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RESEARCH ARTICLE

A CASE REPORT: - AN ACCESSARY LEFT RENAL ARTERY

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ABSTRACT

The origin of the arteries in the abdominal aorta presents a number of anatomical variations so frequently. The variations of coeliac trunk, renal arteries and gonadal arteries are very common. The knowledge of anatomical variations of abdominal aortic branches and renal arteries is essential for surgeons in kidney transplantation surgeries, ureteric surgeries, abdominal aortic aneurismal surgeries to prevent vascular complications during surgery , and post surgical complications . In routine dissection sessions of 1st year medical students we observed a variation in the origin of renal arteries on the left side kidney in a 55years aged male cadaver and we are reporting an accessory left renal artery at the lower pole of kidney along with the main left renal artery.

INTRODUCTION

The kidneys receive the blood supply through a pair of renal arteries one artery to the right and one to the left. The renal arteries pass through the hilum of the kidney in between renal vein which lies anteriorly and pelvis of the ureter posteriorly. Normally each kidney supplies by one renal artery. The renal arteries are a pair of wide bored straight vessels arising at right angles from the sides of abdominal aorta slightly below the origin of superior mesenteric artery. The anatomical variations of vascular structures from the aorta are not uncommon. Sometimes an accessory renal artery arising from the aorta supplies to the upper pole [or] lower pole of the kidney without passing through the hilum, The accessasry renal artery is observed in 30% of individuals [1]. The persistence of one of a foetal arteries from the aorta is common in 30% of population, especially a vessel from aorta to the lower pole [2]. The probable etiology of the variations has been explained by embryological development of accessary arteries from the lateral mesonephric branches of the dorsal aorta 3 . Angiographic studies prior to renal surgery are usually advisable, lack of awareness of arterial vascular variations can result in over whelming haemorrhage at surgery , If torn a polar artery usually tares from the origin place on aorta without leaving a stump to clamp and making control exasperatingly difficult- by Ernest.w. April [4]. The studies on cadavers have shown that there is more than one renal artery in 150-20% of cases on right & left sides respectively. As the renal arteries are end arteries anastomosis must be made to all the arteries of the donor kidney in kidney transplantation operations- explained by Lee- Mc. Gregor's synopsis [5]. The knowledge of vascular variations regarding renal arteries and accessory vessels warns the surgical specialists during transplantation surgeries, Aneurysm surgical procedures and urological surgical interventions [5].

Case Report

The anatomy dissections for 1st year medical graduates in the department, an anatomical variations of accessory renal artery on the left side is observed in a male cadaver aged about 55 years . The abdominal cavity was opened according to Cunningham's dissection manual. The viscera of the greater sac observed ie: stomach, liver, pancreas, loops of small intestine. The branches of abdominal aorta traced ie : inferior phrenic branches, coeliac trunk , superior mesenteric artery and other branches. The small intestine along with superior mesenteric artery pushed laterally to expose the abdominal aorta properly. The renal arteries, the inferior mesenteric artery dorsal lumbar arteries and terminal branches are traced. During the dissection we observed an acessary renal artery arised from anterolateral aspect of aorta and passed to the lower pole of kidney between the origins of left main renal artery and inferior mesenteric artery, the left main renal artery took origin from lateral aspect of aorta and reached the hilum of left kidney. on the right side we observed the right main renal artery arised from lateral side of aorta. The left main renal artery passed between the renal vein and pelvis of ureter and reached the hilum of the kidnev.

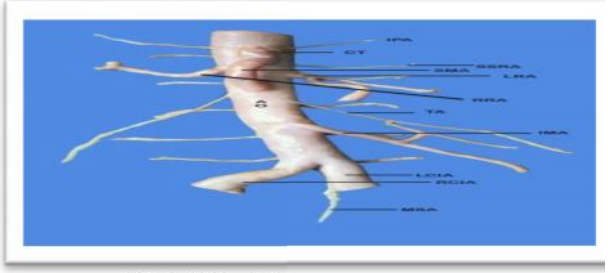

Fig 1 Abdominal Aorta and branches..

IPA – Inferior phrenic Artery, CT- celiac trunk, SSRA-

superior supra renal artery, LRA-left renal artery, SMA-superior mesenteric artery, RRA-right renal artery, TA-testicular artery, RCIA-right common iliac artery, LCIA- left common iliac artery, MSA- median sacral artery .

The left accessory renal artery arised from anterolateral part of aorta passed to the lower pole of the kidney anterior to the left ureter. It is small in length than the left main renal artery, the variation photographed fig [2]

Fig 2 Abdominal Aiota showing left accessary renal artery at the lower

CT-celiac trunk, LRA-left renal artery, RRA- right renal artery, SMA-superior mesenteric artery, LARA-left accessary renal artery, RCIA- right common iliac artery, LCIA- left common iliac artery, LU-left ureter.

DISCUSSION

To know the anomalies in the formation and development of kidneys and renal arteries the knowledge of embryology is essential. In the typical pattern one artery to the right and one artery to the left kidney arise from the lateral aspect of abdominal aorta to give blood supply to the kidney on that side. The variations in the origin of additional renal arteries has been explained by many researchers [7]. The accessasry renal artery usually arises from the aorta above or below the main renal artery and follow it to the renal hilum. As we reported the left accessory renal artery arised on anterolateral aspect of the aorta just 31mm below the left main renal aretey and 53mm below the superior mesenteric artery. It passed along the main left renal artery to reach the lower pole. It passed in front of the pelvis of the ureter to reach the lower pole . The names given to the accessory renal arteries as superior polar arteries, hilar arteries and lower polar arteries, additional renal arteries by different authors [8] a superior[or] inferior origin is not uncommon the superior acessary renal artery reaches the superior pole where as inferior accessory renal artery reaches inferior pole of the kidney . The inferior accessory renal artery crosses the ureter anteriorly and it may causes compression which leads to hydromephrosis. The incidence of additional renal arteries reported by researches varies between 8.7% to 75.7% and they can cause hydronephrosis due to obstruction [9]. In the present case the left kidney presents one main left renal artery and one accessory inferior renal artery.

The knowledge of anomalies of renal arteries is very important to perform surgeries for transplantations, Aneurysms of aorta, ureter and angiographic interventions. Even though it is very rare the fibro muscular dysplasia in a accessory renal artey can lead to renovascular hypertention. Renal angiography should be advisable prior to renal transplatons, ureteric calculi surgeries aneurysm surgeries. Every additional renal artery is related to segmental arties, so that there is risk of hemorrhage during urological surgeries produces segmental ischemia's and produces post operative raise of hypertension ref 10 the awareness for accessory renal arteries through angiographic studies prevent vascular complications during surgeries ref 11-12. We reporting inferior accessory renal artery for awareness regarding additional vascular anamolies and complications related to these anomalies.

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