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International Journal of Current Research
Vol. 7, Issue, 06, pp.17406-17408, June, 2015

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

ISSN: 0975-833X

CASE STUDY

TRANSITIONAL CELL CARCINOMA OF RENAL PELVIS

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ARTICLE INFO

Article History:
Received 08th March, 2015
Received in revised form
15th April, 2015
Accepted 10th May, 2015
Published online 30th June, 2015

Key words:
TCC Trasitional,
Cell Carcinoma,
Renal Pelvis.

ABSTRACT

A 60 years old man with a past history of right renal stone 10 years ago presented with right flank pain for 1 year and gross Hematuria. CT Scan shows right renal mass. Nephrectomy was done. Specimen was subjected for histopathology which confirmed findings of high grade TCC in renal pelvis that extended into renal parenchyma and reach to renal capsule.

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***Citation*:** Fatemeh Montazer, Farshad Naghshvar and Samaneh Ranjbar, 2015. "Transitional cell carcinoma of renal pelvis", *International Journal of Current Research*, 7, (5), 17406-17408.

INTRODUCTION

The Urothelium is the mucosal lining of renal collecting system (calyces, Infundibula and renal pelvis), Ureters; urinary bladder and portions of urethra (Verma and JhaSingh, 2013). This epithelial lining has atypical microscopic appearance that is midway between Squamous and glandular leading to its designation as transitional epithelium (Phatak and Kolwadkar, 2006). The Urothelium a target tissue for carcinogens that leads to the development of TCC (Verma and Jha Singh, 2013). Urothelial carcinoma of the upper tract of urinary system has an epidemiology similar to those of the bladder (Kvist *et al*., 1988). In that there is a male predominance, they are most common in older individual, and tobacco and industrial carcinogen exposure are risk factor (Siegel *et al*., 2012; Colin *et al*., 2009) Upper tract Urothelial carcinoma also occurs in some hereditary cancer syndromes such as Lynch Syndrom (Crockett *et al*., 2011) and Muir-Torre Syndrom (Dores *et al*., 2008; Grignon and Shum, 1987). Approximately 5% to 10% of Urothelial carcinoma arise in the upper tract (9) Hematuria is the principal symptom, but flank pain also is frequent (Roupret *et al*., 2011). Grossly, these tumors from soft, gryish-red masses with smooth, glistening surface that resemble the Urothelial tumors of the bladder (Johansson *et al*., 1976).

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The microscopic appearance of these Urothelial carcinomas, whether located in renal pelvis or ureter, is identical to that of their more common homologous in bladder. The majority are high grade neoplasm, the percentage (about 70%) being much higher than for the same tumor type in the bladder (Olgac *et al*., 2004.

Case Report

A 60 years old man presented with right flank pain for 1year, gross Hematuria, nausea, vomiting and elevated body temperature from several month later .He had a past history of right renal stones, 10 years ago. He was not a smoker and had no recent history of trauma and other urological problems. On physical examination, right flank tenderness was noted, but there was no palpable abdominal mass, urine analysis showed 8-10red blood cell (RBC) per high-power field. Urinary culture was negative. Creatinine and blood urea levels were normal. Cytology of voided urine was positive for TCC cells. Computed Tomographic (CT) Scan showed a heterogenous mass measuring about 6×6×5cm occupying the right renal pelvis. A chest x-ray and bone scan showed no evidence of lung or bone metastasis. Right nephroureterectomy was done. Size of the kidney is 15×10×5.5cm and that of ureter is 25×3cm. Gross examination revealed a huge, ill defined withies and focally necrotic solid mass measuring 6cm in greatest diameter. Tumor diffusely occupying renal pelvis and extended into renal parenchyma Figure 1.

Figure 1. Macroscopic appearance

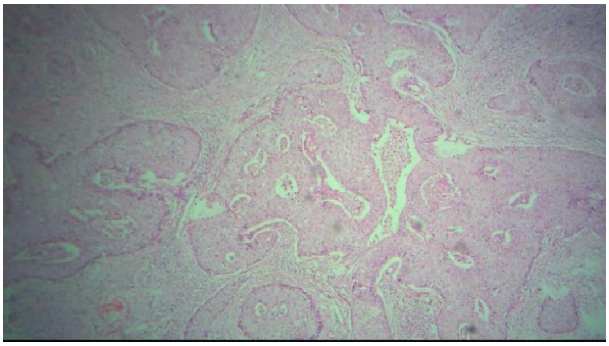

Figure 2. Microscopic appearance, Low power

Histopathologic examination reveal a malignant urothelial neoplasm composed of variable sized nests and sheets of tumor cells with foci of Papillary formations embedded In abundant Desmoplastic stroma Figure 2,3. Neoplastic cells characterized by enlarged vesicular to hyperchromatic nuclei, prominent nucleoli and eosinophilic cytoplasm, with distinct border Figure 4, 5, 6. Frequent mitotic figures and foci of necrosis are noted. Also urothelial carcinoma in situ is present. Perineural and vascular invasion are seen. Tumor has invaded into the renal parenchyma in an infiltrative manner and reached to renal capsule but not extended through it. Renal sinus fat, gerota's fascia and ureter are free of tumor.

DISCUSSION

Urothelial originate much more often (30-50 times) in the bladder than renal pelvis where as pelvis tumors are two or three times more common than ureteral ones (Verma and JhaSingh, 2013). TCC of kidney may arise from any portion of the renal pelvis but the extra renal pelvis is most frequently affected (Phatak and Kolwadkar, 2006). These tumors are centrally located in the renal pelvis and secondarily invade the renal sinus fat and renal parenchyma (Verma and JhaSingh, 2013). Intravenous and retrograde pyelography provides the most accurate means of diagnosis. The sensitivity and accuracy of cytologic examination are higher than for renal cell carcinoma, particularly for high grade tumors. Stage I and II tumors usually present as discrete renal pelvis masses with normal peripelvis fat. The diagnosis of invasive (Stage III) TCC depends upon obvious infiltration in to renal parenchyma or peripelvis fat.

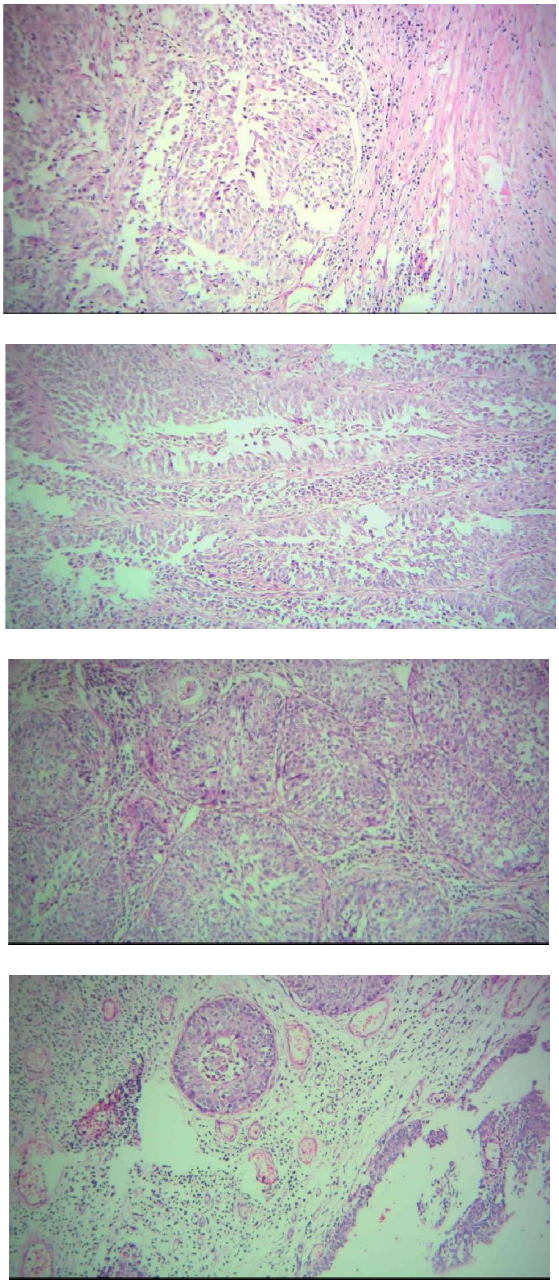

Figure 3, 4, 5, 6. Microscopic appearance, High power

When extrarenal extention, lymphnode involvement or distal metastasis is present, tumor is classified in stage IV (Urban *et al*., 1997). More advanced tumors can invade renal parenchyma which it is important and difficult to distinguishing it from primary RCC specially collecting duct carcinoma but can be differentiated from RCC is by relatively central location of tumor and by its centrifugal expansion of kidney (Albadine *et al*., 2010; Truong and Shen, 2011). In cases where any element of urothelial differentiation can be identified, including Urothelial carcinoma insitu, the tumor should be classified as urothelial carcinoma. Immunohistochemistry is of limited value, though coexpression of Ck7 and Ck20 and P63, combined with absence of reactivity for Pax-2 or Pax-8, would support urothelial carcinoma in difficult cases (Albadine *et al*., 2010; Truong and Shen, 2011; Carvalho *et al*., 2012).

The standard treatmeat of pyeloureteral urothelial carcinoma is radical nephroureterectomy including removal of the contents of gerota's fascia with ipsilatral ureter and a cuff of bladder at its distal extent (La. Mai *et al*., 1996). The prognosis is largely determined by the stage of the lesion for both the pelvis and ureteral lesion (Melamed and Reuter, 1993; Mills and Vaughan, 1983). Vascular invasion is also said to be of prognostic significance (Hasui *et al*., 1992; Langner *et al*., 2006).

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