CASE REPORT

A CASE REPORT OF MUCINOUS TUBULAR AND SPINDLE CELL CARCINOMA OF THE KIDNEY

Jawad Khan[1], Malik Furqan Mahmood[1], Ikhtiyar Muhammad[1], Mudassar Abbas[2], Fatima Inam[3]

[1]Ayub Teaching Hospital Abbottabad-Pakistan, [2]St. George's University Hospital, London-United Kingdom
[3]Khyber Girls Medical College, Peshawar-Pakistan

Mucinous Tubular and Spindle Cell Carcinoma (MTSCC) is a rare renal tumour, accounting for 1% of renal tumours. We report a 35-year-old female presenting with right flank pain and a 6.3 cm exophytic hypodense enhancing mass in the upper pole of the right kidney. Histopathology revealed characteristic tubular and spindle cell morphology with mucinous stroma, confirming MTSCC. Surgical resection via partial nephrectomy led to favourable prognosis. This case highlights MTSCC's distinctive features, diagnostic challenges, and importance of accurate diagnosis for optimal management.

Keywords: Mucinous Tubular and Spindle Cell Carcinoma; Renal tumour; Partial nephrectomy

Citation: Khan J, Mahmood MF, Muhammad I, Abbas M, Inam F. A case report of mucinous tubular and spindle cell carcinoma of the kidney. J Ayub Med Coll Abbottabad 2025;37(1):193–5.

DOI: 10.55519/JAMC-01-14039

INTRODUCTION

Mucinous Tubular and Spindle Cell Carcinoma of the kidney is a currently recognized histological sub-type of renal cell carcinoma. In 1996, Ordonez *et al*., described it for the first time.[1] Till date, less than 180 cases have been diagnosed worldwide and regarded as a low-grade renal tumour by the WHO in 2004 due to its low mortality rate and good prognosis. Histologically it has a characteristic appearance comprising of cuboidal cells lining long tubules accompanied by spindled cells separated by pale mucinous stroma.[2] Studies on envision features prior to surgery are limited. In the current situation, we provide a case of kidney MTSCC, examine the appropriate literature, and assess the tumour's appearance, imaging characteristics, and pathological features in an effort to aid in tumour diagnosis.

CASE HISTORY

A 35-years-old, female patient presented to Urology OPD with a presenting complaint of right flank pain. Upon investigations there was 5×6 cm renal mass in upper pole of right kidney on ultrasound. There was no significant past medical or surgical history. Her contrast enhanced computed tomography KUB showed 6.3×4.4×5.1 cm exophytic hypodense enhancing mass at superolateral aspect of Right kidney (Figure-1). Case was discussed in urology multi-disciplinary team and an initial diagnosis of renal cell carcinoma was made. After detailed discussion with the patient, a right partial nephrectomy was scheduled through a subcostal approach. On gross examination, it was a friable mass with tanned appearance. The histopathology showed a tumour made of slit-like spaces and tubules (tiny tubules, and elongated tubules) (Figure-2) and tightly clustered tubular structures on higher magnification with a diagnosis of mucinous tubular spindle cell carcinoma. The MDT agreed that a follow-up CT-KUB should be performed after six months, with an annual review to follow. The prognosis was deemed favourable.

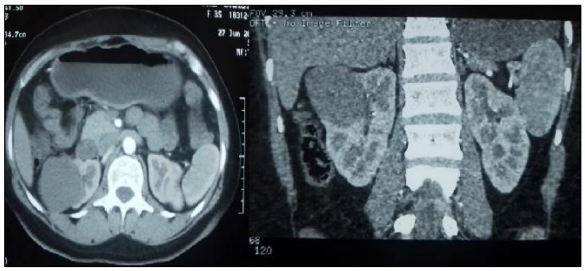

Figure-1: A contrast enhanced CT KUB showing a mass of 6.3×4.4×5.1 cm exophytic hypodense enhancing mass at superolateral aspect of Right kidney

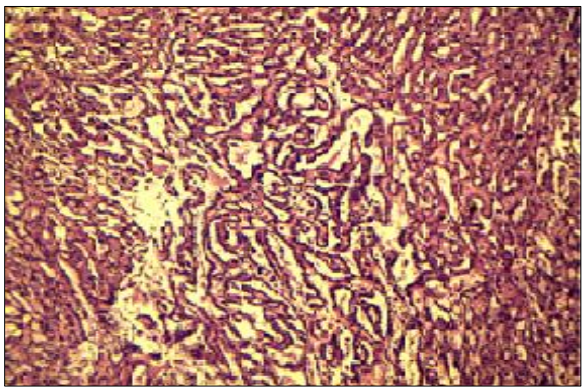

Figure-2: Tumour composed of slit-like spaces and tubules (Haematoxylin- eosin, x4)

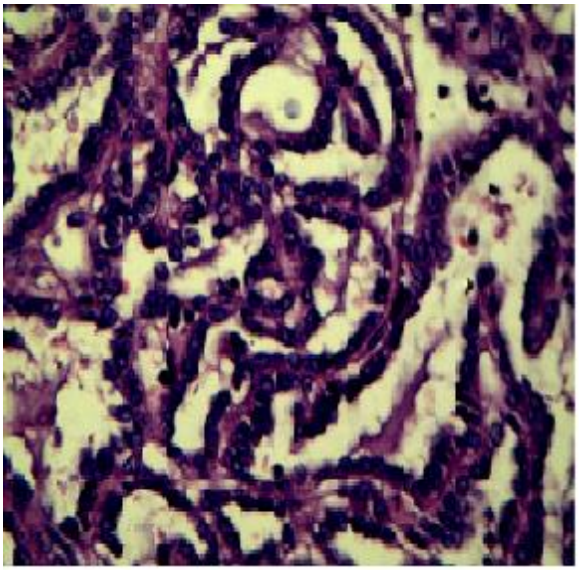

Figure-3: Higher magnification showing tumour made up of tightly clustered tubular structures. The spindle cell component is not evident in this image. (Haematoxylin- eosin, x10)

DISCUSSION

MTSCC of the kidney is a rare condition accounting for 1 % of the renal tumours. Its cellular origin is still debatable as there has been evidences that it arises from the distal tubules while others argue it to be arising from the proximal tubules. The recent studies advocates that the distal tubules to be its cellular origin as it has been positive for the distal tubule markers (CK7, EMA) while the proximal tubule markers (CD10) and loop of henle markers (CD15) were negative.[3]

Typically, CT image shows heterogeneity with a modest contrast enhancement. In general, it is solid, well-defined, and free of regions of haemorrhage or necrosis. Its dimensions range from 2.5–20 cm. Tumours exhibiting necrosis or infiltration are frequently linked to distant and nodal metastases. Cystic tumours are uncommon. There have been reports of bilaterality and associations with other RCC variations on the opposite side.[4] On histopathology, there are tubular forms lined with bland cuboidal cells that can occasionally be gripped to resemble cords. There are fascicles of bland-looking spindle cells scattered throughout these. The background is made up of mucous/myxoid stroma. Frequently observed are clusters of foamy macrophages and persistent inflammatory cells. Apart from the aforementioned typical characteristics other observations include papillary pattern, pseudopsammomatous calcification, sarcomatoid transformation, mucin-poor stroma, neuroendocrine differentiation, heterotopic bone formation and high-grade nuclear features.[5–7] According to Banyani *et al.,* MTSCC is derived from defective differentiation of embryonic cell resting, which accounts for the tumour's morphological variability.[8]

Age-wise MTSCC dominates in adults with the reporting mean age of 52–54 years. Gender-wise the male to female ratio is 1:3.[9] There may be haematuria and/or flank pain as presenting complaints. It is believed that the reason for visible haematuria as a presenting complaint is that tumours frequently originate from the renal medulla.[10] However, the diagnosis is made after an incidental detection on advanced imaging, as is the inclination with renal masses.

After the tumour is surgically removed, the chance of metastasis and recurrence is reduced because the majority of MTSCC patients have a favourable prognosis. Nephron-sparing surgery should therefore be done for patients with a large tumour and nephron-sparing surgery rationale (e.g., contralateral renal insufficiency or certain benign illnesses of the contralateral kidney) if the MTSCC can be identified by imaging evaluation prior to surgery.[2]

CONCLUSION

MTSCC are incredibly rare and may originate from the distal nephron. It is mostly diagnosed on pathological examination. Renal tumours like papillary RCC resembles MTSCC in its histological feature, hence a thorough histological examination is necessary. A long-term survival is possible when surgical resection of the mass is carried out. To ensure the best possible care in terms of prognosis, adjuvant therapy, and surveillance, a precise diagnosis is essential.

REFERENCES

1. Ordonez NG, Mackay B. Renal cell carcinoma with unusual differentiation. Ultrastruct Pathol 1996;20(1):27–30.
2. `Eble JN. World Health Organization classification of tumours. Pathology and genetics. Tumours of the urinary system and male genital organs: 2004; p.10.
3. Srigley JR, Delahunt B. Uncommon and recently described renal carcinomas. Mod Pathol 2009;22(Suppl 2):S2–S23.
4. Xiao-Long Q, Ming Z, Xiang-Lei H. Mucin-poor mucinous tubular and spindle cell renal cell carcinoma with sarcomatoid transformation and multiple metastases: report of a unique case and review of literature. Int J Clin Exp Pathol 2016;9:2451–8.
5. Hanan F. Mucin poor mucinous tubular and spindle cell carcinoma of the kidney, with nonclassic morphologic variant of spindle cell predominance and psammomatous calcification. Ann Diagn Pathol 2012;16(1):59–62.
6. Park SY, Kang GH, Ro JY, Black J, Chung J, Lee KH, *et al*. Mucinous Tubular and Spindle Cell Carcinoma of Kidney Occurring in a Patient with Pulmonary Adenocarcinoma. Kor J Pathol 2008;42(1):54–9.

7. Arafah M, Zaidi SN. Mucinous Tubular and Spindle Cell Carcinoma of the Kidney with Sarcomatoid Transformation. Saudi J Kidney Dis Transpl 2013;24(3):557–60.
8. Banyai D, Vastag F, Yusenko M, Bugert P, Kovacs G. Embryonal origin of MTSCC of kidney may explain its morphological heterogeneity: diagnostic impact of genetic analysis. Anticancer Res 2017;37(3):1185–9.
9. Zhao M, He XL, Teng XD. Mucinous tubular and spindle cell renal cell carcinoma: a review of clinicopathologic aspects. Diagn Pathol 2015;10:168.
10. Ferlicot S, Lupo A, Lazure T, Bedossa P, Vieillefond A. A novel entity: low-grade mucinous tubular renal carcinoma. Histopathology 2005;47(2):218–9.

Submitted: November 15, 2024	*Revised: February 14, 2025*	*Accepted: February 14, 2025*

Address for Correspondence:
Mudassar Abbas, St. George's University Hospital, London-United Kingdom
Email: mudassarabbas511@gmail.com