



ACCESSORY RENAL ARTERY AND ACCESSORY RENAL VEIN IN RIGHT KIDNEY- A CASE REPORT.

Anatomy

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ABSTRACT

In the abdomen it is not uncommon to find anatomical variations in the origin of vessels. During dissection of the abdomen, it was noticed that the kidney on the right side had an accessory renal artery and an accessory renal vein. There was hypertrophy and presence of a large single cortical cyst in the right kidney. The knowledge of anomalies of renal vessels is necessary before any therapeutic procedures in the abdomen.

KEYWORDS

Male cadaver, accessory renal artery, accessory renal vein

Introduction

Vascularization of Kidney is one of the interesting field for both anatomists and surgeons. Now a days kidney transplantation is very common surgery. It involves removal of kidney from the donor and implanting it into the recipient, anastomosing every vessel with the recipient's vessels. So the knowledge of vessels supplying the kidney and it's possible variations are of great importance for the operating surgeon.

Normally each kidney is supplied by one artery and one vein. The renal artery normally originates from the lateral or anterolateral aspect of the abdominal aorta just inferior to the origin of the superior mesenteric artery.¹⁻³ Many researchers have reported various variations in origin, number and branching pattern of the renal arteries. One of the most commonly noted variation is the presence of an accessory renal artery, which has been reported in 30% of cases.^{4,5,6} Accessory renal artery commonly arises from abdominal aorta. It may rarely arise from superior mesenteric, inferior mesenteric and common iliac artery. Felix tried to give the etiological basis of these variations from the embryological point of view where dorsal aorta gave the lateral mesonephric branches.⁷

Observations

During routine dissection of abdomen of 60 years old embalmed male cadaver we observed accessory renal artery and accessory renal vein on the right side. Kidney received two renal arteries on right side. Both renal arteries originated from abdominal aorta. Main right renal artery originated 1.7 cm below the superior mesenteric artery and entered the the hilum of the kidney. Accessory renal artery originated 10.8cm below the superior mesenteric artery and entered the lower pole of the kidney. (Fig 1).

The main right renal artery arose from lateral aspect of abdominal aorta and reached the hilum of the kidney by passing behind the inferior vena cava and the right renal vein and divided in to anterior and posterior divisions. The accessory inferior renal artery originated from anterior aspect of abdominal aorta 10.8 cm below the superior mesenteric artery. The inferior renal artery reached the lower pole of the kidney by passing anterior to the inferior vena cava. In our case there was one accessory renal vein draining the right kidney and this passes below the accessory renal artery (Fig 2). We also noted that there was hypertrophy (14.5cmx7.5cm) of right kidney and absence of left kidney. There was also presence of large renal cortical cyst near the upper pole.



Fig 1 Photograph showing accessory renal artery originating from abdominal aorta passing posterior to ureter. AA-abdominal aorta, RA-main renal artery, ARA-accessory renal artery, U-ureter



Fig 2 Photograph showing accessory renal vein (ARV) draining in to IVC, passing posterior to ureter. AA-abdominal aorta, ARA-accessory renal artery, IVC-inferior vena cava

Till now only few studies have mentioned about the coincidence of accessory renal artery and accessory renal vein in one cadaver. But the available literature confirms the prevalence of accessory renal vein on the right side is much higher than the left side as seen in present study. Gupta et al. noticed that the incidence of accessory renal vein on the right side is 33% and on the left side it is 3.3%.⁸ Also according to Dhar et al in cadavers multiple renal veins were less common on the left (3 %) side than on the right side (12 %).⁹ Bayramoglu et al observed bilateral accessory renal arteries originating from abdominal aorta and accessory right renal vein accompanying the accessory right renal artery in their study. They also observed that all accessory vessels were located posterior to ureter on right side¹⁰. Likewise the present study

has also observed unilateral accessory renal artery and accessory renal vein supplying the lower pole of the right kidney which passes posterior to the ureter. Brodei et al in their study on renal vascularization found 54 cases of accessory renal artery that was taking origin from aorta. They also noted that some cases of accessory renal artery were associated with other urovascular variations such as presence of accessory renal vein in four cases on the same side and persistence of the fetal renal lobulation on the adult kidney in three cases.¹¹ This study very well correlate with the present case report.

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