

# The Journal of Phytopharmacology

(Pharmacognosy and phytomedicine Research)

## Research Article

ISSN 2230-480X

JPHYTO 2016; 5(4): 135-136

July- August

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### Dr. Harshitha M.S

Assistant Professor, Department of Rachana Shareera, S.D.M.College of Ayurveda, Kuthpady Udipi-574118, Karnataka, India

### Dr. Chethan Kumar V.K

Associate Professor, Department of Kaumarbhritya, S.D.M.College of Ayurveda, Kuthpady, Udipi-574118, Karnataka, India

## Variation in the origin of left testicular artery and drainage of right testicular vein

Harshitha M.S, Chethan Kumar V.K

### ABSTRACT

During routine dissection of 65 year old male Indian cadaver posterior abdominal wall, variations in the testicular vessels were observed. The left testicular artery arose from the left accessory renal artery, which originated from the ventral aspect of abdominal aorta. There were two right testicular veins which drained to right renal vein.

**Keywords:** Accessory renal artery, Renal artery, Renal vein, Testicular artery, Testicular vein.

### INTRODUCTION

The testicular artery is a branch of the abdominal aorta given off at the level of vertebra L2 below the renal artery. The testicular arteries may vary at their origin, they may be missing, or one or both the arteries may arise from the renal artery, suprarenal artery or lumbar artery. The testicular veins accompany the artery<sup>[1]</sup>. The veins emerging from the testis form the pampiniform plexus. The plexus condenses in to four veins at the superficial inguinal ring. Ultimately one vein is formed which drains in to inferior vena cava on right side and in to left renal vein on the left side. Congenital variations of the testicular vein include variation in the course, areas of drainage and termination<sup>[2]</sup>.

The variations in the origin of artery and variation in vein is common and has been noted by several authors. But variations of both the testicular artery as well as the testicular vein have been not frequently found. So here is an attempt to bring forth the existing variation of both testicular artery and vein.

The knowledge about variations of the testicular vessels may be helpful for the surgeons, clinicians as well as the radiologists to deal with the surgery and examination in cases of male sterility as a consequence of varicocele.

### MATERIALS AND METHODS

During the routine dissection of undergraduate classes, a 65 year old male cadaver of Indian origin, in the Department of Rachana Shareera, S.D.M.C.A, Udipi, exhibited two variations of testicular vessels.

### OBSERVATION

**Testicular artery:** The left testicular artery had its origin from the left accessory renal artery. The left accessory renal artery had its origin from the ventral aspect of the abdominal aorta 2cm below the left renal artery. The left accessory renal artery ran a short course horizontally and entered the lower pole of left kidney. The left testicular artery took origin from the medial end of the accessory renal artery. The right testicular artery had the normal course. It took origin from the ventral aspect of the abdominal aorta little below the renal arteries (Fig. 1).

**Testicular veins:** The left testicular vein had the normal course. It drained to the left renal vein. On the right side there were two testicular veins, both drained to left renal vein instead of directly draining to the inferior vena cava (Fig. 2).

### DISCUSSION

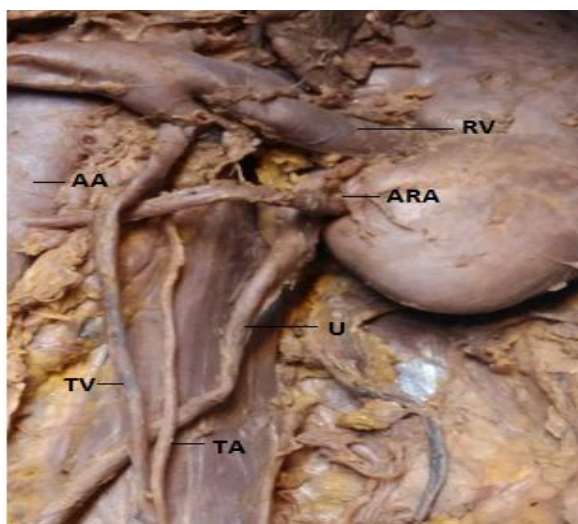
The anatomy of the testicular vessels has great importance due to the development of new operative techniques within the abdominal cavity for operations such as varicocele and undescended testis<sup>[3]</sup>. During the laproscopic surgery of the male abdomen and pelvis, most of the complications are due to the unfamiliar anatomy in the operative field<sup>[4]</sup>. Awareness of variations of the testicular vessels, such as those being reported here, becomes important during the above mentioned surgical procedures.

### Correspondence:

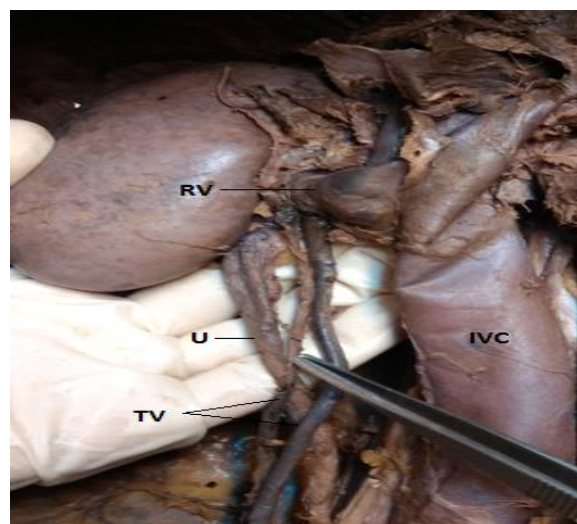
#### Dr. Chethan Kumar V.K

Associate Professor, Department of Kaumarbhritya, S.D.M.College of Ayurveda, Kuthpady, Udipi-574118, Karnataka, India

Email: drchethankumar[at]gmail.com



**Figure 1:** AA-Abdominal aorta, RV- Renal vein, ARA-Accessory renal artery, U-Ureter, TA-Teaticular artery, TV-Testicular vein



**Figure 2:** RV- Renal vein, U-Ureter, TV-Testicular veins, IVC-Inferior vena cava

Accessory renal artery: Embryological explanation of these variations has been presented and discussed by Felix [5]. In an 18mm fetus, the developing mesonephros, metanephros, supra renal glands and gonads are supplied by a pair of lateral mesonephric arteries arising from the dorsal aorta.

Felix divided the arteries in to three groups as follows:- The first and second arteries as cranial, the third to fifth arteries as middle and 6<sup>th</sup> to 9<sup>th</sup> arteries as the caudal group. The middle group gives rise to renal arteries. Persistence of more than one artery of middle group results in multiple renal arteries. Thus the multiple renal arteries in our study are as a result of persisting lateral mesonephric arteries from the middle group.

Testicular veins can also have variations with regards to their number, course and termination. Regarding the variable number of testicular veins on each side, a duplicated right testicular vein was noticed in 4% of specimens in a study and in 15% of population in another study [6,7]. The duplicated left testicular vein has been observed in 15% of specimen studied [8]. Variations in the terminations of the testicular veins have also been reported. The right testicular vein might drain in to right renal vein, accessory renal vein or lower part of inferior vena cava [9]. As observed in the present case, developmentally the two veins which emerge out from the deep inguinal ring have not united to form a single vein. Since there were two veins directly drained to renal vein.

## CONCLUSION

Functionally the variations observed in the present case may not cause any problem but it might cause confusions in assessing the radiological findings or during retroperitoneal surgeries. A deeper understanding of these variations and their special relations to adjacent vessels is especially significant in avoiding complications in surgical and diagnostic intervention.

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## HOW TO CITE THIS ARTICLE

Harshitha MS, Chethan Kumar VK. Variation in the origin of left testicular artery and drainage of right testicular vein. *J Phytopharmacol* 2016;5(4):135-136.