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TEACHING CASES

Inflammatory malignant fibrous histiocytoma of kidney: A case report

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Abstract

Among the renal sarcomas, inflammatory malignant fibrous histiocytoma (MFH) is an extremely rare presentation. A 45-year-old woman presented with acute retention urine following an episode of gross hematuria. Computerized tomography showed a solid mass at the lower pole of the left kidney. The patient underwent left nephrectomy. Histologically and immunohistochemically, the tumor was diagnosed as an inflammatory subtype of MFH.

Histological appearances of inflammatory MFH vary widely and frequently overlap with benign reactive conditions such as Xanthogranulomatous pyelonephritis (XGPN) and malignant lesions, e.g. malignant lymphoma and, less frequently, a sarcomatoid variant of renal cell carcinoma. It is important, though difficult, to differentiate inflammatory MFH from these lesions. Careful morphological examination and immunohistochemical findings of the lesion are of great value, in particular in excluding it from its mimics. We discuss the pathological features and challenges involved in differentiating inflammatory MFH from its masquerader.

Keywords: Renal sarcoma site; Inflammatory malignant fibrous histiocytoma; Malignant fibrous histiocytoma; Xanthogranulomatous pyelonephritis

Malignant fibrous histiocytoma (MFH) has been classically defined as high-grade pleomorphic soft tissue sarcoma of late adult life, predominantly affecting extremities. Infrequent primary localizations in the genitourinary tract such as bladder, spermatic cord, prostrate, and kidney have been described [5], and are presumed to arise from the supporting structures of parenchymal organs. Here, we describe a case of inflammatory MFH, emphasizing the intricacies involved in its pathological diagnosis, in particular with reference to the renal origin.

Case report

A 45-year-old woman was admitted to hospital with acute retention of urine following an episode of hematuria for 2 days. She had no other significant complaints except for intermittent gross hematuria for the last 4 months. Bilateral kidney was palpable on ballottement; however, no palpable mass was found on physical examination. Laboratory analysis revealed mild anemia (10.7 gm/dl), leucocytosis (20.9×10^9/l) with neutrophilia (P90, L06, E03, M04). Other biochemical parameters and a previous urine analysis were within normal limits. A low attenuating, intracapsular solid mass (7 cm × 4.7 cm × 6.0 cm) compressing the lower pelvicalyceal system was detected on computerized tomography (CT) at the lower pole of the left kidney.

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The preoperative metastatic workup was negative. Suspecting a stage I renal cell carcinoma (RCC), left radical nephrectomy was performed, and the post-operative course was uneventful.

Nephrectomy specimen showed a pale yellow colored, uncircumcised solid lesion (6.5 cm × 6.0 cm × 4.5 cm) confined to the lower pole of kidney and infiltrating the respective pelvicalyceal system (Fig. 1). Microscopically, the lesion showed sheets and nodular aggregates of xanthoma cells admixed with numerous histiocytes, lymphocytes, plasma cells, neutrophils, and eosinophils infiltrating the renal parenchyma (Fig. 2). Many atypical (neoplastic) histiocytes, mononuclear and multinucleated giant cells with bizarre nucleus, and a fair number of atypical mitosis (Fig. 3) were present. Small areas of necrosis were also noted. The lesion reached the renal capsule; however, the renal vessels, Gerota's fascia, perinephric fat, and ureter were free of infiltration microscopically. Immunohistochemistry (IHC) revealed diffuse and strong reactivity for vimentin by the tumor cells, including some of the multinucleated cells (Fig. 4), and non-reactivity for cytokeratin (CK), CD20, CD15, and CD30. The histiocytes and a few neoplastic cells were positive for CD-68 (Figs. 5 and 6). Based on these histomorphological and immunohistochemical findings, the lesion was categorized as an inflammatory subtype of MFH of renal origin. Eleven months after initial presentation, the patient presented with local recurrence, and pulmonary metastasis was detected. Two months later, the patient died.

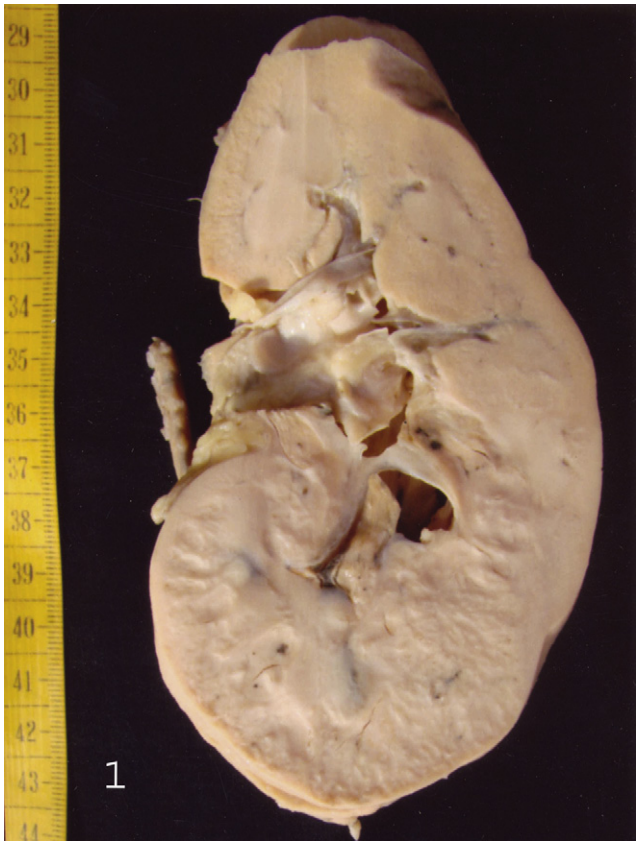

Fig. 1. Gross appearance of left renal mass showing a poorly circumscribed, whitish solid cut surface and focal necrosis.

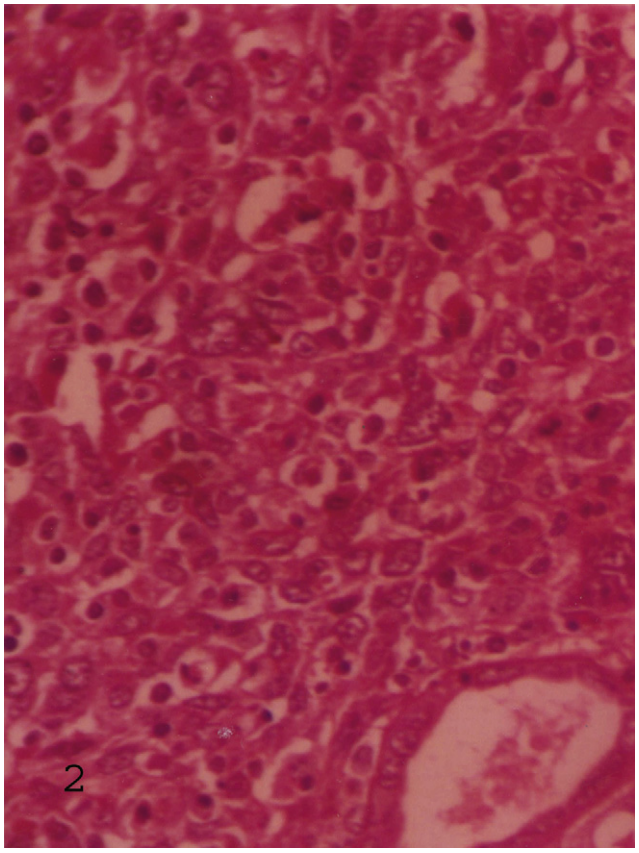

Fig. 2. Heterogeneous admixture of histiocytes, plasma cells, and neutrophils (renal tubular epithelium is also present in the field) (hematoxylin–eosin, original magnification × 100).

Discussion

Renal sarcomas account for about 2–3% of all malignant renal tumors, of which leiomyosarcomas are the commonest, followed by liposarcoma, fibrosarcoma, and rhabdomyosarcoma [12]. Renal MFH are extremely rare. In general, MFHs are cellular neoplasms with a wide range of histological appearances and, on the basis of the predominant cell population, have been further categorized into the following four subtypes: storiform pleomorphic, myxoid, giant cell type, and inflammatory [2]. The majority of MFH described in the kidney were of fibroblastic–pleomorphic type [4], followed by giant cell type. Primary inflammatory MFH of kidney is an unusual presentation, and, so far, there have been documented only four [3,9,12,16] out of 52 reported cases of primary renal MFH described in the literature. This is the fifth case report of a primary inflammatory MFH arising in kidney.