuolated cytoplasm, pleomorphic nuclei, evident nucleoli, and eccentric nuclei, similar to those found in plasma cells. The diagnosis was a poorly differentiated malignant neoplasm, and immunohistochemistry was not performed due to the scarcity of the material in the cell block.

The subsequent histological exam of the same lymph node confirmed a high-grade neoplasm with malignant cells equal to the cytological sample (Fig. 1g–i). Immunohistochemistry showed positivity for S^{-100}, CD68, CD163, and lysozyme (Fig. 1j–l); negativity for CD138, cytokeratins, EMA, CD56, CD20, CD3, Melan-A, HMB-45, CD23, desmin, and myeloperoxidase; and a high cell proliferation index (70%) (Table 1). The diagnosis was HS infiltrating lymph nodes, bone marrow, bone and, in the end stage, skin. The patient died 81 days after the first diagnosis due to chemotherapy-induced medullary aplasia.

In FNA, the multivacuolated cells may lead to a different diagnosis as a Mott cell of multiple myeloma or atypical plasma cells with immunoglobulin inclusions such as Dutcher and Russell bodies. Sometimes, the aspect in biopsies and cytology resembles those seen in infectious conditions because of the histiocytes, but pathologists must pay attention to some patterns to do the neoplasm diagnosis: pleomorphic nuclei, abundant eosinophils, a vacuolar and finely granular cytoplasm, and multinucleated giant cells are commonly seen, independent of the sample type.

Immunohistochemistry is fundamental for the diagnosis [3–7]. In FNA, a cell block material may be used. Unfortunately, in our case, it was not possible. HS is an interesting and aggressive disease. Pathologists are accustomed to histological aspects; however, FNA is an easy and accessible method for diagnosis, and this case

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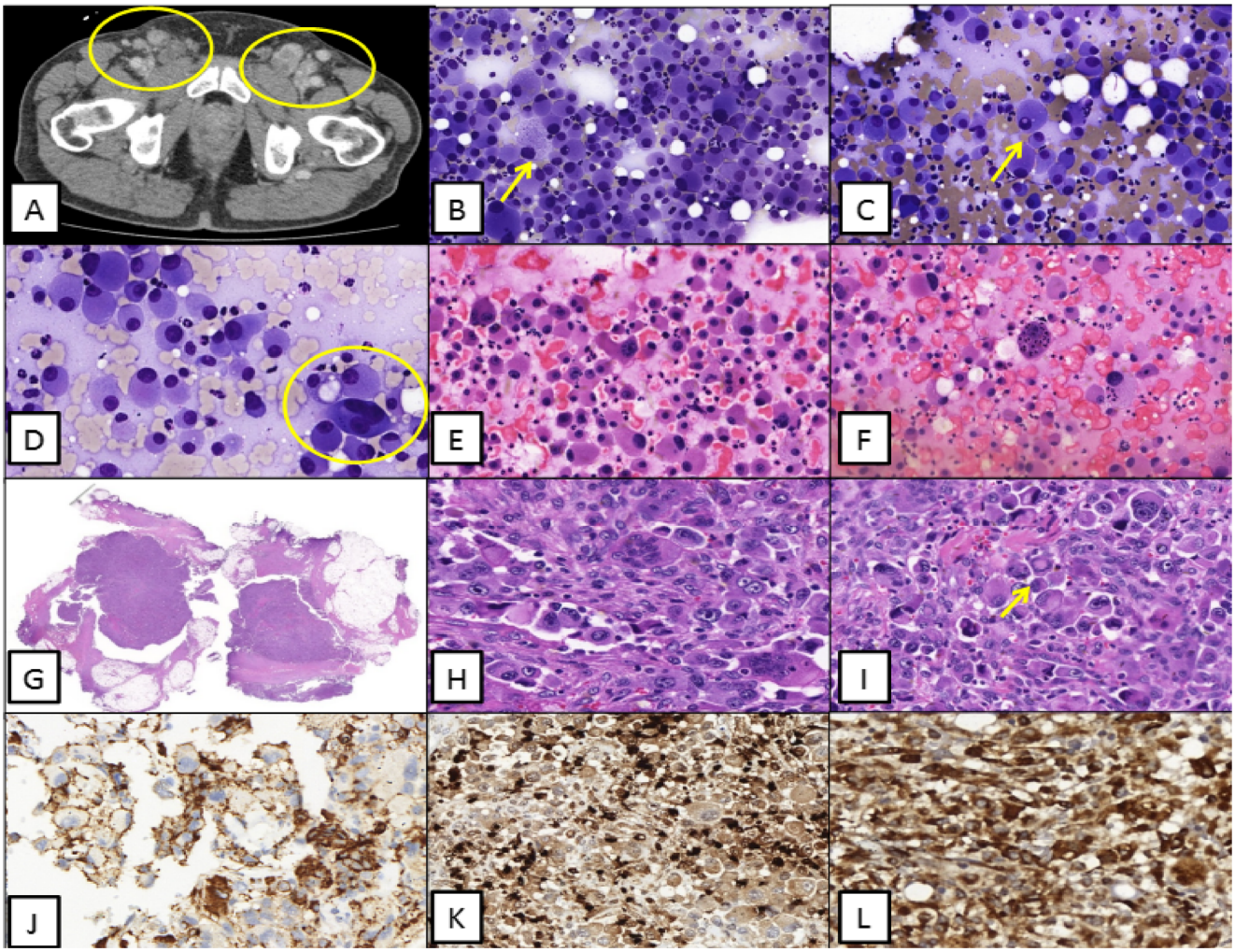

Fig. 1 **a** Computed tomography. Pelvic computed tomography. Circles pointing to bilateral lymph nodes, all of which are enlarged. **b** FNA of an inguinal lymph node (Giemsa, ×400): The atypical cells have eccentric nuclei, similar to those observed in plasma cells. The arrow indicates a cell with a multivacuolated cytoplasm. **C** FNA of an inguinal lymph node (Giemsa, ×400): Some cells, like the one indicated by the arrow, have nuclear inclusions, like a Dutcher body, commonly seen in multiple myeloma/plasmocytoma. **d** FNA of an inguinal lymph node (Giemsa, ×400): Inclusions in the cytoplasm are also seen. The circle highlights a multinucleated atypical cell. **e** FNA of an inguinal lymph node (H&E, ×400): With this stain, it is possible to demonstrate the eosinophilic cytoplasm and the nuclear pattern with nuclei of different sizes and aspects, sometimes with evident nucleoli. **f** FNA of an inguinal lymph node (H&E, ×400): In the center of the image, there is a neoplastic cell in the process of phagocytosis of granulocytic cells. Hemophagocytosis may be a characteristic of HS, but it is not a specific finding, especially in a FNA. **g** Histological aspects of an inguinal lymph node (H&E, ×10): The lymph node's normal architecture is absent due to a neoplastic infiltration. **h** Histological aspects of an inguinal lymph node (H&E, ×400): The cells are very atypical, in a way similar to the findings of FNA. There are eosinophilic cytoplasm, pleomorphic nuclei, and multinucleated cells. The cells seem more atypical in the histological analysis. **i** Histological aspects of an inguinal lymph node (H&E, ×400): Areas of accentuated pleomorphism and nuclear inclusions, indicated by the arrow. **j** CD68, ×400. The immunohistochemistry highlights bigger and atypical cells with many nuclei. **k** (lysozyme, ×400), **f** (CD163, ×400) Immunohistochemical markers that confirmed the diagnosis and, here, have a diffuse stain

illustrated the difficulty regarding the process of diagnosis in this kind of situation.

The use of FNA for hematological diagnosis is questionable, mainly when the service has no flow cytometry. However, it might be a quick procedure to help the hematologist. Depending on the disease, the cell block to be used for immunohistochemistry is an important material to solve the diagnostic problem in patients with surgical

Table1 Immunohistochemistry study applied to the case

Antibody	Result
S-100	Positive
CD68	Positive
CD163	Positive
Lysozyme	Positive
CD138	Negative
Ki67	60%
Cytokeratin (AE1/AE3)	Negative
EMA	Negative
CD56	Negative
CD20	Negative
CD3	Negative
CD15	Negative
CD1a	Negative
HMB45	Negative
Melan-A	Negative
Myeloperoxidase	Negative
Desmin	Negative
CD23	Negative
CD30	Negative
CD45	Negative

limitations. FNA is also a trial test, which can help distinguish between a metastatic carcinoma and a lymphoma, for example. HS must be a differential hypothesis for poorly differentiated neoplasms, both in biopsy and FNA. For aggressive neoplasms, FNA may be an interesting diagnostic tool, even with the possibilities of molecular tests too.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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