

Main and accessory renal arteries - A morphological study

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SUMMARY

The present work was undertaken to document the incidence of accessory renal arteries in kidney specimens obtained from subjects of Indian origin.

Comprehensive dissection carried out in the dissection hall of Anatomy Department of All India Institute of Medical Sciences (India) on forty cadavers over a period of five years revealed a single main renal artery on either side in 80 % of the specimens. The mean length of the main renal artery was 31.05 ± 12 and 25.0 ± 9.5 mm on the right and the left side respectively. Multiple (accessory) renal arteries were observed in 20 % of the specimens with unilateral anomaly (15 %) being more commonly encountered than bilateral anomaly (5 %). The mean length of the accessory renal artery was 36.4 ± 10 and 36.6 ± 11 mm on the right and the left side respectively. The accessory artery when present, invariably crossed the anterior aspect of the ureter.

Familiarity about the possible variations in the renal arterial pattern are especially important for the personnel dealing with kidney retrieval and transplantation, various endourologic procedures and innumerable interventional techniques. In the majority of such situations, it is the comprehensive knowledge of the renal arterial pattern which remains the key issue in determining the technical feasibility of surgical interventions as well as the post operative management.

INTRODUCTION

Conventionally, the renal arteries are described as the lateral branches of the abdominal aorta arising inferior to the origin of superior mesenteric artery (Gray's, 1998). Variations in the pattern of renal arteries have been reported more frequently than other large vessels in the literature and alternative nomenclatures have been used to describe the same. These include aberrant artery (Bailey and Love, 1942); supernumerary artery (Anson et al. 1948) etc. According to Graves (1956), any artery arising from the aorta in addition to the main renal artery should be named 'accessory' and the renal arteries arising from sources other than the aorta should be called 'aberrant'. The frequency of aberrant renal arteries has been reported to be much lower than accessory renal arteries (von Poisal and Spangler, 1969; Jeffery, 1972) that is from common iliac – 0.7%, from superior mesenteric – 0.3% and very