“Primary Mucinous Adenocarcinoma of Renal Pelvis- A diagnostic dilemma”

Abstract

Introduction:

Primary mucinous adenocarcinoma of the renal pelvis is extremely rare, with only ~100 cases reported till now. Its presumed pathogenesis includes glandular metaplasia of the urothelium of the calyces and the pelvis and malignant transformation of the metaplasia. Unfortunately, it has no characteristic symptoms or radiological features.

Case presentation:

A 75-year-old man presented with pain in his left flank and intermittent fever. A physical examination showed swelling in left flank on inspection which was soft, non tender, ballotable with no local rise of temperature. The results of most laboratory tests were within normal limits. Plain radiography of the kidneys, ureter, and urinary bladder showed a large radio-opaque mass in the left kidney. Abdominal computed tomography showed left kidney measuring 24.8 x 12.4 cm with gross hydronephrosis with severe cortical thinning with large calculus of2.7 X 3.1 x3.6cm in left pelviureteric junction. Diuretic-enhanced 99mTc DTPA renal scanning showed that the relative function of the left versus the right kidney was 11.19 versus 88.81 %. On the basis of the imaging findings, kidney dysfunction due to ureteropelvic junction stenosis with a large stone was initially diagnosed.

Although the cytopathology of gelatinous material was negative for malignancy, we could not rule out other disease, such as hidden malignancies of the kidney.We therefore performed radical nephrectomy, and pathological examination of the kidney uncovered a mucinous adenocarcinoma in the renal pelvis. A bone scan and positron emission tomography showed no evidence of other malignancies, metastasis, or remnant cancer.

Conclusions:

Primary mucinous adenocarcinomas of the renal pelvis are extremely rare, and most are diagnosed via post-operative analysis of resected specimens. Although preoperative diagnosis is difficult, urologists should consider the possibility of primary mucinous adenocarcinoma in patients with severe hydronephrosis accompanied by renal stones and chronic inflammation.

Introduction:

- Adenocarcinomas of the renal pelvis are rare and are classified as tubulovillous, mucinous, or papillary non-intestinal .
- Primary mucinous adenocarcinoma of the renal pelvis, first described in 1960 by Hasebe et al. , is especially rare.
- Unfortunately, it is difficult to diagnose preoperatively because there are no characteristic symptoms or laboratory and radiological findings.

case presentation

- 75 years old male, resident of shimoga, came with chief complains of pain in abdomen since 2 years and intermittent fever since 1 week,
- No other abdominal or urinary complains, No history of any surgery in the past. No comorbities
- Known smoker and alcoholic for last 15 years.
- General examination – normal
- Genital examination – normal
- P/A examination:

Approx 20 cm mass present in left flank and lumbar area.

Soft in consistency, ballotable, non tender, no local rise of temperature.

All other quadrants normal.

- most laboratory tests were within normal limits except tlc counts of 14,000cc/mm^3, creatinine -2.2mg/dl.

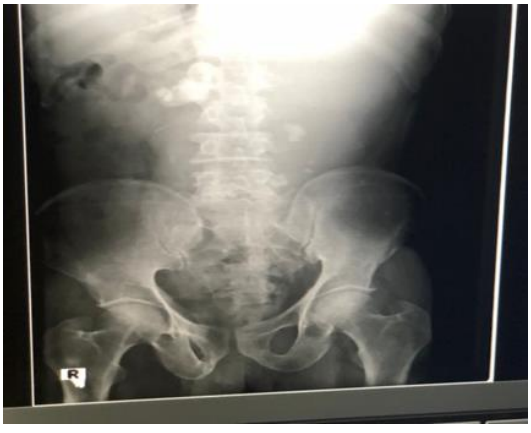


Figure 1: Xray KUB showing left renal calculus

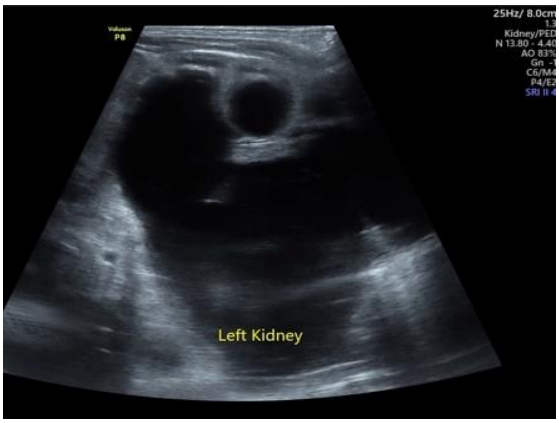


Figure 2: USG kub showing left gross hun

NCCT KUB:

- Left kidney measuring 24.8 X 12.4 cm with gross HUN causing renal parenchymal thinning measuring 2 mm in upper, mid and lower pole. Corticomedullary differentiation is indistinct.
- large calculus of2.7 X 3.1 x3.6cm (1056 HU) in left pelviureteric junction

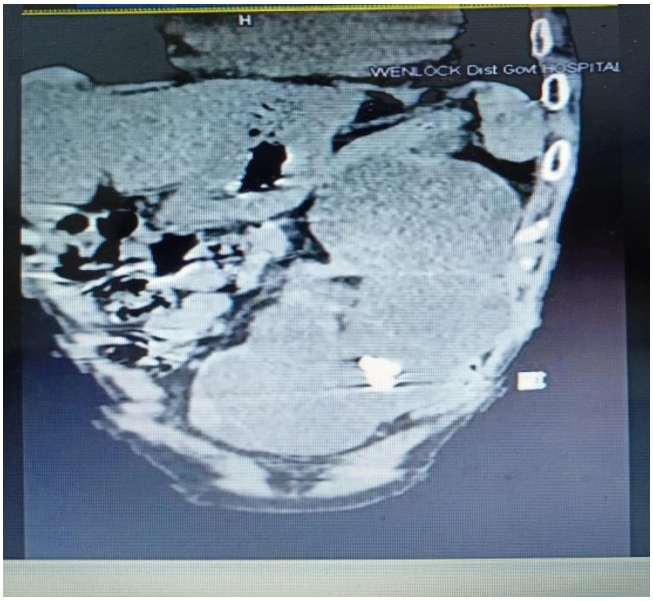
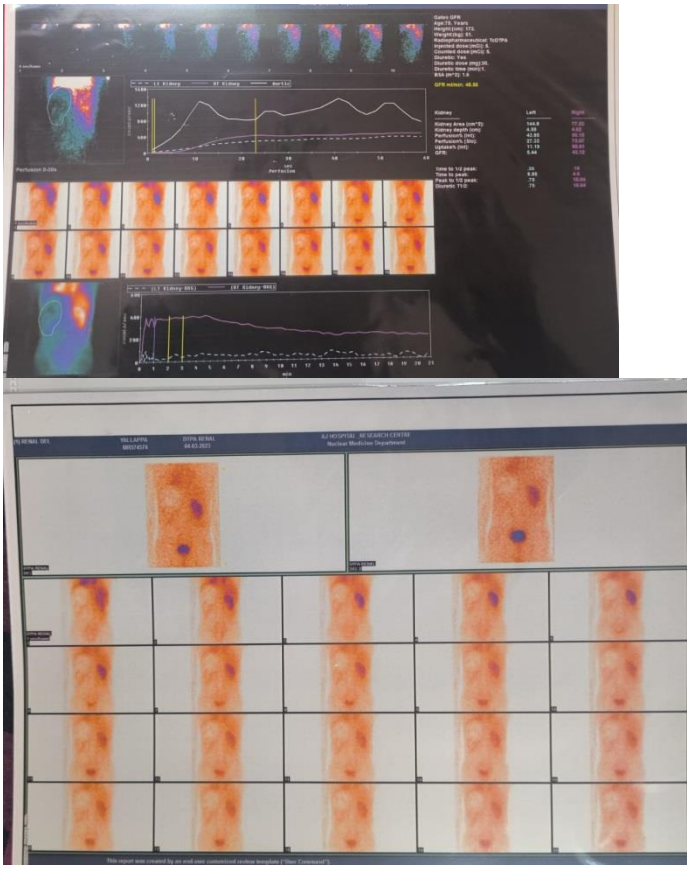


Figure 3: NCCT KUB

Table 1 Diuretic-enhanced 99mTc DTPA renal scanning

	left kidney	Right kidney
Uptake %	11.19	88.81
Peaking time(min)	8.85	4.6
T ½ from peaking time (min)	0.75	16.64
GFR (ml/min)	5.44	43.12



- We therefore performed radical nephrectomy, and gelatinous material was aspirated intraoperatively for decompression of hydronephrosis. Although the cytopathology of gelatinous material was negative for malignancy, we could not rule out other disease, such as hidden malignancies of the kidney.

- Pathological examination of the kidney uncovered a mucinous adenocarcinoma in the renal pelvis. A bone scan and positron emission tomography showed no evidence of other malignancies, metastasis, or remnant cancer.

Discussion

- Tumour site : Renal pelvis, Tumour size: 16x10.5x4.5cm , Tumour focality: Unifocal
- Histology: Mucinous Adenocarcinoma, grade: High grade,Tumour necrosis: Present 60%, Tumour extensions: Limited to kidney
- Margins :- Uninvolved by invasive carcinoma - Perinephric fat margin, Renal sinus soft tissue margin, Gerota's fascia margin , Renal vein margin, Ureteral margin, Closest margin: Renal sinus margin which is 1em from tumour, Lymphovascular invasion: Not identified
- Pathologic stage classification(pTNM, AJCC 8th edition): pT1
- Additional pathologic findings: Renal calculi identified, Chronic pyelonephritis.

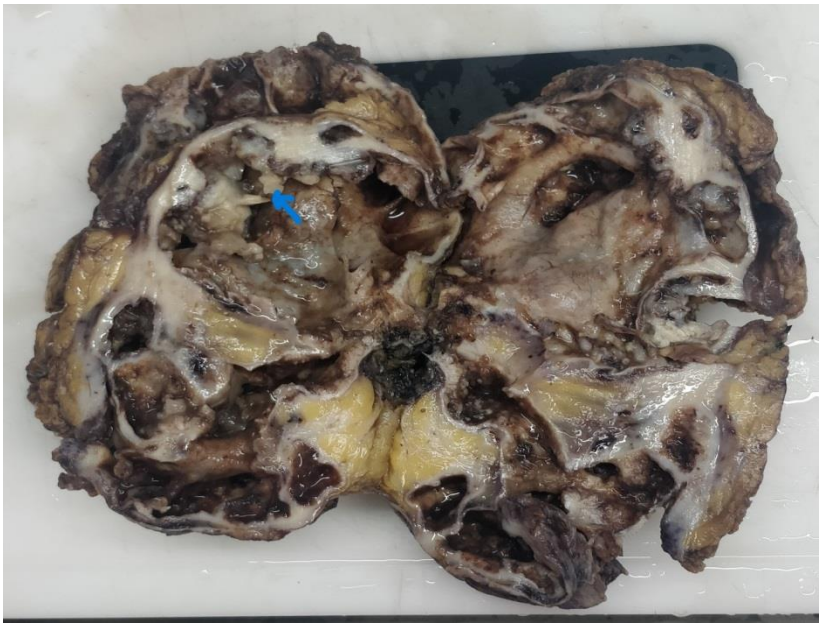


Figure 4: Image of cut surface of the kidney showing markedly dilated renal pelvis with foci of nodular excrescences(arrow) in the wall.

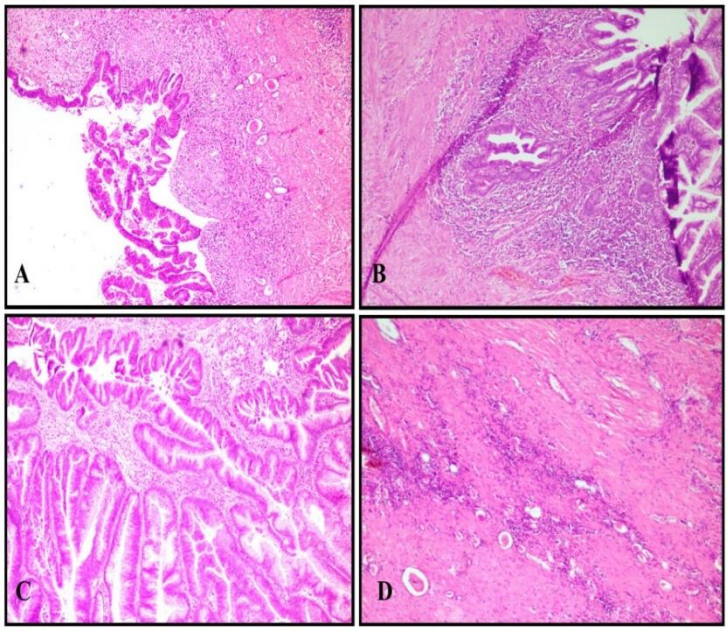


Figure 5: Photomicrographs showing A: tumour arranged in the form of glands and villiform architecture, B: tumour glands invading the lamina propria. C: columnar tumour cells containing mucin lining the glands and villi. D: adjacent compressed renal parenchyma showing atrophic tubules

Conclusion:

Mucinous adenocarcinoma of the renal pelvis is rare in cancer. The pathogenesis is considered to be associated with urolithiasis, long-standing infection and inflammation. Preoperative diagnosis is difficult, thus, urologist should still keep in mind this possibility when the patient has prolonged stone compaction with mucin discharge. Adjuvant therapy has not been established; therefore, an early operation is the main effective treatment. Although there is no identified chemotherapy regimen, we can also consider the regimen for colon cancer as an alternative choice when the renal tumor shows a histological similarity to colon cancer.

Mucinous adenocarcinoma is more aggressive and has a poor prognosis compared with urothelial carcinoma, and early diagnosis is an important strategy. The prognostic factors include tumor size, stage, and grade. If we can approach these as early as possible, the tumor can be resected with negative margins.

References

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