

Case Report

Transitional cell carcinoma of the renal pelvis masquerading as renal tuberculosis

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ABSTRACT

We report a case of transitional cell carcinoma of the right renal pelvis mimicking the signs, symptoms and radiological findings of renal tuberculosis (TB). She had been diagnosed initially for urinary tract infection and radiological diagnosis initially was more towards renal TB and urine cytology and cultures were normal. Specific investigations for tuberculosis all showed negative results. But as neoplasia could not be ruled out by ureterorenoscopy due to presence of multiple ureteric strictures, decision was taken for an exploratory surgery. During surgery it was found that there was a tumour in the upper pole of kidney involving the renal pelvis and was found to be papillary transitional cell carcinoma on histopathological examination.

Keywords: Renal tuberculosis, Transitional cell carcinoma, Renal pelvis

INTRODUCTION

Transitional cell carcinoma (TCC) of renal pelvis is a malignant tumor arising from the transitional (urothelial) epithelial cells lining the urinary tract from the renal calyces to the ureteral orifice. Malignant tumors arising from the renal pelvis constitute only 5% of urinary tract neoplasms; approximately 90% of pelvicaliceal cancers are TCC, and the remaining 10% are squamous cell carcinoma and adenocarcinoma.¹ The common clinical presentation of urothelial tumors of the renal pelvis are very similar to renal tuberculosis (TB) including gross or microscopic hematuria (70% vs 29%), flank pain (20% vs 11%), and dysuria (6% vs 84%). Lumbar mass is noted in only 10-20% of TCC.^{1,2} We report a case of TCC of the renal pelvis mimicking the signs, symptoms and radiological findings of renal TB.

CASE REPORT

A 68-year female, known case of hypertension and diabetes mellitus on treatment, presented with a 2 months

history of colicky pain in the right loin, radiating backwards and downwards, with low grade intermittent fever and burning micturition of 10 days duration. She was initially managed with antibiotics as urinary tract infection on her first visit and was investigated for the same. Urine microscopic examination showed few 3-4 pus cell/hpf with no red blood cells, normal cytology and a negative culture. Initial ultrasonography showed evidence of a well defined hypoechoic lesion of approximate size 3.6×2.3 cm showing minimal vascularity in upper pole of right kidney alongwith few irregular hyperechoic strands and tiny calcific foci within the upper pole of right kidney likely to be tuberculosis. Contrast enhanced computed tomography revealed only a peripherally enhancing hypodense 11.5 ml collection-(average: +37 HU) of approximate size 3.1×3.1×2.3 cm in the upper pole of right kidney involving cortex and medulla and extending into renal pelvis (Figure 1 A-C). Her routine hematological and biochemical investigations were within normal limits. Urine was negative for acid fast bacilli, culture on Lowenstein-Jensen medium, rapid culture (BACTEC) and even polymerase chain reaction

studies all showed negative results. At this point, diagnosis was more towards a renal tubercular abscess or primary renal abscess in a known diabetic but possibility of neoplasm was not ruled out. Ureterorenoscopy showed multiple ureteric strictures at the level of S2-3 and L3 vertebra and impossible to reach the renal pelvis for biopsy. Retrograde urography followed showing a dilated right pelvicalyceal system with blunting of calyces and loss of papillary impressions with papillary cavity at upper pole of right kidney which communicating with collecting system and opacified with contrast with multiple ill-defined filling defects suggestive of granuloma formation (Figure 2 A and B). Following this diagnostic dilemma and meticulous planning, final decision was taken to proceed with an exploratory surgery. Intra-operative findings showed an evidence of collection in the upper and middle calyceal system along

with a small ill defined, irregular mass of 2.5×2 cms in the upper pole involving the renal pelvis but not involving surrounding structures, a right radical nephrectomy was done. The specimen was sent for histopathological examination- gross description showed specimen of right nephrectomy measuring 9×6×1.5 cms, with an intact capsule with attached ureter measuring 10cms in length (Figure 2C). A mass was present at upper pole measuring 3×1.5 cms with loss of corticomedullary differentiation. Microscopic description showed papillary transitional cell carcinoma arising from the pevicalyceal system of right kidney. Sections from kidney also showed presence of renal abscesses. Tumour was staged as T1N0M0 (8th edition AJCC staging I) and the patient is now doing well with no post surgical complications and on close follow up.

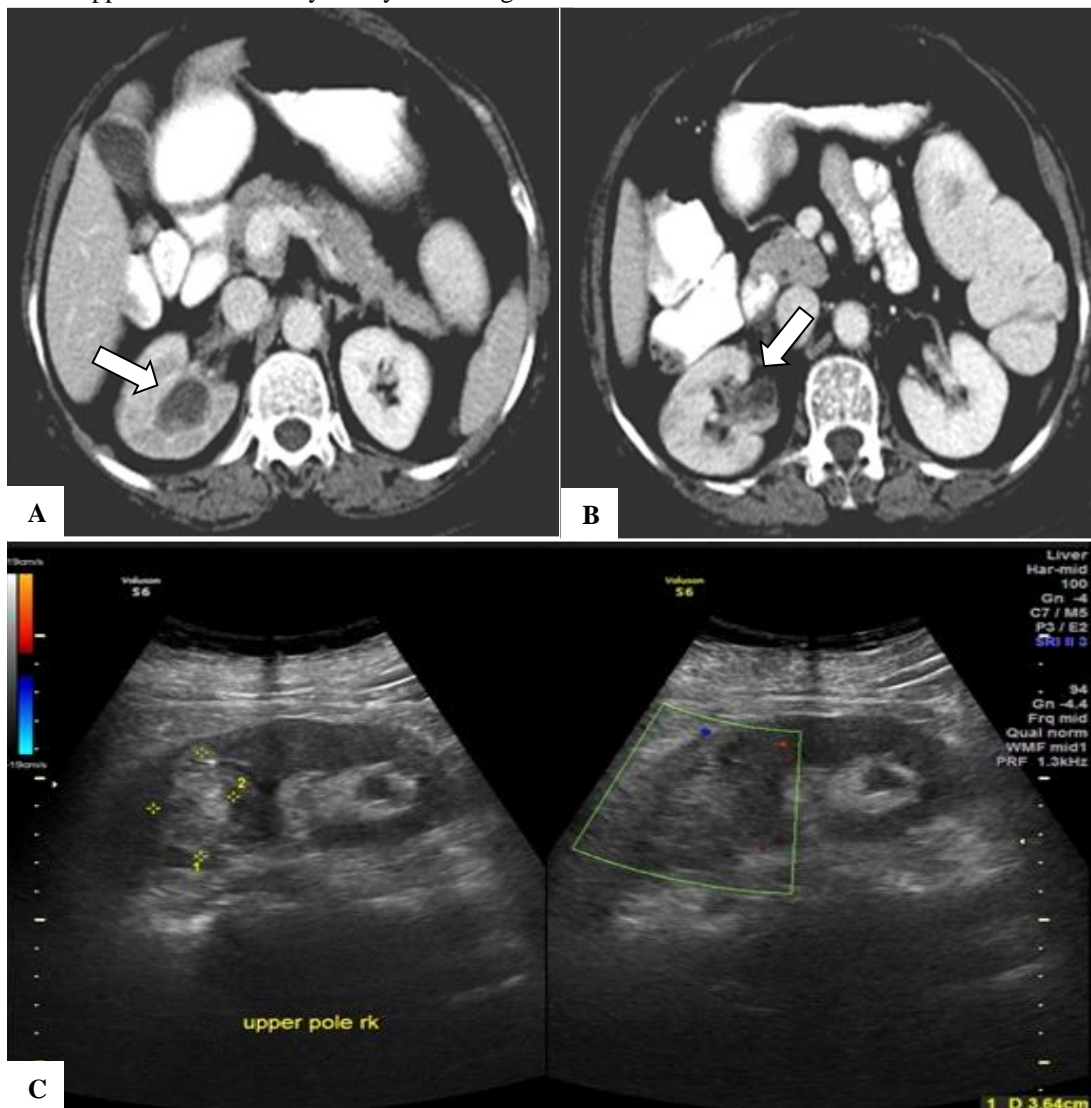


Figure 1: (A and B; arrows) Right kidney: peripherally enhancing hypodense collection (average: +37 HU) approximate size 3.1×3.1×2.3 cm, volume-11.5 ml in upper pole of right kidney involving cortex and medulla extending into renal pelvis with dilatation of right pelvicalyceal system with post contrast mucosal enhancement of renal pelvis. Features suggestive of infective etiology most probably tubercular. (C) Ultrasonography- irregular, ill defined hypoechoic lesion with few hyperechoic strands and tiny calcific foci within it in upper pole of right kidney mostly suggestive of infective tubercular etiology.

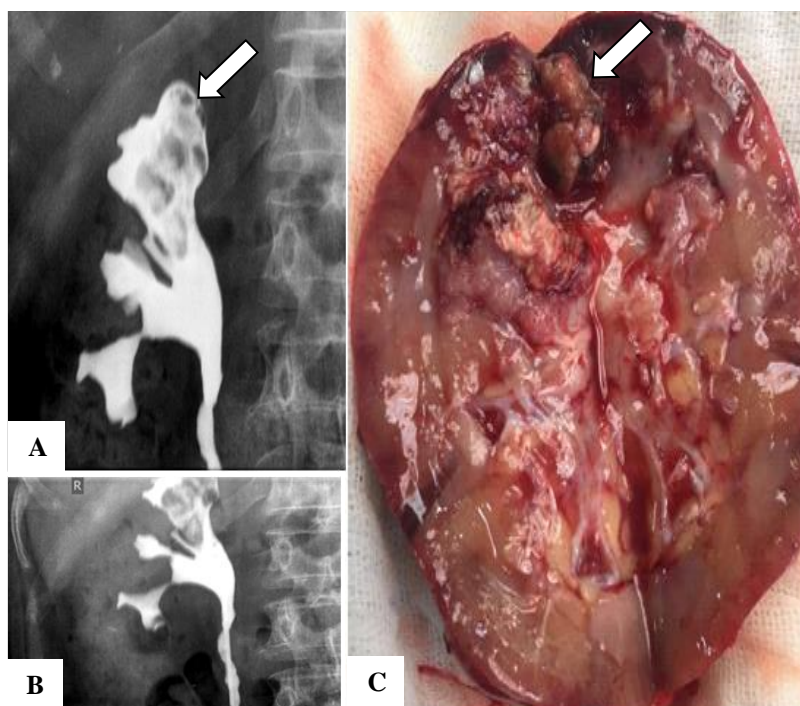


Figure 2: (A and B arrows) Retrograde pyelography dilatation of right PC system with blunting of calyces and loss of papillary impressions, the cavity shows multiple ill-defined filling defects suggestive of granuloma formation. Features are suggestive of renal tuberculosis. (C arrow) Specimen of measuring 9×6×1.5 cms, cut opened through outer margin; external surface shows intact capsule with a mass at upper pole measuring 3×1.5 cms in diameter with loss of corticomedullary differentiation.

DISCUSSION

Ultrasonography is typically the first modality used. The most common sonographic appearance of TCC is a non-shadowing hypoechoic mass within the renal pelvis or calyces separating the central echo complex of the kidney. The renal collecting system can present in a variety of ways, including renal or perinephric abscesses as in our report. Differential diagnosis for mimics of TCC of the renal pelvis includes blood clots, non-shadowing renal stones, sloughed papillae, and fungus balls. The unusually hypoechoic renal sinus including sinus lipomatosis can mimic the appearance of a tumour in the renal pelvis or renal sinus because of its solid nature.³ The wide spectrum of sonographic features of renal tuberculosis also include parenchymal masses, cavities, mucosal thickening of the collecting system and urinary bladder, stenosis of the collecting system, a contracted urinary bladder, vesicoureteric reflux, and calcifications.² On computed tomography (CT), stage I or II TCC of the kidney is usually seen as a central solid mass confined to the renal pelvis and appears separated from the renal parenchyma by either renal sinus fat or excreted contrast material. Lee et al found unusual imaging manifestations in 14.3% of their cases on CT and classified them into 5 categories-perirenal abscesses or perirenal hematomas; parenchymal masses; undue thickening of the hydronephrotic wall; tuberculoid pyelograms; and tumors with massive necrosis.⁴ An improved technique

fluoroscopically guided retrograde brush biopsy which in our case was attempted but failed due to multiple ureteric strictures.

Patients with low-stage, low-grade tumors respond well to either radical or conservative surgical treatment. Radical nephroureterectomy with an ipsilateral bladder cuff is the gold-standard therapy for upper-tract cancers. However, less invasive alternatives have a role in the treatment of this disease. Endoscopic management of upper-tract TCC is a reasonable strategy for patients with anatomic or functional solitary kidneys, bilateral upper-tract TCC, baseline renal insufficiency, and significant comorbid diseases. Select patients with a normal contralateral kidney who have small, low-grade lesions might also be candidates for endoscopic ablation. Distal ureterectomy is an option for patients with high-grade, invasive, or bulky tumors of the distal ureter not amenable to endoscopic management. In appropriately selected patients, outcomes following distal ureterectomy are similar to that of radical nephroureterectomy. Currently, lasers (Ho:YAG and Nd:YAG) are being used for management of low-grade upper urinary tract urothelial tumors.⁵

CONCLUSION

Clinicians are often drawn into such pits of inconclusive studies which may often require more experience and

improvement of diagnostic tools. Certainly, the quality of reporting by the various allied departments may also require improvement. However, even with all our understanding of diseases and advancements in medical care, clinicians often have to take difficult decisions for providing the best treatment.

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