Case Report

Cyto-histological correlation of sarcomatoid carcinoma of kidney

Shailja Puri, Sarita Asotra[1], Neelam Gupta[1], Sudarshan Sharma[1]

Lab Head, SRL Ltd, [1]Department of Pathology, Indira Gandhi Medical College, Shimla, Himachal Pradesh, India

ABSTRACT

Sarcomatoid renal cell carcinoma (RCC) is a rare malignancy constituting 0.7% to 13.2% of all renal parenchymal malignancies. It is also called anaplastic carcinoma, spindle cell carcinoma or carcinosarcoma. The sarcomatoid differentiation is not a distinct histological entity, but it confers high aggressiveness on any subtype of RCC. Cytology of sarcomatoid RCC has rarely been described in literature. We describe cytology of a renal tumor that was later proven to be sarcomatoid RCC on histopathology and immunohistochemistry.

Key words: Anaplastic carcinoma, carcinosarcoma, sarcomatoid renal cell carcinoma

INTRODUCTION

Sarcomatoid renal cell carcinoma (RCC) is a rare malignancy constituting 0.7% to 13.2% of all renal parenchymal malignancies.[1] The sarcomatoid differentiation is not a distinct histological entity, but it confers high aggressiveness on any subtype of RCC.[2] We report a case report of sarcomatoid RCC with its cytological features and review of literature.

CASE REPORT

A 53-year-old smoker male patient presented with left flank pain for 2 months. Computed tomography scan showed a heterogeneously enhancing lesion in upper and mid pole of the left kidney [Figure 1a]. Multiple necrotic lymph nodes were identified in the renal hilum and in abdominal. Fine needle aspiration cytology showed cellular smears comprising of malignant epithelial cells lying singly, in groups and cohesive clusters. The cells were pleomorphic, had fine to coarse chromatin, inconspicuous to prominent nucleoli and moderately abundant vacuolated cytoplasm [Figure 1b and c]. Occasional bi-nucleated and multinucleated cells were also seen. Background showed necrotic debris and inflammatory cells. Cytological diagnosis of RCC-left kidney was given. Left nephrectomy was performed. Grossly, left nephrectomy specimen measured 13 cm × 8 cm × 5 cm. Cut surface showed tan-brown to tan-yellow growth with a variegated appearance measuring 5.5 cm × 4.5 cm × 3 cm [Figure 1d]. Microscopic examination of growth showed fascicles of spindle-shaped cells interspersed with epithelioid cells. The cells were pleomorphic, had high nucleo-cytoplasmic ratio, vesicular nuclei, prominent nucleoli and moderate to abundant clear cytoplasm [Figure 2a and b]. Mitotic figures of 1–2/10 high power field, necrosis, inflammatory cells and capsular invasion were seen. Intervening areas showed mature adipose tissue and thick walled blood vessels. A possibility of epithelioid angiomyolipoma was kept on the basis of the presence of epithelioid cells, mature adipose tissue, and thick walled blood vessels. Immunohistochemistry (IHC) was ordered for markers HMB-45, cytokeratin, desmin, and vimentin. The results were positive immunoreactivity for cytokeratin [Figure 2c] and vimentin and immunonegativity for HMB-45 [Figure 2d] and desmin. Thus, a diagnosis of sarcomatoid RCC was given.

DISCUSSION

Sarcomatoid RCC has been found to have an increased proliferative activity and is locally aggressive, has high metastatic potential, and is associated with poor prognosis.[3] Metastasis to mandible and multiple bony metastasis has been reported by Murakami *et al*.[4] Reported median survival durations from the time of diagnosis are 3.8 to 6.8 months

Access this article online

Quick Response Code:

Website: www.ccij-online.org

DOI: 10.4103/2278-0513.154268

Address for correspondence: Dr. Shailja Puri, House No. 1268, Sector 51-B, Chandigarh - 160 047, India. E-mail: drshailjadoe_11@ymail.com

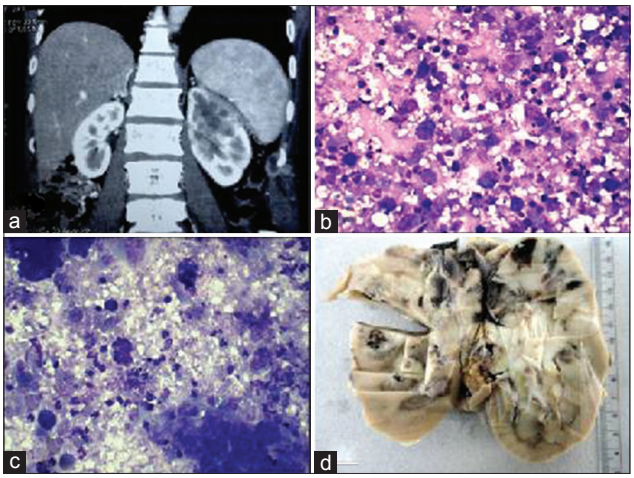

Figure 1: (a) Computed tomography scan showed a heterogeneously enhancing lesion in upper and mid pole of the left kidney. (b and c) Cytology showed cellular smears comprising of malignant epithelial cells lying singly, in groups and cohesive clusters. Cells were pleomorphic, had fine to coarse chromatin, inconspicuous to prominent nucleoli, and moderately abundant vacuolated cytoplasm (Giemsa, ×40). (d) Gross showed tan-brown to tan-yellow growth with a variegated appearance

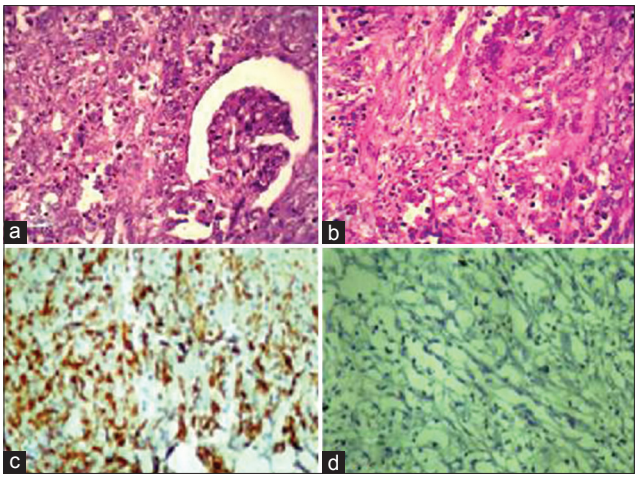

Figure 2: (a and b) Histopathological examination of growth showed fascicles of spindle-shaped cells interspersed with epithelioid cells. The cells were pleomorphic, had high N/C ratio, vesicular nuclei, prominent nucleoli and moderate to abundant clear cytoplasm (H and E, ×40). The tumor cells were immunoreactive for cytokeratin (c) and immunonegative for HMB-45 (d)

when no treatment is given.[3] Surgical resection alone does not change the prognosis of these patients.[3] Lymph node positivity, distant metastases, capsular invasion and percentage of sarcomatoid involvement affected prognosis but not renal vein or inferior vena cava involvement.[3] Patients with sarcomatoid RCC treated with the combination of aggressive surgical resection and immunotherapy have been found to have a survival advantage.[3]

No area of clear cells or oncocytic differentiation was identified in the current case, thus, the primary differentiation could not be identified. It is important to recognize this tumor on cytology on the basis of high pleomorphism as in this case. IHC is required to differentiate the tumor from primary sarcoma of kidney. Recognition of sarcomatoid RCC followed by surgical as well as chemotherapeutic agents can marginally improve the prognosis of this aggressive tumor.

REFERENCES

1. Oda H, Machinami R. Sarcomatoid renal cell carcinoma. A study of its proliferative activity. Cancer 1993;71:2292-8.
2. de Peralta-Venturina M, Moch H, Amin M, Tamboli P, Hailemariam S, Mihatsch M, *et al.* Sarcomatoid differentiation in renal cell carcinoma: A study of 101 cases. Am J Surg Pathol 2001;25:275-84.
3. Cangiano T, Liao J, Naitoh J, Dorey F, Figlin R, Belldegrun A. Sarcomatoid renal cell carcinoma: Biologic behavior, prognosis, and response to combined surgical resection and immunotherapy. J Clin Oncol 1999;17:523-8.
4. Murakami K, Yamamoto K, Aoki K, Fukumoto I, Sugiura T, Kirita T. Metastatic sarcomatoid renal cell carcinoma to the mandible treated with Sorafenib. Open J Stomatol 2012;2:222-7.

Cite this article as: Puri S, Asotra S, Gupta N, Sharma S. Cyto-histological correlation of sarcomatoid carcinoma of kidney. Clin Cancer Investig J 2015;4:411-2.

Source of Support: Nil, **Conflict of Interest:** None declared.