

Right Testicular Vein Draining into Right Renal Vein: A Case Report

SANTANU KUMAR SARMA¹, ALAKESH GOGOI², JAYASRI DEVI³

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ABSTRACT

During routine dissection of an adult male cadaver about 50 years of age, the right testicular vein was seen to drain into the right renal vein at a right angle which is rare. At a 90° angle, the left testicular vein drain into the left renal vein. The caudal part of subcardinal vein is responsible for the development of gonadal vein and it drains into the supra-subcardinal anastomosis. In this exceptional case, the right supra-subcardinal anastomosis instead contributed to the formation of the right renal vein, which consequently received the right testicular vein. On the left side, the supra-subcardinal anastomosis is incorporated into the left renal vein, serving as the drainage site for the left gonadal vein. This pattern of drainage has to be kept in mind by the physicians as this may lead to varicocele on the right which may be implicated in male infertility.

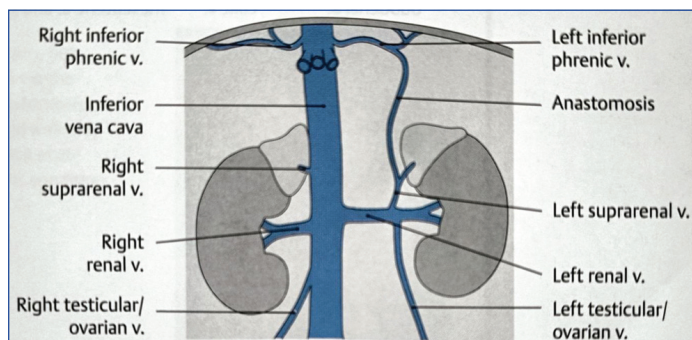
Keywords: Infertility, Supra-subcardinal anastomosis, Varicocele

CASE REPORT

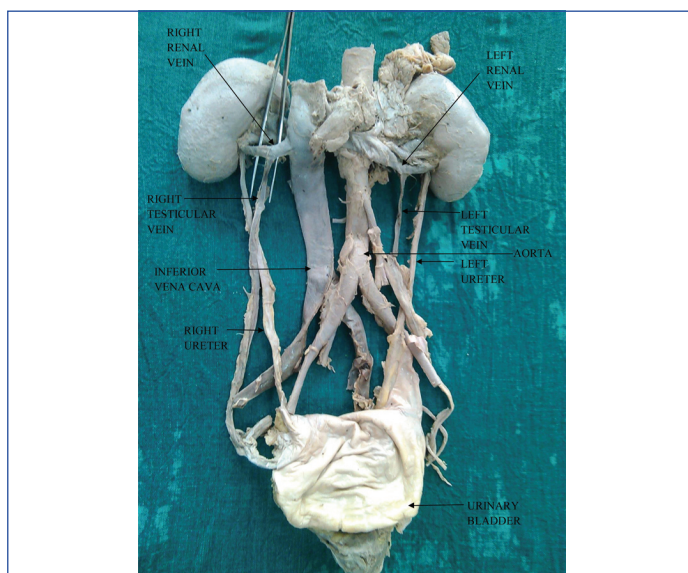
During routine dissection of an adult male cadaver about 50 years of age, the right testicular vein was seen to drain into the right renal vein at a right angle which is rare. The left testicular vein was seen to drain into the left renal vein at a right angle which is normal. Conventional dissecting methods were used for dissection of the abdomen. A midline vertical skin incision from the xiphoid process to the pubic symphysis encircling the umbilicus, a second incision over the costal margins from the midaxillary line to the xiphoid process and lastly an incision from the anterior superior iliac spine to the pubic symphysis were made. All the structures and viscera anterior to the kidneys were studied meticulously and then removed from the abdomen. No other abnormality was seen in the surrounding structures or viscera. [Table/Fig-1] shows the normal anatomy of drainage. [Table/Fig-2] shows in-situ position of the kidneys along with ureters, urinary bladder and blood vessels in anterior view after removal of other viscera. [Table/Fig-3] shows the kidneys, renal veins, testicular veins, ureters, urinary bladder, inferior vena cava and aorta in anterior view after being taken out of abdominal cavity. The right testicular vein can be clearly seen [Table/Fig-3] draining into the right renal vein at a right angle.



[Table/Fig-2]: Photograph showing in-situ position of the kidneys along with ureters, urinary bladder and blood vessels in anterior view.



[Table/Fig-1]: Photograph showing the normal anatomy of drainage of right testicular vein into inferior vena cava and left testicular vein into left renal vein (Taken from Thieme *Atlas of Anatomy*. 4th edition p 525).



[Table/Fig-3]: Photograph taken in anterior view after being taken out of abdominal cavity.

DISCUSSION

Review of literature shows that only a few researchers found this rare pattern of the right testicular vein draining into the right renal vein at right angle. Abnormal drainage of right testicular vein into right renal vein was found to be 4.16% by Sharmistha B et al., 6.6% by Gupta R et al., 8.3% by Shakya P et al., and 10% by

Phalgunan V et al., [1-4]. Gardner S, in his case report also found this rare drainage of the right testicular vein [5]. Similar findings were observed by Paraskevas GK et al., [6]. Other studies have an incidence of 1% [7], 1.25% [8], or 5% [9]. The other termination sites are the convergence of the inferior vena cava and right renal vein [10], the left margin of the inferior vena cava [11], the prerenal segment of the inferior vena cava [12], the lower portion of the inferior vena cava [13], the right subcostal vein [14]. Recent attention has focused on gonadal venous anatomy, driven by its potential utility in renal vein lengthening procedures for live donor kidney transplants. The gonadal veins also play a crucial role as a point of access for innovative treatments of varicocele, including percutaneous retrograde varicocele occlusion and laparoscopic varicolectomy in men, as well as pelvic congestion syndrome in women. [15].

Research suggests that the formation of varicoceles, which typically occur on the left, may be caused by the right-angled junction of the left testicular and renal veins. Additionally, varicoceles have been shown to increase testicular temperature and disrupt spermatogenesis, potentially affecting fertility [16,17]. Extensive and in-depth information about various vascular anomalies can help reduce injuries to the testicular vein.

CONCLUSION(S)

While performing operative procedures of the posterior abdominal wall, surgeons should have a proper acquaintance with the distinctions of the testicular vein to avoid accidental injury to the testicular vein, thereby leading to infertility. Reporting more similar cases of rare variations of the testicular vein is the need of the hour to enrich the existing database.

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PARTICULARS OF CONTRIBUTORS:

1. Assistant Professor, Department of Anatomy, Fakhruddin Ali Ahmed Medical College, Barpeta, Assam, India.
2. Assistant Professor, Department of Anatomy, Nagaon Medical College, Nagaon, Assam, India.
3. Professor, Department of Anatomy, Fakhruddin Ali Ahmed Medical College, Barpeta, Assam, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Santanu Kumar Sarma,
Assistant Professor, Department of Anatomy, Fakhruddin Ali Ahmed Medical College,
Barpeta-781301, Assam, India.
E-mail: sksarma7@gmail.com

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