Research Paper

Volume : 4 | Issue : 5 | May 2015 • ISSN No 2277 - 8179

Primary Adenocarcinoma of the Ureter & Pelvis - A Rare Case Report

MEDICAL SCIENCE

KEYWORDS : Adenocarcinoma, Ureter and Pelvis, Non-functioning kidney

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ABSTRACT

Primary malignant tumors of the ureter and pelvis are very rare. Even if a tumor arises from these, it is of the urothelial (transitional) type most commonly, followed by squamous cell carcinomas and lastly adenocarcinomas. We are presenting a case of a patient with a non-functioning kidney with an incidental finding of primary mucinous adenocarcinoma of the ureter on histopathological examination of the resected nephrectomy specimen.

INTRODUCTION: The incidence of primary tumors of the ureter is 0.9%-1.6% of all urogenital neoplasms [1]. Adenocarcinomas are the least common of them. Most of these arise as a result of glandular metaplasia. The predisposing factors include nephrolithiasis and repeated infections. Japan and India have reported the highest number of cases of primary adenocarcinoma of ureter and pelvis while other parts of the world have reported occasional cases[2].

CASE REPORT: A 48 year old male patient was admitted to the hospital with complains of pain in the right flank, burning micturition and fever with chills. Ultrasonographic examination revealed the presence of obstruction in the right ureter (? calculi). Patient was tried for D-J stenting but it failed due to kinking of the ureter. Patient was treated for the urinary tract infection symptomatically as he refused surgical intervention at that time. 3 months later, he again presented to the casualty with severe pain in the right flank radiating to the back. However, there was no history of hematuria or dysuria. Ultrasonography showed a grossly enlarged right kidney measuring 15x9cm with a ?calculus at lower pole of right ureter with gross hydronephrosis and hydroureter. Technitium 99m DTPA scan revealed a non-functioning right kidney. Renal function tests showed a serum creatinine level of 1.27mg/dl and blood urea nitrogen of 11.7mg/dl. Urine examination showed positivity for occult blood and mild proteinuria. Patient was posted for right nephrectomy.

PATHOLOGIC EXAMINATION:

a) GROSS EXAMINATION: A specimen of right kidney with part of ureter was received in the Department of Pathology. Kidney was grossly enlarged measuring 13x6.5x2.5cm. Ureter was 10cm long. Capsule of the kidney was easily stripped off. Externally, the kidney was bosselated and cystic (Fig 1). On cutting open, kidney showed destruction of renal parenchyma with dilated pelvi-calyceal system. The lumen of the ureter was obliterated with a greyish white friable growth extending from the distal surgical resected end of the ureter upto the renal pelvis. However, no calculus was identified in the kidney, ureter or pelvis (Fig 2).

b) MICROSCOPIC EXAMINATION: The sections from kidney showed features of chronic pyelonephritis with hydronephrosis. Sections from the ureter and pelvis show a malignant growth comprising of glandular as well as papillary structures. These are lined by cells showing hyperchromatic nuclei with prominent nucleoli, raised N: C ratio and moderate amount of eosinophilic cytoplasm and intracytoplasmic vacuoles. High numbers of mitotic figures seen. Intracellular as well as extracellular mucin also seen. PAS as well as Alcian blue stain showed positivity for mucin. (Fig. 3,4)

Fig 1.External surface of kidney with lumen of ureter obliterated by tumor (yellow pointer).

Fig 2. Cut section of kidney- showing dilated pelvi-calyceal system with growth in the pelvis (yellow pointer)

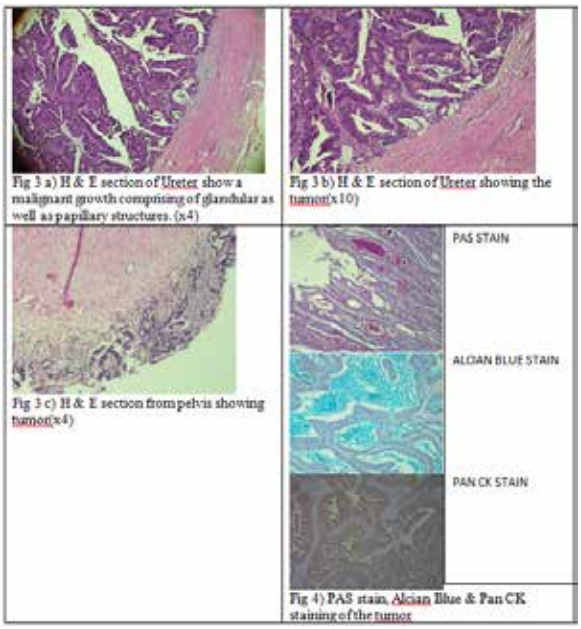

Fig 3 a) H & E section of Ureter show a malignant growth comprising of glandular as well as papillary structures. (x4)

Fig 3 b) H & E section of Ureter showing the tumor(x10)

Fig 3 c) H & E section from pelvis showing tumor(x4)

Fig 4) PAS stain, Alcian Blue & Pan CK staining of the tumor

DISCUSSION: According to the limited literature about primary adenocarcinoma of the ureter, it occurs most often in the age of 60-70 years, with 45% in the lower third of the ureter and 40% accompanied by calculus [3]. According to histologic characteristics, the subcategories are tubulovillous, mucinous, papillarynonintestinal and signet ring cell type adenocarcinoma of the renal pelvis [4].

Tubulovillous adenocarcinomas are the most aggressive and associated with a 5-year survival rate of less than 30%. Mucinous tumours are associated with a 67% survival rate, and papillary nonintestinal tumours with nearly a 100% survival rate [3].

Primary adenocarcinoma of the ureter is often accompanied with calculus and chronic inflammation. Thus it is indicated that glandular mestaplasia plays an important role during the carcinogenesis process after the transitional epithelium is stimulated by chronic inflammation [5].

In our patient, malignancy was not clinically suspected and nephrectomy was performed due to loss of function and hydronephrosis thought to be secondary to a calculus. But the finding of a primary mucinous adenocarcinoma in the ureter extending upto the distal resected margin of the ureter, changed the line of management for the patient. Early diagnosis also enabled favourable prognosis for the patient. The patient did not have any hematuria or stones. The possible cause of intestinal metaplasia in the present case could be attributed to recurrent urinary infections that lead to hydronephrosis and pyelonephritis.

Gulwani et al [6] have reported a similar case presenting as a stricture and mimicking genitourinary tuberculosis. Punia et al [7] have reported case similar to ours. Kundu et al [8] have reported 3 cases of primary ureteric adenocarcinomas. However, most of the cases reported viz by Abbas et al [9], Wang et al [3] and Kaur et al [10] were associated with calculi.

CONCLUSION : All nephrectomy specimens should be evaluated thoroughly. Pathological examination (gross and microscopy) in detail should be done to look for primary malignancy of the ureter leading to obstructive uropathy which clinically may mimic obstruction due to calculi in ureter or pelvis of kidney.

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