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Vascular Variation in Horseshoe
Kidneys: Critical Evaluation of Current Classification and Report of a
Unique Variant

Horseshoe kidney, with an incidence of 1 in 400 in the UK, is a congenital anomaly where an isthmus of functional tissue is retained between the inferior renal poles. However, their vascular supply is highly variable. In over 80% of reported cases, one or two additional arteries arise directly from the abdominal aorta to supply the middle or lower segments on each kidney. Within these subjects, the common iliac arteries (CIAs) may also give branches to supply the lower segments. The classification system still in use today was originally described by Graves (1969) based on 14 horseshoe kidneys, but it can no longer encompass the wide range of variation that has been observed since then. A major challenge in devising a comprehensive categorisation method is that horseshoe kidney specimens are difficult to obtain for dissection, as a review by Natsis et al. (2014) found only 71 published cases. We suggest that a revised classification based on clinically relevant criteria may be more useful in practice. In addition, we present a unique case of a horseshoe kidney where a second bilateral supply arises from a common aortic trunk, with a branch from the left CIA supplying the inferior pole.