Synchronous Mucinous Tubular and Spindle Cell Carcinoma of the Kidney and Papillary Carcinoma of the Thyroid

Gwendolyn Fernandes1*, Varsha Dipak Deshpande2, Sujata Choudhary1, Swati Shinde1

1Dept of pathology, G.S. Medical College and K.E.M. Hospital, Parel, Mumbai, India
2Dept of Uropathology, G.S. Medical College and K.E.M. Hospital, Parel, Mumbai, India

ABSTRACT

A 55 year old female, presented with flank pain and fullness since 2 years. On examination, a 10x10cm, ballotable lump was present in the right flank. CT Abdomen showed a 9.5x8.8 cm, exophytic mass lesion in the right kidney with patchy arterial enhancement and heterogenous enhancement in the venous phase. Whole body PET CT showed well defined, metabolically active masses in the right kidney, thyroid and cervical lymph nodes. Nephrectomy specimen received, showed a tumor measuring 12x7x6.5 cm creamy-white, fleshy, replacing the kidney. Histopathology revealed an unusual renal neoplasm with tubule formation merging with bland spindle cells and a focal myxoid stroma. Tumor cells were immunoreactive for CK7, EMA, vimentin and were negative for PAX8, CD10 & AMACR. The diagnosis of Mucinous Tubular and Spindle cell carcinoma (MTSCC) was established. FNAC of the thyroid nodules showed a classic papillary thyroid carcinoma.

Keywords: Mucinous Tubular Spindle Cell Carcinoma, Kidney Tumors, Classic Papillary Thyroid Carcinoma, Nephrectomy
A diagnosis of synchronous mucinous tubular spindle cell carcinoma of the kidney with papillary carcinoma of the thyroid was established.

Discussion
MTSCC is an unusual renal neoplasm characterized by tubule formation showing abrupt transition into bland

Fig. 1: Whole body PET - well defined, metabolically active masses in the right kidney (Figure 1), thyroid and cervical lymph nodes.

Fig. 2: Tumor measured 12x7.5x6 cm with creamy-white, fleshy appearance.

Fig. 3a: Biphasic tumor with tubular and spindle cell components (H&E X100); 3b: Biphasic tumor with tubular and spindle cell components (H&E X400); 3c: Tubules composed of cuboidal cells with bland nuclear features (H&E X 400); 3d: classic papillary carcinoma of the thyroid gland, arrow showing intranuclear inclusion.
spindle cells and a myxoid stroma. It accounts for <1% of all renal tumors and has a relatively good prognosis. It was first recognized and described by Mac in 1997 and then by Sringley et al in 1999. [1] It has been recognized as a distinct renal cell tumor in the 2004 WHO classification of renal tumors, and the name MTSCC is self explanatory, based on histomorphological features. It has a wide age range of occurrence from 13 to 81 years, with an average age of 58 years and a female to male ratio of 3:1.

The origin of MTSCC remains uncertain and controversy exists about its origin either from proximal convoluted tubules or distal convoluted tubules. Epithelial markers like AMACR, CK7, EMA and vimentin show positivity in 80-100% cases and favor a distal tubular origin. However, AMACR is also seen in proximal convoluted tubules. [3] Some tumors are found to occur in association with nephrolithiasis.

Grossly, these are well circumscribed, yellow to tan-brown tumors. The histomorphological features are characteristic and may not need IHC work up. These tumors have bland nuclear features but occasionally high grade tumors and tumors with sarcomatoid change have been described.

These tumors usually show positivity for CK7, PAX2 and AMACR. Our case showed PAX2 and AMACR negativity while CK cocktail and vimentin showed strong positivity. EMA was focally positive.

The commonest differential diagnosis for MTSCC is papillary renal cell carcinoma type 1 with sarcomatoid differentiation and metanephric adenoma. Papillary renal cell carcinoma shows solid or papillary growth pattern with elongated tubules, lacks mucinous stroma and generally shows CD10 positivity. Metanephric adenomas, on the other hand, are smaller in size; do not show myxoid stroma or spindle cells and usually show positivity for WT1 and CD57.

Metastasis to lymph nodes by the high grade tumors have been described [4] and few cases with typical bland morphology with metastasis have also been described. [5]

MTSCC is said to show relationship to papillary carcinoma of the kidney on histomorphology as well as immunohistochemistry profile. On genetic profiling, MTSCC lacks the consistent gains of chromosome 7 & 17 and losses of chromosome Y [6] which are typical of papillary carcinoma of the kidney. MTSCC also
shows multiple chromosomal losses, including loss of chromosomes 1, 4, 6, 8, 9, 13, 14, 15 & 22 but none of these are consistent and diagnostic. [6, 7]

Prognoses of these cases are relatively good, and one year after follow-up, our patient too has no recurrence or metastasis of MTSCC. Surgery for the papillary carcinoma of the thyroid was contemplated a number of times, but has not yet been done due to personal reasons.

MTSCCs do not generally show association with other tumors. Occasional case report of an association with lung adenocarcinoma [8] and ganglioneuroma [9] has been reported. No case reports of synchronous MTSCC with classic papillary carcinoma of the thyroid have been found in English literature, and to the best of our knowledge, this is the first reported case.

**Conclusion**

This is an unusual case with two synchronous malignancies- MTSCC of the kidney and classic papillary carcinoma of the thyroid gland. Genetic studies are required to see if there is a co-relation between these two malignancies.

**Abbreviations and symbols:**

**MTSCC:** Mucinous Tubular and Spindle Cell Carcinoma

**TI-RADS:** Thyroid imaging reporting and data system

**PAS:** Periodic acid-Schiff

**AMACR:** Alpha-methylacyl-CoA racemase

**MGIT:** Mycobacteria Growth Indicator Tube

**References**


*Corresponding author:*
Dr. Gwendolyn Fernandes, C-802, Swayam, Poonam Gardens, Mira Road, Thane, Maharashtra. INDIA
Phone: +91 9819218405
Email: drgwenfern@yahoo.co.in

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