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Case Report
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TLFCK - A New Forthcoming Entity: A Case Report

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Abstract

Introduction: Thyroid like Follicular Carcinoma of Kidney (TLFCK) is a rare kidney tumor composed of tightly packed follicle-like cysts filled with eosinophilic colloid like material and lined by cuboidal cells with scant cytoplasm and oval to round nuclei. Very few cases of thyroid like follicular carcinoma of kidney have been reported till now. We report a rare case of primary thyroid like follicular carcinoma of kidney.

Case Report: A 60-year-old woman presented with right flank pain since last 2 months along with complaints of weakness, breathlessness and weight loss. CECT showed a well-defined hyperdense lesion in lower pole of right kidney. Patient underwent radical nephrectomy of right side. The renal lesion was diagnosed as thyroid like follicular carcinoma of kidney which was confirmed by immunohistochemistry.

Conclusion: Thyroid like follicular carcinoma of kidney is a rare tumor with minimal symptoms, sometimes detected incidentally and with good prognosis. There are occasional reports of distant metastasis or recurrence. First line of treatment is radical nephrectomy followed by radiotherapy.

Keywords: Kidney tumor; Thyroid like follicular renal cell carcinoma of kidney; Nephrectomy; Thyroid tumor; TTF-1

Introduction

Renal cell carcinoma comprises of 2% of all cancers worldwide and is responsible for 2% of cancer deaths [1]. Thyroid like Follicular Carcinoma of Kidney (TLFCK) is a rare kidney tumor which has not yet been included in classification but has been mentioned as an emerging entity [2]. It was first described in 2006 [3]. Only 39 cases have been reported till now [3]. Both males and females are equally susceptible (M:F 5:7). Patients usually present at the age of 39 years [4]. It looks morphologically similar to primary thyroid follicular carcinoma but it can be differentiated depending upon clinical history and negative thyroid Immunohistochemical markers [5]. This is considered as a low-grade carcinoma sometimes in association with polycystic kidney disease [5]. We here present a rare case of thyroid like follicular carcinoma of kidney in a female aged 60 years.

Case Presentation

A 60-year-old female presented with right flank pain since last 2 months with history of weakness and weight loss. She was a known diabetic and hypertensive on medication. There was no history of hematuria. No family history of cystic disease of kidney was given. On examination, she had tenderness in right lumbar region. Her routine blood reports were within normal range, BP- 150/90 mm of Hg. On her first visit USG whole abdomen and CECT were advised. USG Whole abdomen was within normal limits. Contrast Enhanced CT showed a well-defined hyperdense lesion of size (24 × 20) mm showing homogenous enhancement (44-124 HU from pre to post contrast) in venous phase in lower pole posteromedial surface of right kidney (Figure 1). Renal vein and IVC showed no significant finding. No lymph nodal involvement seen.

She was planned for radical nephrectomy. During OT, right renal lower pole endophytic mass (3 × 2) cm with hilar encroachment was noted. There was no hilar lymph node involvement, artery involvement, liver metastasis, ascites and no peritoneal deposits. The specimen of radical nephrectomy was sent to the department of Pathology for Histopathological Examination (HPE).

The whole specimen of radical nephrectomy, measured (10 × 6 × 6) cm with perinephric fat. The kidney measured (9 × 6 × 5) cm (Figure 2). Attached portion of ureter measured 2.5 cm in length. On cutting open, a solid mass measuring (3 × 2 × 2) cm was identified at the lower pole of the kidney (Figure 3). Cut section of the growth was variegated. A small cyst was also identified

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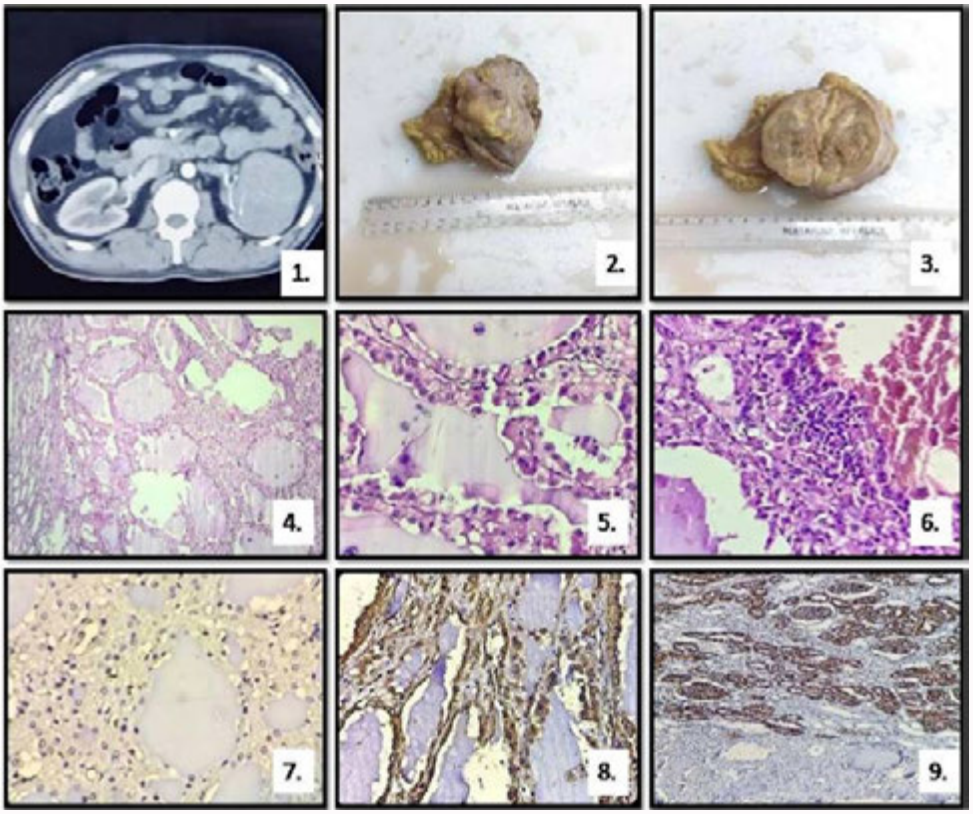

Figure 1: CECT abdomen showing a lesion in the posteromedial surface of lower pole of right kidney.
Figure 2: Image showing a growth measuring (3×2×2) cm at the lower pole of the right kidney.
Figure 3: Cut open right kidney showing a variegated growth.
Figure 4: HPE (100X) showing thyroid like follicles.
Figure 5: HPE (400X) showing cuboidal cells lining the follicles.
Figure 6: HPE (400X) showing aggregates of lymphocytes.
Figure 7: Showing TTF-1 negativity in TLFCK (400X).
Figure 8: Showing cytoplasmic positivity for Vimentin in TLFCK (400X).
Figure 9: Showing CD10 negativity in TLFCK whereas normal renal tubules show diffuse CD10 positivity (400X).

in the apparently normal looking area. The sections were taken from various parts and sections from formalin fixed paraffin embedded tissue were examined.

Microscopically, the tumor shows thyroid like follicles of varying size with eosinophilic colloid like material (Figure 4). The follicles were lined by cuboidal or flattened epithelium with round nuclei, inconspicuous nucleoli (ISUP grade II) and evenly distributed chromatin (Figure 5). Occasional mitosis were noted. Focal hemorrhage was seen. No lymphovascular or capsular invasion was seen. Sections from perinephric fat and fascia were unremarkable. Some areas with dilated papillary architecture and macrophages were noted. Focal lymphocytic aggregate was noted (Figure 6). It was primarily diagnosed as thyroid like follicular carcinoma of kidney which was later confirmed by immunohistochemistry.

Now the diagnostic dilemma was to differentiate it from metastatic deposits of follicular carcinoma of thyroid. Patient had no growth in thyroid and the PET CT report was within normal limits. The thyroid markers TTF-1 and thyroglobulin were negative thus excluding the possibilities of metastasis. Other immunohistochemical markers that were done are summarized in a Table 1.

The patient was sent to department of radiotherapy for further treatment and to be followed up every 6 months. The PET-CT report after one year shows no evidence of residual disease and the patient is doing well showing no symptoms at present (Figures 7-9).

Table 1: Immunohistochemical markers.

AE1/AE3	Positive
Epithelial Membrane Antigen (EMA)	Positive
CK7	Negative
Vimentin	Positive
CD10	Negative
WT-1	Negative
CD117	Negative
PAX8	Negative
TTF1	Negative
THYROGLOBULIN	Negative

TNM staging of the tumor was-$T_{1A}N_0M_0$

Discussion

Thyroid like Follicular Carcinoma of Kidney (TLFCK) is a rare kidney tumor with less than 40 cases reported till now [3]. These tumors are usually noted in 34 years of age. Ghouti et al. found a case at the age of 68 year [4]. Our case was seen in a 60-year-old woman which is greater than its mean age of most of the cases presented

before. The mean diameter of the kidney tumor was found as 4.3 cm [4]. There is no correlation between the size of the tumor and development of metastasis. [5]. Dong et al. found the largest one measuring 16 cm [6]. In our case the maximum dimension of the tumor was 3 cm. Most cases were incidentally diagnosed, almost one-fifth of the patient came with hematuria and or flank pain [6]. In this case the patient came with pain in right lumbar region. Wang et al. found first presentation with weight loss, anemia and hypertension [7]. Here the patient was a known diabetic and hypertensive. Association with previous malignancy, pre-neoplastic condition and adult polycystic kidney disease were also seen [4]. It shows good prognosis in most of the cases. Thyroidization of kidney is also seen in a benign phenomenon, secondary to chronic pyelonephritis or ADPKD as end stage renal disease where dialated tubular structures with atrophic epithelium contain colloid like material. Clinical history suggestive of such association was absent in this case. Possibilities of follicular areas of kidney due to metastasis from primary follicular or papillary thyroid carcinoma, both from normal or ectopic tissue close to thyroid gland, are rare but it can happen in case of disseminated disease even long after the treatment is completed [7-9]. Presence of some papillary areas raise a differential diagnosis of papillary renal cell carcinoma with thyroid like features and more areas with follicular architecture but IHC for CK7 and CD10 were negative [9-10]. Mostly negative thyroid markers can diagnose TLFCK. We did not find any papillary areas in histopathology. Amin et al. studied six cases of such tumor with 5 years follow up. Among them 5 patients were disease free after five years and one patient developed metastatic deposit in one 3.5 cm renal hilar lymph node [10]. In our case, no involvement of lymph node was found. Grossly the specimen was encapsulated without any capsular invasion.

Jesus et al. found thyroid like follicular carcinoma of kidney to be positive for CK7 [11]. But in our case, we got CK7 negative. Most cases were consistently TTF-1, WT-1 negative and vimentin positive similar to our case. Some cases of TLFCK may show marked infiltration of lymphocytes within and around the tumor and germinal centers may also be found [11]. This matches with our findings. Zonal follicular architecture can also be seen in case of renal carcinoids (Positive for synaptophysin, CD56, chromogranin). Recurrent EWSR1- PATZ1 fusion has been found to be linked with TLFCK [12].

Conclusion

Thyroid like follicular carcinoma of kidney is a rare tumor that has not been included in WHO classification yet. It can be differentiated from primary follicular carcinoma of thyroid by negative thyroid markers TTF-1 and thyroglobulin on immunohistochemistry. Most of these tumors are diagnosed incidentally. It is considered as low-grade carcinoma and shows good prognosis after radical nephrectomy followed by radiotherapy.

References

1. WHO classification of tumours editorial board urinary and male genital tumors Lyon (France): International Agency for Research on Cancer; 2022. (WHO classification of tumors series, 5th Ed. 2022;8:32.
2. Trpkov K, Williamson SR, Gill AJ, Adeniran AJ, Agaimy A, Alaghehbandan R, et al. Novel, emerging and provisional renal entities: The Genitourinary Pathology Society (GUPS) update on renal neoplasia. Mod Pathol. 2021;34:1167-84.
3. Zhang Y, Yang J, Zhang M, Meng Z, Song W, Yang L, et al. Thyroid follicular carcinoma-like renal tumor: A case report and literature review. Medicine (Baltimore). 2018;97(21):e10815.
4. Ghaouti M, Roquet L, Baron M, Pfister C, Sabourin JC. Thyroid-like follicular carcinoma of the kidney: A case report and review of the literature. Diagn Pathol. 2014;9:186.
5. Tretiakova MS, Kehr EL, Gore JL, Tykodi SS. Thyroid-like follicular renal cell carcinoma arising within benign mixed epithelial and stromal tumor. Int J Surg Pathol. 2020;28(1):80-86.
6. Dong L, Huang J, Huang L, Shi O, Liu Q, Chen H, et al. Thyroid-like follicular carcinoma of the kidney in a patient with skull and meningeal metastasis: A unique case report and review of the literature. Medicine (Baltimore). 2016;95(15):e3314.
7. Wang H, Yu J, Xu Z, Li G. Clinicopathological study on thyroid follicular carcinoma-like renal tumor related to serious hypertension: Case report and review of the literature. Medicine (Baltimore). 2017;96(12):e6419.
8. Fadare O, Lam S, Rubin C, Renshaw IL, Nerby CL. Papillary renal cell carcinoma with diffuse clear cells and thyroid-like macrofollicular areas. Ann Diagn Pathol. 2010;14:284-91.
9. Volavšek M, Strojan-Fležar M, Mikuz G. Thyroid-like follicular carcinoma of the kidney in a patient with nephrolithiasis and polycystic kidney disease: A case report. Diagn Pathol. 2013;8:108.
10. Amin MB, Gupta R, Ondrej H, McKenney JK, Michal M, Young AN, et al. Primary thyroid-like follicular carcinoma of the kidney: Report of 6 cases of a histologically distinctive adult renal epithelial neoplasm. Am J Surg Pathol. 2009;33(3):393-400.
11. de Jesus LE, Fulgêncio C, Leve T, Dekermacher S. Thyroid-like follicular carcinoma of the kidney presenting on a ten-year-old prepubertal girl. Int Braz J Urol. 2019;45(4):834-42.
12. Al-Obaidy KI, Bridge JA, Cheng L, Sumegi J, Reuter VE, Benayed R, et al. EWSR1-PATZ1 fusion renal cell carcinoma: A recurrent gene fusion characterizing thyroid-like follicular renal cell carcinoma. Mod Pathol. 2021;34(10):1921-34.