

CASE REPORT

Metastatic Renal Cell Carcinoma Masquerading As Benign Cystic Lesion on Cytology

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Abstract:

Clear Cell-Renal Cell Carcinoma (CC-RCC), the most common subtype, accounting for 75% of all RCCs, can metastasize to any part of the body. Nodal metastasis is commonly noted in the pulmonary, tracheal and retroperitoneal lymph nodes. However, metastasis to cervical/supraclavicular lymph nodes is extremely rare. Moreover, these metastatic nodal deposits are usually solid, but may become cystic, which warrants a differential diagnosis of metastatic lesion in an elderly patient. So, here we report a case of metastatic RCC presenting as left supraclavicular lymphadenopathy without any clinical manifestations of the primary which was misdiagnosed as a benign cystic lesion on cytology.

Keywords: Clear Cell-Renal Cell Carcinoma, Supraclavicular Lymph Node Metastasis, Cystic Lesion

Introduction:

Renal Cell Carcinoma (RCC) originates from the renal cortex and constitutes 90% of all the primary renal cell neoplasms. RCC is more common in males than in females, with a male to female ratio of 2:1. Clear cell RCC, is the most common subtype and accounts for 75% of all RCCs. RCC can metastasize to any part of the body, most commonly in lungs (76%), regional lymph nodes (66%), bone (42%) and liver (41%) [1-2]. In the head and neck region, the most common sites of

metastasis are thyroid gland, accounting for 50% of lesions, followed by the nose and paranasal sinuses. Nodal metastasis of RCC to pulmonary, tracheal and retroperitoneal lymph nodes has been observed. However, metastasis to cervical/supraclavicular lymph nodes is extremely rare [3]. Here, we report a case of metastatic RCC presenting as left supraclavicular lymphadenopathy without clinical manifestations of the primary.

Case Report

A 65-year-old female, presented with fever, weight loss and left supraclavicular lymph node enlargement for 2 months. The patient also gave history of lower urinary tract infection, 10 days back, for which antibiotic course was taken. Based on these clinical features, a provisional clinical diagnosis of tuberculosis was made and Fine Needle Aspiration Cytology (FNAC) of left supraclavicular lymph node was suggested. FNAC showed sheets of macrophages in a hemorrhagic background and was reported as benign cystic lesion (Fig.1 and 2). Chest radiograph was normal and sputum examination for Acid-fast bacilli turned up negative. Incisional biopsy of the lymph node was performed. Grossly, 3 irregular pale white tissue bits were received largest measuring

3×1cm and smallest measuring 1×1 cm. All tissue bits were embedded. Histopathology showed structure of lymph node extensively replaced by tumour tissue arranged in clusters, nests, cords and alveolar pattern separated by thin fibrovascular septae. Individual tumour cells were round to polygonal with round to oval regular vesicular nuclei, prominent nucleoli and had moderate amount of clear to eosinophilic cytoplasm. Intervening stroma showed chronic inflammatory cell infiltrate along with focal areas of necrosis and hemorrhage (Fig. 3 and 4). Immunohistochemistry of metastatic tumour cells in the lymph node showed strong positivity for CD10, PAX8 and vimentin with focal CK7 positivity (Fig. 5, 6, 7, 8).

Based on these histomorphological features, a diagnosis of metastatic RCC- clear cell variant was rendered and further follow-up was suggested to look for the primary.

Subsequently, ultrasonography of the abdomen was performed, which showed enlarged left kidney showing loss of corticomedullary differentiation, altered echotexture with necrotic areas and increased vascularity on Doppler. No adrenal lesion identified bilaterally. Based on these findings, a differential diagnosis of inflammatory lesion or a neoplastic lesion was rendered. The patient was consequently referred to oncology centre for further management.

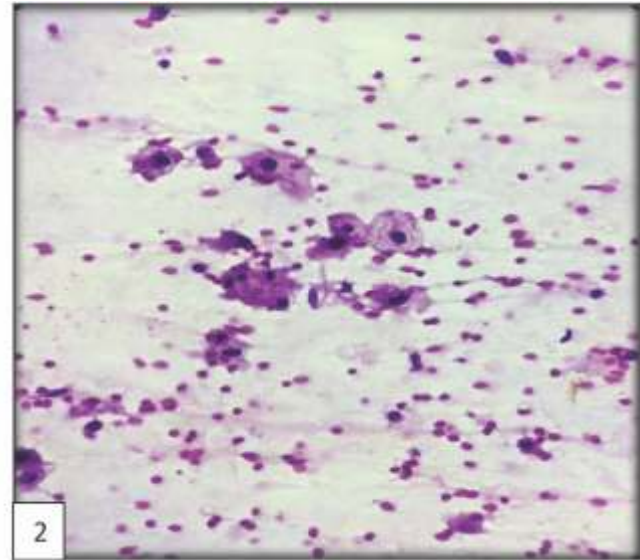
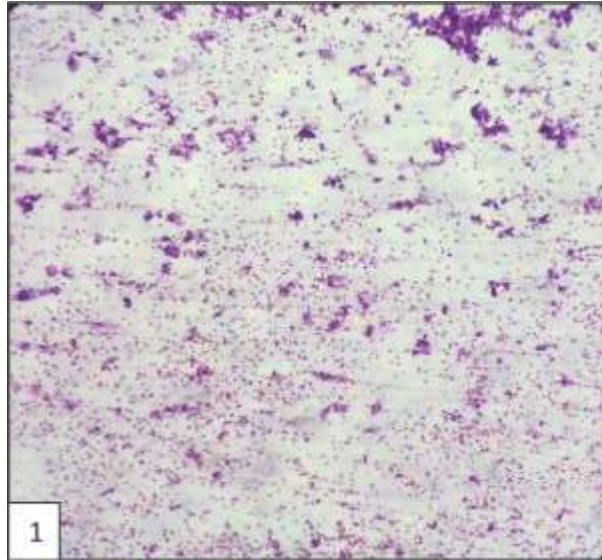


Fig. 1: Sheets of Macrophages with Bland Nuclear Features (40x) H&E

Fig. 2: Macrophages with Regular Nuclei and Abundant Vacuolated Cytoplasm. Background shows Hemorrhage (100x) H&E

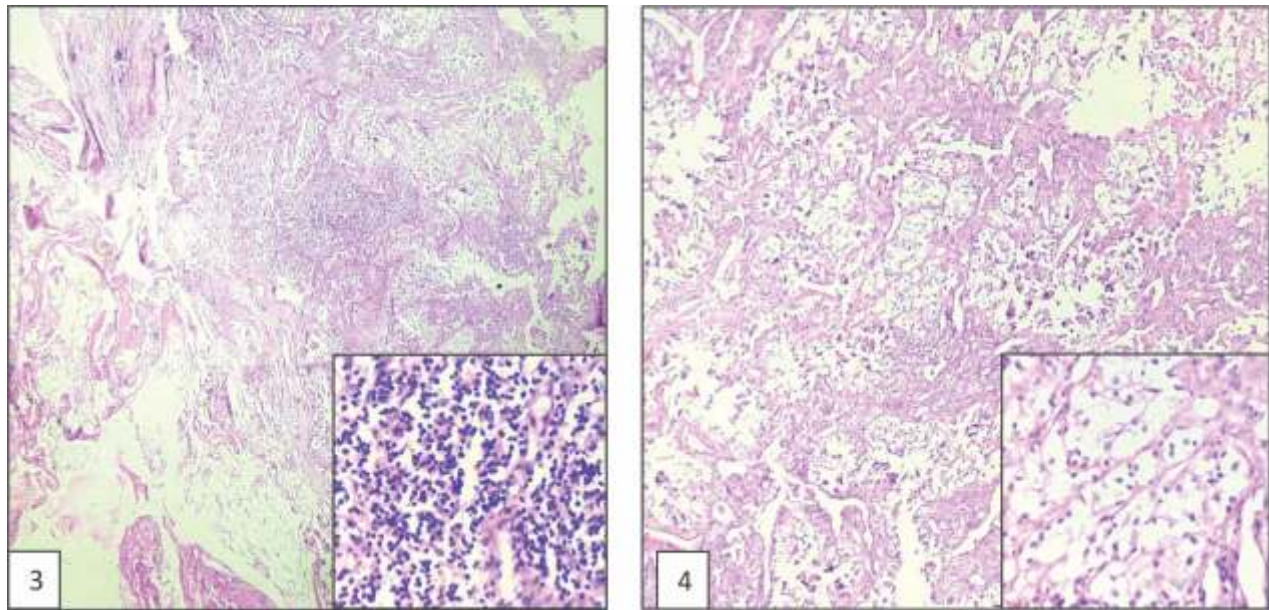


Fig. 3: Microphotograph, Scanner View shows Capsulated Structure with Focal Residual Lymphocytes (Inset, 400x). (40x) H&E

Fig. 4: Microphotograph with Alveolar Pattern of Tumour Tissue with Intervening Blood Vessels. Tumour cells had Vesicular Nuclei, Prominent Nucleoli and Clear Cytoplasm (Inset, 400x). (100x) H&E

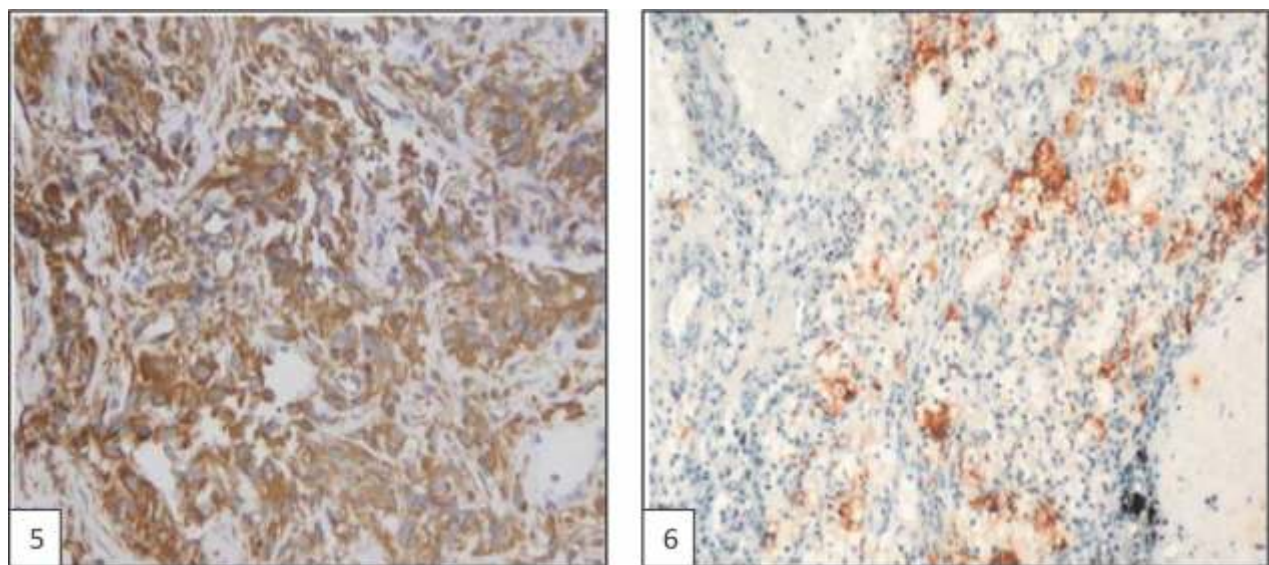


Fig. 5: Immunohistochemistry Microphotograph showing Vimentin-Diffuse Positivity.

Fig. 6: CK7-Patchy Positivity

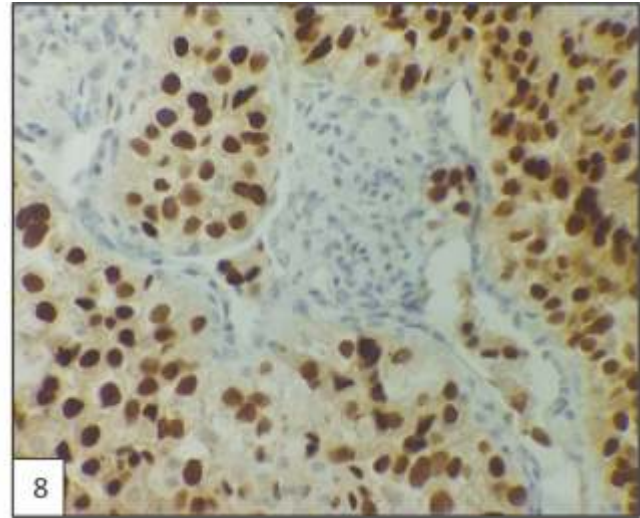
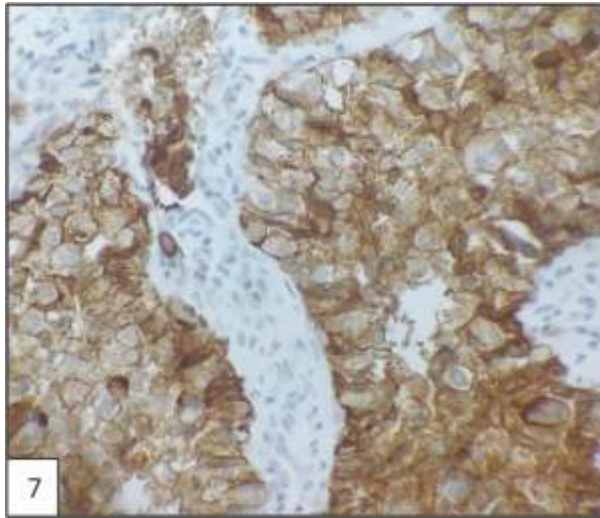


Fig. 7: Immunohistochemistry Microphotograph showing CD10- Strong Membranous Positivity
Fig. 8: PAX8- Strong Nuclear Positivity

Discussion:

Renal cell carcinoma generally presents with the triad of hematuria, flank pain and flank mass, and patients presenting with these highly suspicious symptoms undergo evaluation using ultrasonography or CT for confirmation of renal mass. Approximately 16 % of the patients with RCC have distant metastasis or advanced local disease at presentation [4]. However, it is highly unusual for RCC to present as a solitary mass at an unusual site like supraclavicular lymph node without any clinical evidence of the primary lesion [2, 5]. Several possible explanations have been given for an unidentifiable primary lesion. One possibility is that the primary could be occult; another possibility is spontaneous regression of the lesion without therapy or development of tumour in an ectopic renal tissue [4]. Metastasis of RCC to head and neck region has been explained by 3 possible routes i.e. systemic circulation, venous circulation and lymphatic circulation. The following pathogenetic mechanism for metastasis of RCC to

head and neck region has been explained by various authors. The Batson's paraspinal plexus, which is a valve-less venous anastomosis of prevertebral, vertebral and epidural venous systems, provides a pathway of least resistance for the tumour spread. Increase in intra-abdominal or intra-thoracic pressure results in a retrograde flow from the venous channels, back through the prevertebral and vertebral venous plexus. Accordingly, vertebral plexus offers a means of bypassing pulmonary venous system and facilitates metastasis to head and neck region [3]. Similar pathogenetic mechanisms may hold true for metastasis of the tumour to supraclavicular lymph node, in the present case.

Cystic lesions in the head and neck region range from non-neoplastic lesions such as branchial cleft cyst or lymph node with necrotic granulomatous inflammation to neoplastic lesions like metastatic squamous cell carcinoma, metastatic papillary carcinoma of thyroid and lymphoma with cystic

degeneration. It has been noted that more than 80% of the cystic lesions, occurring in head and neck region, among patients more than 40 years of age, are malignant. Among these, it is the metastatic squamous cell carcinoma of upper aerodigestive tract that most commonly undergoes cystic change, followed by metastatic papillary carcinoma of thyroid. RCC often produces solid metastatic nodal deposits; however, infrequently these nodes may become cystic. This has been attributed to the obstruction to the flow of the lymph by the tumour cells, resulting in cystic enlargement of the nodes [6-7].

Differential diagnosis of clear cell metastatic tumours on histopathology includes- clear cell RCC, hepatocellular carcinoma and adrenal cortical carcinoma. Hepatocellular carcinoma is

positive for epithelial membrane antigen, cytokeratin, hepatocyte specific antigen but negative for vimentin, whereas adrenal cortical carcinoma shows positivity with vimentin but are negative for epithelial markers [1, 8-9]. RCC is positive for epithelial markers, vimentin and CD10, which was also observed in the present case.

Conclusion:

This case highlights the consideration of metastatic RCC as differential diagnosis whenever a cystic lesion in head and neck region is detected in an elderly patient. Rarely, RCC can remain silent or it may be too small to be detected radiologically. Hence, thorough clinical and radiological evaluation is warranted in such patients with unusual clinical presentation.

References

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