

# Rare upper urothelial malignancy in non-functioning nephrolithic kidney

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## Citation

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## Abstract

Although rare upper urothelial malignancies can be associated with renal stone disease or hydronephrosis [123] probable associated with a chronic inflammation or infection or with analgesic abuse.[4] In our case the malignancy was detected postoperatively during histopathological examination of nephrectomized specimen. We are reporting this case for rarity of its location (Pelvis) than its commoner at bladder.

## INTRODUCTION

Although rare upper urothelial malignancies can be associated with renal stone disease or hydronephrosis [123] probable associated with a chronic inflammation or infection or with analgesic abuse.<sup>4</sup> In our case the malignancy was detected postoperatively during histopathological examination of nephrectomized specimen. We are reporting this case for rarity of its location (Pelvis) than its commoner at bladder.

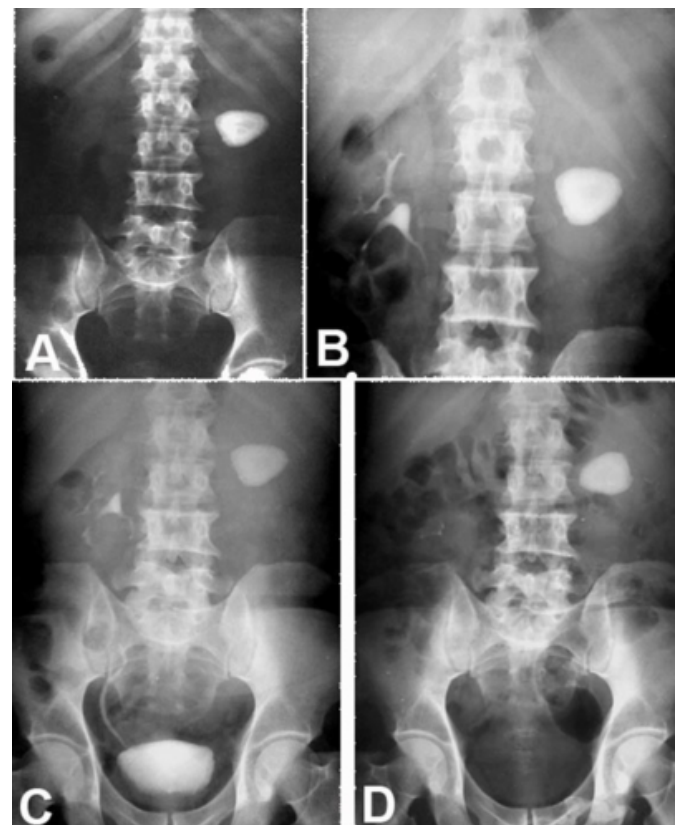
## CASE REPORT

A 54 year old man presented for evaluation of left flank pain of 1 year duration. He had history of right nephrolithotomy for renal calculus 13 years back. On clinical examination patient had a scar of right flank incision with a palpable hard, nontender kidney lump on left side.

His urine analysis showed microscopic hematuria and culture was sterile. His renal biochemistry was normal. On X-ray KUB showed a large calculus of 3 X 4 cm calculus at the left pelvi-ureteric junction (Figure 1 A), renal ultrasound a large calculus with grade II hydronephrosis with moderate vascularity, dilated upper 1/3<sup>rd</sup> ureter and on right side grade I hydronephrosis; IVP showed non-functioning left kidney with mildly delayed functioning grade I hydronephrotic right kidney and normal right ureter with bladder till 24 hours. (Figure 1 B-C)

## Figure 1

Figure 1: (A) X-ray KUB showing large calculus in left kidney. (B) IVP showing 5 min (C) 2 hours (D) 24 hours; non-functioning left kidney with mildly delayed functioning grade I hydronephrotic right kidney.



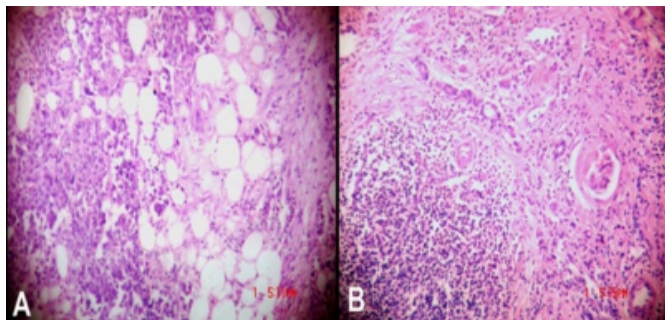
In view of patient's age, normal serum urea & creatinine, normally functioning opposite kidney; option of renal conservation versus nephrectomy were discussed with

patient. Patient underwent extraperitoneal nephrectomy with flank incision. During surgery there were dense perirenal adhesions especially near the hilum. During attempted dissection there was a rent in renal pelvis with resultant spillage of dirty white putty material. The hilar lymph nodes were also enlarged and densely adherent to the renal vessels. The intraoperative findings raised a suspicion of pyelonephritis. The patient had a smooth post-operative recovery.

However the histopathological examination of specimen showed left kidney of 12 x 5 x 5 cm size, irregular, rough surface. On cut section yellowish white, thinned out cortex, dilated pelvis and calyces suggestive of hydronephrosis, single brownish black irregular stone with dirty cheesy material in pelvis. Microscopically high grade Urothelial Malignancy infiltrating into kidney and perinephric fat with chronic pyelonephritis . (Figure 2)

### Figure 2

Figure 2: (A) Section from renal parenchyma, glomeruli and tubules surrounded by dense chronic inflammatory infiltrate forming lymphoid follicle (B) Section from upper pole of kidney, invasion of perinephric fat with polygonal cells, arranged in loosely cohesive sheets.



The patient was advised postoperative palliative chemoradiotherapy. At 6 months follow-up he developed para-aortic lymphadenopathy on ultrasonography without bladder involvement.

## DISCUSSION

Urothelial tumours involving the renal pelvis or ureter are relatively uncommon, accounting for about 5% to 7% of all renal tumours and about 5% of all urothelial tumours.<sup>56</sup> Long standing urinary calculus disease is known to unusual alterations in the morphology of urothelial cells, making urinary cytology less reliable to diagnose coexistent urothelial carcinoma.<sup>7</sup> Hence it is not uncommon to miss an associated urothelial tumor in a patient of nephrolithiasis preoperatively.

Upper tract tumours common in older age groups, and the mean age at presentation is 65 years.<sup>8</sup> Men are about twice as likely to develop upper tract tumours as are women.<sup>9</sup> The most common presenting symptom is hematuria (56%) dull flank pain (30%) but can be acute and mimic renal colic, asymptomatic(15%).<sup>10</sup> The pathological processes identified in a poorly functioning kidney secondary to calculus disease include parenchymal atrophy, chronic pyelonephritis, xanthogranulomatous pyelonephritis & rarely associated urothelial carcinoma.<sup>11</sup>

Urine cytology is a specific tool useful in the diagnosis of the malignant cells in urothelial malignancy. It can be suspected in patients with a long standing history of stones, pain, urinary tract infection and a palpable kidney, even though the enlargement is out of proportion to the hydronephrosis shown on the intravenous urography &/or ultrasonography.<sup>12</sup> Intravenous pyelography has been the traditional means for diagnosis of upper tract lesions, computed tomographic (CT) urography is increasingly performed today. Radiolucent filling defects, obstruction or incomplete filling of a part of the upper tract, and nonvisualisation of the collecting system are the typical findings suggestive of an upper tract tumor. Evaluation of the contralateral kidney is important not only because of possible bilaterality of the disease but also because it allows a determination of the functionality of the contralateral kidney; as a part of the management process. A split-function renal scan may be helpful in determining the contribution of both the “diseased” and the presumed “normal” kidney to the patient’s overall renal function. We had not done computerized tomography in our patients, and retrospectively feel that we could have identified associated pyelonephritis and lymphadenopathy on the computerized tomography.

If dissection appears difficult during nephrectomy for calculus with non-functional kidney, keeping a possibility of associated urothelial malignancy in mind it is advisable to dissect in a plane outside Gerota’s fascia as for radical nephrectomy. High-grade transitional cell carcinomas of the upper urinary tract spreads by direct invasion into the renal parenchyma or surrounding structures, vascular (83%) or lymphatic invasion (77%).<sup>13</sup>

Upper tract urothelial cancers are often associated with a poor prognosis. Up to 19% of patients with upper tract transitional cell carcinoma have been reported to present initially with metastatic disease.<sup>14</sup> Patients with upper tract

tumours are at risk for development of bladder cancer, with an estimated incidence from 15% to 75% within 5 years of the development of the upper tract cancer.<sup>15</sup>

## **CONCLUSION**

It is important to keep a differential diagnosis of associated urothelial malignancy in mind in patient presenting with long standing renal calculi.

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