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Case Report

Congenital solitary pelvic kidney

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Abstract

The aim of the present study is to report a case of solitary pelvic kidney, a rare congenital condition, found during routine dissection of a 40-year-old male cadaver.

Key words [solitary] [congenital] [pelvic] [kidney]

Introduction

An ectopic kidney may be found in different locations, including the pelvic, iliac, abdominal and thoracic cavities [1]. Pelvic kidney has an incidence of 1 in 3000 while the incidence of congenital solitary kidney is reported to be 1 in 1000 [2].

However, in combination of the above mentioned types, i.e. solitary pelvic kidney, the rarity increases many fold and its incidence is reported to be 1 in 22000 [2, 3]. A solitary pelvic kidney may remain asymptomatic but at the same time may be associated with other congenital conditions or renal disease. An ectopic kidney may be misdiagnosed as an appendix mass or tumor leading to its removal [4]. Therefore, the knowledge of the possibility of this anatomical variation will be of help to the clinician in making of correct diagnosis and appropriate treatment.

Case Report

During routine dissection of a 40-year-old male cadaver, a solitary kidney was found at the pelvic brim close to the bifurcation of the right common iliac artery (Figure 1). The upper pole of the kidney was located at the 5th lumbar vertebral level and the kidney was extended down upto 2nd sacral vertebral level. The kidney was measured to be 8.5 cm in length , 5.5 cm in width and 2.5 cm in thickness. Three arteries were found supplying it, one branch arose from the bifurcation of the aorta, the second was from median sacral artery and the third was a branch from the right internal iliac artery. Two renal veins were draining into the left common iliac vein. The ureter was short, single and wide (megaureter) and was opening into the urinary bladder. On opening the urinary bladder a single ureteric orifice was found inside the bladder. Both the suprarenal glands were lying at 12th thoracic vertebral level. The superior suprarenal arteries on both the sides were found to be arising from inferior phrenic arteries, while middle suprarenal arteries were arising from the abdominal aorta and the inferior suprarenal artery on right side from the abdominal aorta, and on the left side from the inferior mesenteric artery. The suprarenal veins from both right and left side drained into the inferior vena cava. No other gross variation was seen in the cadaver.

Discussion

Solitary pelvic kidney has been reported by previous authors, these were found either incidentally during routine investigations, during operative procedures for some other reason or urological complaints due to complications that may arise in cases of solitary pelvic kidneys [2–6]. Stevens in 1937 collected all the 27 cases of solitary pelvic kidney reported till then and tabulated the findings. He emphasized the urologic management of such cases and the frequent association with genital anomalies in women [3]. Sakamoto et al. reported a

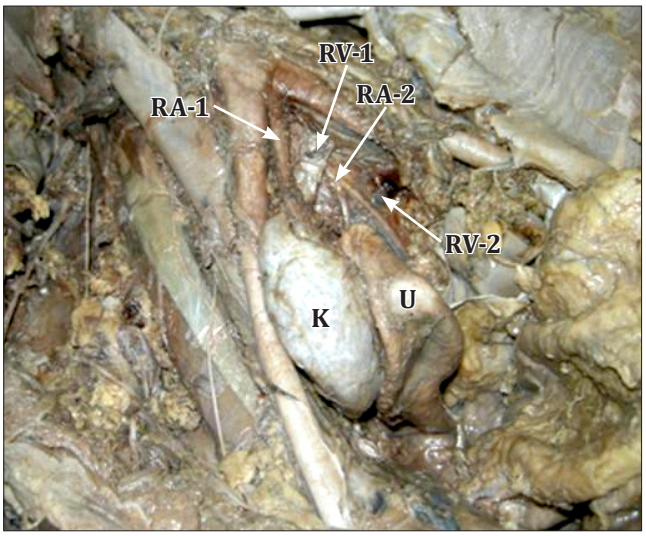

Figure 1. Photograph showing the congenital solitary pelvic kidney located close to the bifurcation of right common iliac vessels. *(**RA**: renal artery; **RV**: renal vein; **K**: kidney; **U**: ureter)*

case of solitary pelvic kidney encountered during laparoscopic colectomy [4].

Gulsun et al. reported a right pelvic kidney supplied by three arteries which arose from bilateral common iliac arteries and from ipsilateral internal iliac artery [5]. In the present case also we found three arteries but arising from the bifurcation of aorta, from the median sacral artery right internal iliac artery. There is a risk of injury to these renal vessels arising from unusual site during surgeries of this region.

In unilateral renal agenesis the males are more commonly affected and it is usually the left kidney that is absent [7]. The present case was also encountered in a male cadaver and the left kidney is absent. Absence of kidney results when the metanephric diveticulum fail to develop or the primordium of the ureter degenerate [7]. Pelvic kidney results from the failure of kidney to ascend. They are often supplied by multiple vessels, i.e aorta, external iliac or internal iliac artery [7]. The present case is a rare variant and deserves being reported, so that this possibility can be taken into account by the clinicians to prevent any misdiagnosis.

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