Scholars Journal of Applied Medical Sciences (SJAMS) **ISSN 2320-6691 (Online)**
Sch. J. App. Med. Sci., 2014; 2(5C):1715-1716 **ISSN 2347-954X (Print)**

(An International Publisher for Academic and Scientific Resources)
www.saspublishers.com **DOI:** 10.36347/sjams.2014.v02i05.045

Research Article

A Research on the Incidence of Renal Vessel Arrangement at Hilum of Kidney

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Abstract: Occurence of the variant renal blood vessels is important in cases of pathologies, radiological interventions, renal transplants, and other surgical approaches and their presence should be born in the minds of all medical fraternities . The present study was performed on twelve kidneys from six cadavers to observe the variations of the renal vasculature. Out of the twelve kidneys studied , only one kidney showed variations in renal vessels unilaterally resulting in 8.3% variation in arrangement of renal vessels. The right renal artery divided into two branches anterior and posterior before reaching the hilum out of which the anterior trifurcated in front of the renal vein while the left renal artery entered directly at hilum. The study will help the surgeons and radiologists during their interventions.
Keywords: renal artery, renal vein, hilum,variation ,arrangement.

INTRODUCTION

The renal hilum is a vertical slit on the medial border of the kidney, which is bound by the thick lips of the renal substance [1]. Classically, the topographic arrangement of the hilar structures is referred to in the antero-posterior sense, as its vein-artery-pelvis [2]. The renal arteries are a pair of lateral branches arising from the abdominal aorta at the upper lumbar level . The right is longer owing to the location of the abdominal aorta more towards the left side of midline. Each renal artery divides into anterior and posterior divisions at or very close to the hilum of the kidney. Variation in the number, source, branching and course of the renal arteries are common. The relative positions of the structures at the hilum are the renal vein , the renal artery and the pelvis anteriorly, middle and posteriorly respectively .

MATERIALS AND METHOD

Routine dissection method was followed as is conducted for exposure of kidney and renal vessels. In this study , twelve kidneys from six cadavers were studied to observe the variation in arrangement of structures at hilum in the department of anatomy.

OBSERVATIONS AND RESULTS

In our study we observed an anatomical variation in the arrangement of renal vessels at the hilum in an old female cadaver. The variation observed is described below : Out of twelve kidneys studied , only one kidney exhibited variation unilaterally that is constituting 8.3% of the variation. Rest of kidneys showed normal pattern at hilum.

The right renal artery divided into two branches anterior and posterior before reaching the hilum, out of which the anterior trifurcated in front of the renal vein which constitutes an important variation of renal vessel arrangement at hilum. Left renal artery did not show any variation.

Fig-1: Classic variation with anterior branch renal artery trifurcating and coming to lie anterior to the renal vein

DISCUSSION

In one of the study, they observed that the main trunk of the renal artery had divided into 3 segmental branches before it entered the renal tissue[3]. Similarly, another author observed 2 segmental arteries on the right side [4]. Such variations in the varied pattern of the divisions of the renal artery in the hilar region are generally associated with renal malformations in the embryo [5]. In our study we found 8.3 % variation in the arrangement of renal vessels at the hilum. Each renal artery gives off one or more inferior suprarenal arteries and also branches to perinephric tissues in its extra renal course[6]. One of the authors had given detailed accounts of renal arteries and its microvasculature[7]. Bilateral additional renal arteries originating from abdominal aorta, an additional right renal vein and retro aortic left renal vein[8]. One of the cases showed that both multiple renal arteries and veins bilaterally[9].

CONCLUSION

Knowledge about the variations at the renal hilum are very important for the anatomists, surgeons and interventional radiologists. In our study we found 8.3% variation in the arrangement pattern at renal hilum which should be known to all.

REFERENCES

1. Richard S Snell. Clinical anatomy by regions. Walters Kluwer- Lippincot Williams and Wilkins. 8th edition; p 260-64.
2. Standrings Gray's Anatomy. The Anatomical Basis of Clinical Practice. Elsevier Churchill Livingstone, New York. 38th edition; p 1271-74.
3. Pereira-Correia JA, Valentim LS, Castro KF, Gasque GP, Celina AF, Rosári CAF, Prinz, RAD; Analysis of renal hilum extraparenchymal structures in Brazilian adult human cadavers. Euro J. Anat, 2009; 13(3):145-53.
4. Arora AK, Verma P, Lalit M, Mahajan A, Sharma M; Variant Segmental Renal Arteries in The Right Kidney-Clinical Correlations-A Case Report. Anat Physiol, 2012; 2(103):2161-0940.
5. Bayramoglu A, Demiryurek D, Erbil KM; Bilateral additional renal arteries and an additional right renal vein associated with unrotated kidneys. Saudi Med Journal, 2003; 24: 535-37
6. Schneider U; Renal Arteries, Anat Anz, 1969; 124:278-291.
7. Horacek MJ, Earle AM, Gilmore JP; The renal microvasculature of the monkey: an anatomical investigation. Journal of anatomy, 1986;148:205.
8. Mandal S, Mandal P, Basu R**;** Bilateral Accessory Renal Arteries, Additional Right Renal Vein and Retroaortic Left Renal Vein-A Case Report. Int J Health Sci Res, 2013;3(2):88-93
9. Harvey RW; A case of multiple renal arteries. The Anatomical Record, 1914; 8(6):333-339.