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Incidental mucinous adenocarcinoma in situ of renal pelvis presenting as severe hydronephrosis

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ABSTRACT

Background: Mucinous adenocarcinoma of the renal pelvis is a very uncommon tumor, most often secondary to chronic infection and long standing irritation due to conditions such as urolithiasis.
Case Presentation: Herein we report our experience with an old age male that presented with flank pain. Mucinous adenocarcinoma in situ has been discovered incidentally in his nephrectomy specimen.
Conclusions: Mucinous adenocarcinoma in situ, is extremely rare and to the best of our knowledge only two cases have been reported in the English literature so far.

Case Report

Implication for health policy/practice/research/medical education:
This case represents the rare incidental occurrence of a tumor in end-stage kidney which emphasizes on precise evaluation of the patients with end-stage renal disease not to miss a tumor in such a kidney.

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1. Introduction

There are three types of epithelial tumors in the renal pelvis as below;
1) Transitional cell carcinoma, more than 90%
2) Squamous cell carcinoma, less than 10%
3) Adenocarcinoma, less than 1%.
Adenocarcinomas of the renal pelvis are in three categories as well, consisting of tubulovillous, mucinous and papillary non-intestinal types (1). The mucinous type of adenocarcinoma, arising from renal pelvis is very rare and has rarely been reported in the English literature and most of the reported cases have been from Asia (2).
Incidental finding of mucinous adenocarcinoma in situ of renal pelvis, is an extremely rare occurrence (1,3).
Herein we report a 73-year-old man, presented with left flank pain that was diagnosed as mucinous adenocarcinoma in situ of renal pelvis only after surgery and nephrectomy.

2. Case Presentation

A 73-year-old man presented with left flank pain. He has been a completely healthy man with no significant past medical history until a month before, that experienced left flank pain with no hematuria.
Physical examination showed an old man with normal head and neck. Heart and lung examination failed to show any positive findings.
Blood pressure: 155/85 mm Hg, heart rate: 85/min, respiratory rate: 12/min, and temperature was normal.
Laboratory examination showed: White blood cell count; 11 400/μL, hemoglobin levels; 12.2 g/dL, platelet counts: 111 000/μL. Biochemistry analysis

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was also normal; BUN: 14 mg/dl, creatinine: 1.2 mg/dL. Urinalysis showed just a few RBCs in microscopic studies. Liver function tests and coagulation studies were normal. Sonography of the kidney showed large nonfunctional paper bag kidney. Patient underwent surgery for nephrectomy, and the specimen sent for pathologic study. Precise examination of the specimen showed a completely cystic kidney with no distinct corticomedullary junction. There was focal thickened area in the cystic renal pelvis (Figure 1). Pathologic sections from the nephrectomy specimen showed severe hydronephrosis, thyroidization and nephrosclerosis. Sections from the thickened parts of the cystic renal pelvis showed mucinous epithelium with atypia, hyperchromasia and no transitional epithelium (Figure 2). Multiple sectioning failed to show any evidence of invasion to underlying tissue. Small piece of ureter was also accompanied which was free of tumor. Patient was diagnosed to have mucinous adenocarcinoma in situ of renal pelvis. After this diagnosis, he has been investigated for any other extra-renal evidence of tumor or mass. However there was no evidence of any other abnormality. Now, after 6 months he is doing well and completely symptom-free.

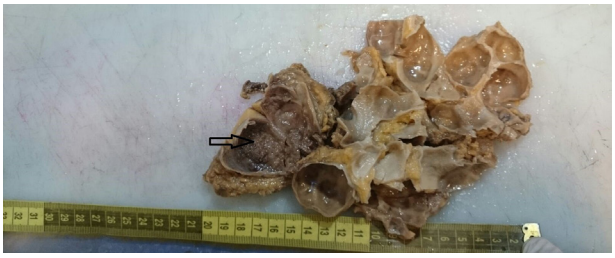

Figure 1. Gross examination of the kidney shows a paper-bag completely cystic specimen with a few foci of thickening (Arrow).

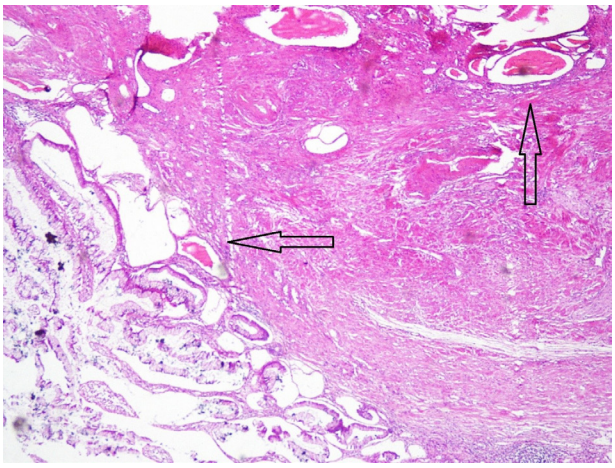

Figure 2. Sections show end-stage kidney with thyroidization (vertical arrow), and mucinous adenocarcinoma in situ in the renal pelvis (horizontal arrow) (×400).

3. Discussion

Tumors of renal pelvis are rare and have been variably recorded from 7.7% to 3.1% of all renal cancers (4). The most common neoplasm in the renal pelvis is transitional in origin, although infrequently, squamous and glandular neoplasms may arise within the renal pelvis secondary to metaplastic transformation of the transitional epithelium due to chronic obstruction and infection or irritation by stones (5).

Mucinous types of adenocarcinoma in renal pelvis are the least common type of this category (1). Most of the patients with this tumor are elderly males, and to the best of our knowledge, the youngest patient has been 40 years old (2).

Mucinous adenocarcinoma in renal pelvis is usually presented with nonspecific symptoms such as abdominal pain (5). However a few patients have also presented with flank pain or hematuria or other symptoms related to urinary tract such as pyuria (1). Preoperative diagnosis of this tumor has rarely been made and patients have been operated with different diagnosis such as tuberculosis (6), pyonephrosis (7), and mucin discharge from the vagina secondary to fistula tract formation (8). The definite diagnosis in nearly all of the reported cases has been made after pathologic examination of the resected specimen (1,2).

Imaging studies had no role in the diagnosis of the previous cases and this tumor in the renal pelvis has been missed by radiologic studies (9).

Prognosis of this type of tumor in renal pelvis has been reported as poor and most of them have recurred in less than 2 years (11).

Our case has been a healthy 73-year- old man presented with flank pain. He was operated with the diagnosis of paper-bag and end-stage kidney.

In our case, mucinous adenocarcinoma was incidentally detected after examination of the resected kidney.

After checking multiple sections, no underlying stromal invasion has been detected and the patient was diagnosed as mucinous adenocarcinoma in situ. The first case of mucinous adenocarcinoma of renal pelvis has been reported in 1960 (1), after that less than 100 cases have been reported so far, only 2 of which have been in situ (1,10).

4. Conclusions

As a conclusion, mucinous metaplasia of the renal pelvis occurs after chronic inflammation and long-standing irritations secondary to chronic pyelonephritis and urolithiasis which are the predisposing factors for

the evolution of mucinous adenocarcinoma (12). This emphasizes on more investigations for patients with long-standing chronic inflammation of the kidney before surgery and also exact examination of the pathology specimens of the end-stage kidneys, not to miss this tumor, especially in cases such as our patient which there is no invasion and no mass lesion.

Authors' contribution

BG; writing the paper, diagnosis of the case. AK; surgery of the case. RG; helping in collection of the data for case report.

Conflicts of interest

The authors declared no competing interests

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