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Ectopic pelvic kidney associated with uretero-pelvic junction obstruction: a case report

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Abstract. Ectopic kidneys though uncommon can be associated with other anomalies of the genitourinary system such as uretero-pelvic junction obstruction, vesicoureteral reflux and upper urinary tract abnormalities. These associations present surgical challenges in an ectopic kidney. We report the surgical management of a right ectopic kidney associated with uretero-pelvic junction obstruction and severe hydronephrosis. A 27-year-old male presented to Zenith Medical and Kidney Center in Abuja with complaints of recurrent, dull right flank pain of 1 year duration. Physical examination revealed a non-tender cystic mass extending from the right iliac fossa to the right hypochondrium. Abdominopelvic computed tomography revealed huge intraperitoneal non-enhancing hypodense ovoid cystic mass difficult to differentiate from the right ureter with severe intraperitoneal mass effect. Retrograde pyelogram done revealed right ectopic pelvic kidney with uretero-pelvic junction obstruction. The patient subsequently had right open Anderson-Hynes pyeloplasty. Intraoperative findings were right ectopic pelvic kidney with uretero-pelvic junction obstruction secondary to intrinsic narrowing at the junction and severe hydronephrosis. Postoperative recovery was uneventful with complete resolution of the presenting symptom. Ectopic kidneys can be associated with uretero-pelvic junction obstruction which presents diagnostic and surgical treatment challenges. Retrograde pyelography is an important radiological armamentarium for the proper diagnosis and subsequent treatment of this condition.

Keywords: ectopic pelvic kidney; hydronephrosis; obstruction

Introduction

While being the most common ectopic renal location, pelvic kidney is a rare anatomical variation found in approximately 0.08 % of the general population [1]. Ectopic kidneys have a reported incidence between 1 in 2,200 and 1 in 3,000 with the pelvic kidney being the most common location [2]. It can manifest bilaterally in 10–40 % of cases [3]. The incidence of uretero-pelvic junction obstruction (UPJO) in pelvic kidneys is relatively high and estimated at 22–37 % [4]. Ectopic pelvic kidney positioning occurs when the kidney fails to ascend to its upper abdominal location [5]. Ectopic kidneys were described as early as the 16th century by anatomists and may be found in a variety of locations: pelvic, iliac, abdominal, thoracic, contra-lateral or crossed [6]. Left-sided ectopia is reported slightly more than the right [7]. The excretory phase of computed tomography (CT) urography serves as the corner stone for diagnosing

this anomaly [8]. Open pyeloplasty has been the gold standard of surgical treatment of UPJO, including pelvic kidney, and surgical incision depends on the location of the ectopic kidney [9, 10].

Case presentation

A 27-year-old male who presented to Zenith Medical and Kidney Center in Abuja, Nigeria with complaints of recurrent, dull right flank pain of 1 year duration. There were no associated lower urinary tract symptoms or hematuria, no family history of kidney diseases.

Physical examination revealed a non-tender cystic mass extending from the right iliac fossa to the right hypochondrium.

Abdominopelvic CT scan revealed huge intraperitoneal non-enhancing hypodense ovoid cystic mass difficult to differentiate from the right ureter with severe intraperitoneal

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mass effect. Retrograde pyelogram done revealed right ectopic pelvic kidney with UPJO.

The patient subsequently had right open Anderson-Hynes pyeloplasty. Intraoperative findings were right ectopic pelvic kidney with UPJO secondary to intrinsic narrowing at the junction with severe hydronephrosis. Histopathology results revealed fibrosis at the ureteropelvic junction. Postoperative recovery was uneventful with complete resolution of the presenting symptoms.

Discussion

The age of our index patient was in contrast with reported similar case by Boughaba who reported it at the age of 8 years [11]. This is due to late diagnosis which is quite peculiar with our environment as most patients and their relatives have poor health seeking behavior coupled with paucity of specialists and well-equipped hospitals. Our patient had a right-sided ectopia which was in contrast with available studies in literature where left-sided ectopia was reported to be commoner than the right [7]. This index case was diagnosed following retrograde pyelogram as we could not make diagnosis after the conventional CT urography which was reported as the corner stone for the diagnosis of such anomaly [8]. Our patient had open pyeloplasty which was considered the gold standard for the surgical treatment of this condition [9, 10]. Endourological treatment has been reported for addressing shorter obstructions without a crossing polar vessel, particularly when one moiety is affected. It involves making an incision at the narrowed site using techniques such as laser, cold knife, or the Acucise balloon performed either through retrograde or antegrade percutaneous approaches [12]. This, however, has a high recurrence rate so pyeloplasty is still the preferred option and can be performed via open, laparoscopic or robot-assisted surgery even for ectopic pelvic kidneys [3, 13].

It is not possible to perform ureteric stenting as a treatment method in this case because the renal pelvis was located at the iliac fossa. Dynamic renal scintigraphy will tell about the split renal function of the kidney impaired due to UPJO. This guides subsequent surgical treatment as a split renal function of less than 10 % means the obstructed kidney is poorly functional so the patient will benefit from nephrectomy as the surgical treatment option. However, if the split renal function is greater than 10 %, the affected kidney is not poorly functional so the patient will benefit from pyeloplasty as the surgical treatment option.

Conclusions

Ectopic kidneys although rare has pelvic location as the most common one. They are mostly associated with uretero-pelvic junction obstruction which can present diagnostic and surgical treatment challenges. Retrograde pyelo-

gram is an important radiological armamentarium for the diagnosis of this condition. Pyeloplasty is the gold standard for the surgical treatment of ectopic pelvic kidneys with uretero-pelvic junction obstruction.

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**Тазова ектопія нирки, пов'язана з обструкцією мисково-сечовідного сегмента:
опис випадку**

Резюме. Актуальність. Ектопія нирки, хоча й рідко, може бути пов'язана з іншою патологією сечостатевої системи, як-от обструкція мисково-сечовідного сегмента, міхурово-сечовідний рефлюкс і аномалії верхніх сечових шляхів. Ці асоціації становлять хірургічні проблеми при ектопії нирки. Ми повідомляємо про випадок хірургічного лікування ектопії правої нирки, пов'язаної з обструкцією мисково-сечовідного сегмента й тяжким гідронефрозом. Двадцятисемирічний чоловік звернувся до Медичного та ниркового центру «Зеніт» в Абуджі (Нігерія) зі скаргами на рецидивуючий тупий біль у правому боці протягом одного року. При фізичному обстеженні виявлено нечутливу кістозну пухлину, що поширюється від правої клубової ямки до правого підребер'я. За допомогою комп'ютерної томографії черевної порожнини й таза діагностовано величезне внутрішньоочеревинне яйцеподібне кістозне утворення з низькою щільністю, яке важко диферен-

ціювати від правого сечоводу, з вираженим внутрішньоочеревинним мас-ефектом. На ретроградній пієлограмі виявлено тазову ектопію правої нирки з обструкцією мисково-сечовідного сегмента. Згодом пацієнту зробили відкриту пієлопластику Андерсона-Хайнса справа. Інтраопераційними знахідками були тазова ектопія правої нирки з обструкцією мисково-сечовідного сегмента внаслідок внутрішнього звуження у місці з'єднання і тяжкий гідронефроз. Післяопераційне відновлення пройшло без ускладнень із повним зникненням симптомів. Ектопія нирки може бути пов'язана з обструкцією мисково-сечовідного сегмента, що створює труднощі для діагностики й хірургічного лікування. Ретроградна пієлографія є важливим рентгенологічним інструментом для вчасної діагностики та подальшого лікування цього стану.

Ключові слова: тазова ектопія нирки; гідронефроз; обструкція