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CLINICAL CASE

Malignant fibrous histiocytoma metastatic to adrenal gland: a case report

A. Pantidou[1], A. Kiziridou[2], K. Pazaitou[3], S. Economou[4], Th. Toliou[2], Ch. Destouni[1]

[1]Department of Cytopathology, [2]Department of Pathology, [3]Department of Endocrinology, [4]Department of Surgery, "Theagenio" Anticancer Hospital of Thessaloniki, Thessaloniki, Greece

Summary

We report on a rare case of a 63-year-old male with malignant fibrous histiocytoma (MFH) metastatic to the right adrenal gland, first diagnosed with fine needle aspiration (FNA) biopsy. The cytological and immunocytochemical study indicated a malignant neoplasm of mesenchymal origin with characteristics of MFH. The patient was then operated on and the pathological and immunohistochemical findings confirmed the cytological diagnosis. FNA becomes more widely useful for the diagnosis of non-palpable masses. It is worth noting that the fluid-based thin-layer "Thin Prep" method provides the possibility to apply immunocytochemical stainings in FNA cytologic material, especially in cases where the material is inadequate.

Key words: adrenal gland, diagnosis, fine needle aspiration, malignant fibrous histiocytoma, metastasis

Introduction

MFH is the most common soft tissue sarcoma in adults, occurring predominantly in the muscles of the extremities, with retroperitoneum being the second most common site of occurrence [1-5]. MFH metastatic to the adrenal gland is extremely rare [6-9].

In the case presented herein, the diagnosis of the metastatic MFH was based on specific cytomorphological characteristics accompanied with immunocytochemical stainings.

Case presentation

A 63-year-old male presented in our hospital complaining of pain in the right lumbosacral region radiating to the right hypochondrium and accompanied with nausea. The patient had had a surgically removed tumor in the neck about 12 months ago. This was a small tumor, the histological examination of which revealed a malignant mesenchymal neoplasm with characteristics of MFH.

A computed tomography (CT) of the abdomen revealed the presence of a 6×5.5×5 cm mass in the right adrenal gland. A CT-guided FNA biopsy was performed. The cytological examination of the material was made by conventional and thin-layer Thin Prep method, as well as by cell-block technique. Papanicolaou stain was used in Thin Prep and conventional smears, while sections from the paraffin-embedded blocks were stained with haematoxylin and eosin. For immunocytochemical study, the following primary antibodies were employed: vimentin 1:500 (Dakopatts, Athens, Greece) and epithelial membrane antigen 1:100 (EMA, Dakopatts, Athens, Greece).

The patient underwent surgical removal of the adrenal tumor and sections of the excised mass were stained with haematoxylin and eosin. Immunohistochemically, the following antibodies were used: vimentin, a1-antithrypsin, a1-antichymothrypsin, lysozyme, CD-68, S-100, EMA, chromogranin and neuron specific enolase (NSE).

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Author and address for correspondence:

Agni Pantidou, MD
10 Papademetriou Street
551 31 Kalamaria
Thessaloniki
Greece
Tel: +30 2310 420926
E-mail: spid@panafonet.gr

Cytopathological findings and immunocytochemical study

The examination of the FNA cytologic material using the conventional method, the liquid-based thin-layer Thin Prep method and the paraffin-embedded cell block revealed a cell-rich material with two essential components: spindle-shaped cells of fibroblastic type with malignant characteristics, arranged in bundles, in storiform structures or isolated, accompanied with several dispersed bare malignant nuclei and a second component of large, often multinucleated malignant histiocytes. The histiocytic cells displayed great variability in size, shape and structure. Some of these cells were small, similar to normal histiocytes, but the majority were large, polyhedral or of bizarre shape, with delicate foamy cytoplasm. The nuclei were large, round, oval or of irregular configuration and variable size. The chromatin was coarsely granular and the nucleoli large and prominent. Occasionally, lymphocytes and plasma cells were intermingled with the tumor cells (Figure 1).

Immunocytochemical study was performed on Thin Prep and cell block material and was positive for vimentin and negative for EMA (Figure 2).

The cytological examination and immunocytochemical study demonstrated a malignant mesenchymal neoplasm with characteristics of MFH.

Histopathological findings and immunohistochemical study

The microscopic examination of the mass showed a malignant cell-rich tissue, consisted of spindle-shaped cells with round or oval dark nuclei, some of them of giant size, and numerous mitoses. The neoplastic components were arranged in small bundles, presenting myxomatous areas and sites of necrosis (Figure 3).

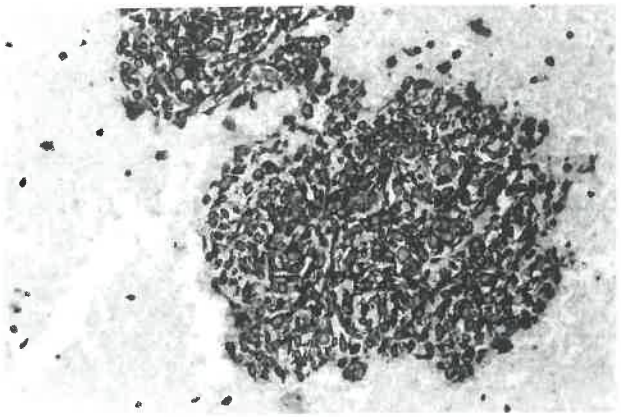


Figure 2. Cell-block positive for vimentin (×250).

The immunohistochemical study showed that the neoplastic cells were positive for vimentin, a1-antithrypsin and a1-antichymothrypsin, relatively positive for lysozyme and CD-68, slightly positive for S-100 protein and negative for EMA, chromogranin and NSE.

Both the histological and immunohistochemical findings in correlation with the patient's history indicated a metastatic malignant mesenchymal neoplasm of the adrenal gland, of malignant fibrous histiocytoma type.

Discussion

This was an extremely rare case that was first diagnosed in FNA material. As far as we know, only one similar case of MFH metastatic to the adrenal gland has been reported thus far. Most frequently,

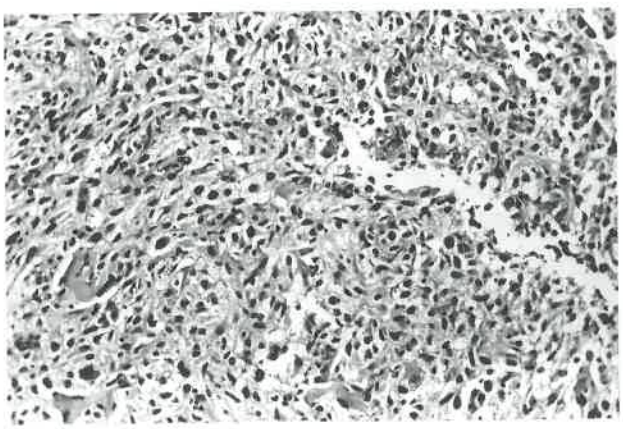


Figure 1. Cell-block material showing storiform pattern of MFH (Papanicolaou ×250).

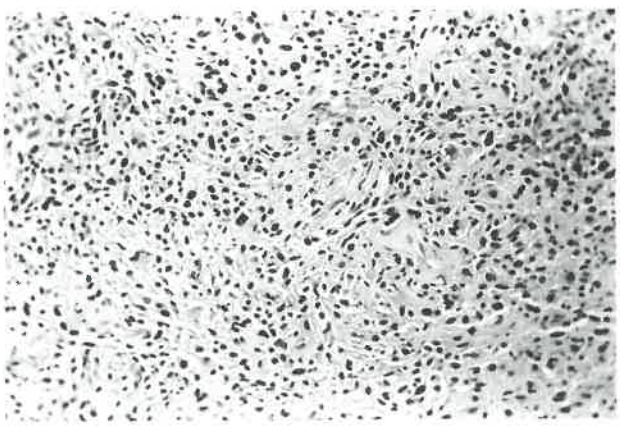


Figure 3. Histologic section, showing bundles of malignant spindle-shaped cells (H&E ×100).

metastases from lung and breast carcinomas, lymphomas and melanomas are localized in the adrenal glands, and the biologic significance of these metastases is correlated with more aggressive behavior, wide dissemination of the primary tumor and early death of the patient [10,11].

In our case the diagnosis of the MFH was based on specific cytomorphologic characteristics accompanied with immunocyto-histochemical stainings.

It must be noted that the liquid-based thin-layer Thin Prep method provides the possibility to apply immunocytochemical stainings in accurate cytologic material, a fact that contributes in accurate cytologic diagnosis, especially in cases where the material is inadequate. Hence, FNA biopsy becomes more widely useful for the diagnosis of non-palpable masses.

References

1. Rosenberg AE. Malignant fibrous histiocytoma: past, present, and future. Skeletal Radiol 2003; 32: 613-618.
2. Belal A, Kandil A, Allam A et al. Malignant fibrous histiocytoma: a retrospective study of 109 cases. Am J Clin Oncol 2002; 25: 16-22.
3. Peiper M, Zurakowski D, Knoefel WT et al. Malignant fibrous histiocytoma of the extremities and trunk: an institutional review. Surgery 2004; 135: 59-66.
4. Salo JC, Lewis JJ, Woodruff JM et al. Malignant fibrous histiocytoma of the extremity. Cancer 1999; 85: 1765-1772.
5. Atmatzidis KS, Pavlidis TE, Galanis IN et al. Malignant fibrous histiocytoma of the abdominal cavity: report of a case. Surg Today 2003; 33: 794-796.
6. Koss LG. Diagnostic Cytology and Its Histopathologic Bases. In: Winters R, Orem E, Gibbons T (eds). The Adrenal Glands. JB Lipincott Co, Philadelphia, USA, 1992, pp 1368-1370.
7. Koss LG, Woyke S, Olszewski W (eds). The Skin and Soft Tissue. In: Aspiration Biopsy-Cytologic Interpretation and Histologic Bases. Igaku-Shoin, New York-Tokyo, 1992, pp 443-444.
8. Koss LG, Woyke S, Olszewski W (eds). The Adrenal, Retroperitoneum, and Ovaries. In: Aspiration Biopsy-Cytologic Interpretation and Histologic Bases. Igaku-Shoin, New York-Tokyo, 1992, p 616.
9. Yamagishi T, Yoshida I, Ishikawa S et al. Malignant fibrous histiocytoma of the mediastinum associated with bilateral adrenal gland metastases-a case report. Nippon Kyobu Geka Gakkai Zasshi 1992; 40: 1897-1901.
10. Akcay MN, Tekin SB, Akcay G. Addisonian crisis due to adrenal gland metastasis in Hodgkin's disease. Int J Clin Pract 2003; 57: 840-841.
11. Carlini M, Lonardo MT, Boschetto A et al. Adrenal glands metastases from malignant melanoma. Laparoscopic bilateral adrenalectomy. J Exp Clin Cancer Res 2003; 22: 141-145.