

Renal Cell Carcinoma in an Ectopic Kidney: Case Report

Ektopik Böbrekte Renal Hücreli Karsinom: Olgu Sunumu

Niyazi KARAMAN¹, Lütfi DOĞAN¹, Cihangir ÖZASLAN¹, Can ATALAY¹, Çiğdem IRKKAN², Asuman BOZKURT³

¹ SB Dr. Abdurrahman Yurtarslan Ankara Onkoloji Eğitim ve Araştırma Hastanesi, Genel Cerrahi Kliniği,

² SB Dr. Abdurrahman Yurtarslan Ankara Onkoloji Eğitim ve Araştırma Hastanesi, Patoloji Kliniği,

³ SB Dr. Abdurrahman Yurtarslan Ankara Onkoloji Eğitim ve Araştırma Hastanesi, Radyoloji Kliniği, ANKARA

SUMMARY

Ectopic kidney is a rare congenital anomaly. Its atypical symptomatology causes a diagnostic as well as therapeutic dilemma. Tumors arising within an ectopic kidney are also uncommon and may be difficult to diagnose. We present a case of renal cell carcinoma in an ectopic kidney. Although several conventional imaging techniques were used to define the mass, each provided limited information and definite diagnosis was just possible with the pathological examination of the specimen.

Key Words: Ectopic kidney, renal cell carcinoma.

ÖZET

Ektopik böbrek nadir bir konjenital anomalidir. Atipik semptomları tanısız ve tedavisel karışıklığa sebep olur. Ektopik böbrekten gelişen tümörler de nadirdir ve tanı konması güç olabilir. Bu çalışmada ektopik böbrekte gelişen bir renal hücreli karsinom bildirilmiştir. Kitlenin tanımlanması için değişik birçok konvansiyonel görüntüleme yöntemi kullanıldıysa da, her biriyle sınırlı düzeyde bilgi edinilebildiğinden, kesin tanıya ancak spesimenin patolojik incelenmesi sonrasında ulaşılabilmektedir.

Anahtar Kelimeler: Ektopik böbrek, renal hücreli karsinom.

INTRODUCTION

Congenital malformations of the urinary system are present in 10% of the all births (1). The ectopic kidney in the presacral position can occur in 1 of 800 subjects (2).

The final resting site of the kidney determines the location of the renal ectopia. A pelvic or presacral kidney is within the true pelvis, opposite the sacrum and below aortic bifurcation with a short ureter and aberrant blood supply (3). The lumbar kidney is located opposite the sacral promontory in the iliac fossa and anterior to the iliac vessels. An abdominal kidney is found adjacent to the second lumbar vertebra and above the iliac crest (4). There is no single most preferred location for the ectopic kidney (5).

Since the diagnosis of an ectopic kidney is often an incidental finding on radiography or at surgery, most renal ectopia are asymptomatic (4). However, a pelvic kidney can present as an abdominal mass. In a study of 61 cases of pelvic kidney Kyroigeonias et al. found that the most common findings were; palpable mass, 31%; abdominal pain, 27%; microscopic hematuria, 24%; bladder symptoms, 22%; renal colic in ectopic kidney, 19%; gross hematuria, 18%; gastrointestinal symptoms, 16%; pelvic symptoms in women, 13% and hypertension and renal failure, 3% (6). Renal stones and ureteropelvic junction disease are also among the most frequent lesions encountered. Other complications are hydronephrosis, renal abscess and renal cysts. It has been shown by Gleason et al. in 1994

that ectopic kidney is more susceptible to hydronephrosis and calculus formation, but the frequency of other diseases is not different than the usual (7).

Bilaterality of ectopic kidneys are seen only in 10% of renal ectopia. The contralateral kidney is frequently normal but may have some congenital defects (8). The incidence of contralateral agenesis is found to be rather high by Malek and colleagues in 1971 (9). Skeletal and cardiac systems are among the other organ systems most frequently involved (10). Malposition of the colon may be a clue to the ectopic position of a lumbar or pelvic kidney. Crossed renal ectopia are more frequent in men and on the left side (11). Clinically renal ectopia is more readily recognised in females because they undergo urologic evaluation more frequently than males.

CASE REPORT

A 66-year-old man was referred to our hospital for the evaluation of abdominal mass. The patient had no significant medical or surgical history. He had been presented to another hospital with the complaints of weight loss, abdominal pain, fever, macroscopic hematuria and palpable abdominal mass. It was defined as a centrally necrotic, 17 x 14 cm sized, irregular mass within left lower quadrant at computed tomography (CT) (Figure 1). Besides, during the examination left kidney didn't show any contrast uptake and right kidney was in normal localisation with normal excretory function. Colour doppler ultrasonography revealed that both iliac arteries was compressed by the mass without any evidence of invasion. Blood biochemistry, colonoscopy and thorax CT were all normal. Intravenous pyelography showed that left kidney was not functioning and the right kidney and its collecting system and ureter was normal. At ultrasonographic examination left kidney was not present at its normal localisation. Instead, there was a 138 x 131 mm sized, heterogenous, centrally necrotic mass in the pelvic region. The physical examination revealed a healthy looking man with a palpable mass within left lower quadrant of the abdomen.

At the operation through midline incision; the mass was located in the left lower quadrant at the level of iliac bifurcation and sigmoid colon was adherent to the mass from its mesentery. The renal artery was originating from left common iliac artery. Total excision of the mass containing left hypoplastic ectopic kidney with partial sigmoid colon resection was possible and the bowel continuity was constructed with end to end colo-colonic anastomosis.

Histopathologic examination confirmed that; the origin of the mass was a nuclear Fuhman grade 3 renal cell carcinoma and sigmoid colon itself was not infiltrated by the tumor (Figure 2).



Figure 1. Contrast-enhanced two-dimensional axial CT images. (A) Renal mass and soral contrast material seen in the upper parts of the mass.

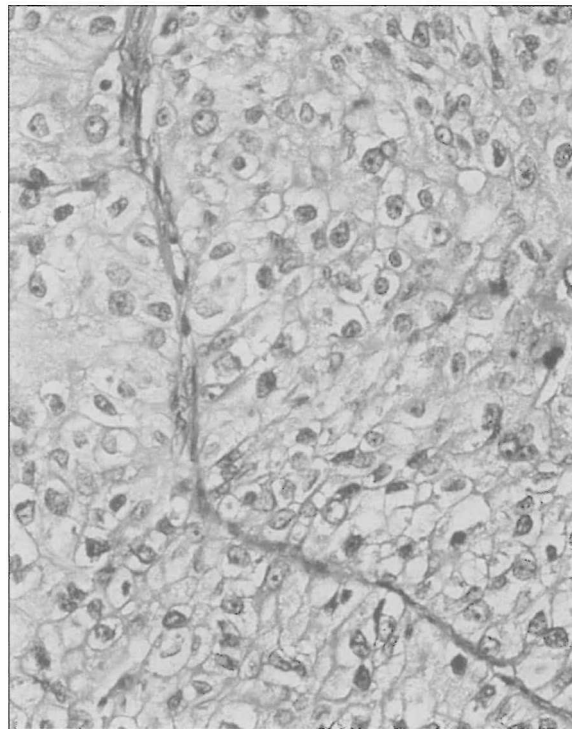


Figure 2. Pathologic evaluation of the left kidney. Histopathologic examination confirmed renal cell carcinoma in the kidney (HE x40).

Neither 13 lymph nodes from the mesocolon, nor 4 lymph nodes from perirenal tissue contained metastasis. No adjuvant treatment was given by departments of medical oncology and radiotherapy and the patient is under control program without any evidence of local recurrence and metastasis for 24 months.

DISCUSSION

Renal ectopia can present itself just with abdominal pain and is a predisposing situation to pathology in the genitourinary system (12). Ureter is usually shorter and sometimes tortuous and this anatomic variation predisposes to obstruction and bacterial infections. Vascular supply is always anomalous depending on the kidney's final resting site. In a case report of an ipsilateral ectopic kidney, a common origin of both the inferior mesenteric and single main renal artery was also being reported (13). The ureter usually enters the bladder with normally situated orifice on the same side of the kidney. In our case; the renal artery was originating from left common iliac artery and ureter could not be observed within the mass.

Presacral kidney with normal function requires no treatment. If the kidney is non-functioning, surgical intervention is often required.

There appears to be no increased risk of malignancy within an ectopic kidney (4). The incidence of neoplasms in the horseshoe kidneys is estimated to be 1% to 12% and more than 50% of them are renal cell carcinomas (14). However, it is not possible to give an increased incidence ratio for carcinomas in the ectopic kidneys with our current experience and knowledge. A metastatic carcinoma of the gallbladder due to renal cell carcinoma in the ectopic kidney has been reported in the literature (15). In the evaluation of a patient with right lower quadrant mass, metastasis to an ectopic kidney has also been reported (16).

Renal ectopia can present with non-specific vague abdominal complaints. Early detection and recognition of an ectopic kidney can prevent the long term complications. Malignancy in an ectopic kidney is a rare event but should be kept in mind for a patient with a mass in the pelvic region without normally located kidneys. In case of a solitary ectopic kidney, removal of the mass in the pelvic region without examining the other kidney may result with disaster. To avoid this, the mass must be accurately examined with multiple imaging techniques. Then the mass can be removed with similar application of oncological principles for isolated renal masses.

REFERENCES

1. Macksood MJ, James RE. Giant hydronephrosis in ectopic kidney in a child. *Urology* 1983;22:532-5.
2. Mateos Goni B. Presacral kidney. *Arch Esp Urol* 1989;42:112-4.
3. Muzafar MH. Presacral kidney. *Urology* 1985;26:488-9.
4. Stuart B. Bauer. Anomalies of the upper urinary tract. In: Walsh PC, Retik AB, Vaughan Jr. ED, Wein AJ (eds). *Campbell's Urology*. 8th ed. Philadelphia: The Curtis Center, 2002:1885-924.
5. Dretler SP, Olsson CA, Pfister RC. The anatomic, radiologic and clinical characteristics of the pelvic kidney, an analysis of 86 cases. *J Urol* 1971;105:623-7.
6. Kyroigeonis B, Stones J, Deliveliotis H. Ectopic kidneys with and without fusion. *Br J Urol* 1979;51:173-4.
7. Gleason PE, Kelalis PP, Husmann DA, Kramer SA. Hydronephrosis in renal ectopia: Incidence, etiology and significance. *J Urol* 1994;151:1660-1.
8. Shehata S, Park T, Choudhury M. Case profile: Bilateral pelvic ectopic kidneys. *Urology* 1984;24:502.
9. Malek RS, Kelalis PP, Burke EC. Ectopic kidney in children and frequency of association of other malformations. *Mayo Clin Proc* 1971;46:461-7.
10. Downs RA, Lane JW, Burns E. Solitary pelvic kidney: Its clinical implications. *Urology* 1973;1:51-6.
11. Samhan KA. Crossed ectopic kidney. Apropos of 3 cases. *Arc Esp Urol* 1981;34:193-8.
12. Connor JM, Brautigan MW. The ectopic kidney in the emergency department. *Ann Emerg Med* 1987;16:715-7.
13. Garti I, Nissenkorn I, Lerner M. Common origin of inferior mesenteric and main renal artery. *Eur Urol* 1986;12:215-6.
14. Briones JR, Pareja RR, Martin FS, et al. Incidence of tumoural pathology in horseshoe kidneys. *Eur Urol* 1998;33:175-9.
15. Coskun F, Cetinkaya M, Cengiz O, Adsan O, Kulacoglu S, Eroglu A. Metastatic carcinoma of the gallbladder due to renal cell carcinoma in the ectopic kidney. *Acta Chir Belg* 1995;95:56-8.
16. Lloyd TV, Paul DJ. Metastasis to an ectopic kidney presenting as a right lower quadrant mass. *J Urol* 1980;123:571-2.