

A STUDY ON BRANCHING PATTERN OF RENAL ARTERIES

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ABSTRACT

Renal artery variations are becoming more important due to the gradual increase in interventional radiological procedures, urological and vascular operations, and renal transplantation. In the present study out of 80 kidneys 40(50%) kidneys showed the presence of additional renal arteries. The results are statistically significant. The presence of additional renal arteries was found unilaterally in 14 cadavers and bilaterally in 6 cadavers. In 10 kidneys additional artery towards the superior pole (Superior polar artery) was observed and in 10 kidneys inferior polar arteries were seen. And superior and inferior polar arteries both are present in 20 kidney specimens. In 40 kidney specimens we were found duplicated renal arteries. This multiple renal artery variations are of great clinical significance to radiologists, nephrologists and urologists in imaging and urological procedures.

KEYWORDS: Renal artery; Superior polar artery; Inferior polar artery.

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INTRODUCTION

The kidneys are one of the vital organs in the human body. It receives rich blood supply, nearly 25% of the cardiac output pass through the renal arteries to be filtered by the kidneys. These are end arteries with no anastomosis. Variations in the number and arrangement of the renal vessels are extremely common [1]. The paired renal arteries arise from the aorta just below the origin of the superior mesenteric artery and takes 20% of cardiac output. Near the hilum of the kidney, each renal artery divides into anterior and posterior branch, which in turn divides into a number of segmental arteries supplying the different renal segments. Classically, a single renal artery supplies each kidney. Variations in the number and arrangement of the renal vessels are extremely common. The so called aberrant or accessory arteries were in fact, normal segmental arteries.

As the invasive interventions such as renal transplantation, interventional radiologic procedures and urologic operations increase, awareness of the possible variations of the renal arteries is necessary for adequate surgical management in the aforementioned specialties [2]. Knowledge of the variations of renal vascular anatomy has importance in exploration and treatment of renal trauma, renal transplantation, renovascular hypertension, renal artery embolization, angioplasty or vascular reconstruction for congenital and acquired lesions, surgery for abdominal aortic aneurysm and conservative or radical renal surgery. The advent of more conservative methods in renal surgery has necessitated a more precise knowledge of renal vascularisation and its importance in partial and total renal transplantation surgeries[3]. The objectives of present study are to study the origin, course of renal arteries and to study the aberrant and accessory renal arteries.