

Case Report

RIGHT TESTICULAR VEIN VARIATIONS AND ITS IMPLICATIONS: A CASE REPORT

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ABSTRACT

Background: The kidneys lie in the retroperitoneal space on the posterior abdominal wall on either side of the T12-L3 vertebrae. The right kidney usually lies more inferior than the left kidney because of the presence of the liver on the right side. Congenital variations of the testicular vein include variation in the course, areas of drainage and termination. The anatomical variations of the testicular veins are attributed mainly to their embryologic origin. The right testicular vein usually drains into IVC just below the renal vein, but sometimes drains into the right renal vein. In the present study, bilateral variations of the testicular vessels were observed and these variations are of some clinical significance. The bifurcated right testicular vein might be a predisposing factor for the right sided varicocele.

Materials and Methods: Presenting variations were found at the department of anatomy, Southern Medical University, Guangzhou P.R, China, during our routine Anatomy dissections.

Discussion: The right testicular vein drains blood into the inferior vena cava, while the left testicular veins drains into the left renal vein. The anomaly discovered was that both the left and right testicular veins drained into the left renal vein. Testicular venous drainage is done through the pampiniform plexus, which in the region of the internal inguinal ring gives pathway to the testicular vein. The left testicular vein discharges in the left renal vein in a straight angle, whereas the right testicular vein discharges directly in the inferior vena cava in an oblique angle. An anomalous path of the right testicular vein was observed on the cadaver. In our dissections also we identified The right testicular vein bifurcated into two veins just before its termination and both the branches terminated into Right renal vein instead the inferior vena cava during our dissections and as usual the left testicular vein drained into Left renal vein.

Conclusion: The Variations can influence testicular drainage and even lead to varicocele, one of the causes of male infertility. Variations in the number and in the local of termination are frequent. Abnormalities of testicular vessels may lead to loss of gametogenesis and hormone Production. Testicular vessels may be clinically, radiologically, surgically and functionally important.

KEY WORDS: Testis, Right Testicular Vein, Inferior Vena Cava, Right Renal Vein.

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Access this Article online

Quick Response code



DOI: 10.16965/ijar.2016.261

Web site: International Journal of Anatomy and Research
ISSN 2321-4287
www.ijmhr.org/ijar.htm

Received: 13 Jun 2016	Accepted: 15 Jul 2016
Peer Review: 13 Jun 2016	Published (O): 31 Aug 2016
Revised: None	Published (P): 31 Aug 2016

INTRODUCTION

The kidneys lie in the retroperitoneal space on the posterior abdominal wall on either side of

the T12-L3 vertebrae. The right kidney usually lies more inferior than the left kidney because of the presence of the liver on the right side. The right

kidney is separated from the liver to create the hepatorenal recess. The renal veins empty into the inferior vena cava, which empties back into the right side of the heart. The left renal vein is longer than the right (due to the position of the IVC on the right side of the body) and also drains venous blood from the Left suprarenal vein, Left gonadal vein, Portion of the left ascending lumbar vein [1]. The right testicular vein drains into the inferior vena cava and the left testicular vein drains into the left renal vein. Congenital variations of the testicular vein include variation in the course, areas of drainage and termination [2]. The anatomical variations of the testicular veins are attributed mainly to their embryologic origin. The testicular veins are derived from the subcardinal veins, which have a common origin with the renal veins [3].

The venous circulation of the male gonads comprises two intrascrotal networks superficial & deep venous network. The superficial network drains the veins of the scrotum. The deep network drains the testis, epididymis, and vas deferens. Veins of the testes and epididymis form the pampiniform plexus, which ascends to form four veins at the level of the superficial inguinal ring and a single testicular vein at the level of the deep inguinal ring. It ascends through the inguinal canal in the spermatic cord [4, 5]. The testicular vein ascends in the retroperitoneum on psoas major. Along its course there are variable communications with retroperitoneal veins, abdominal wall veins and renal capsular veins. The left testicular vein invariably drains into the left renal vein. The right testicular vein usually drains into IVC just below the renal vein, but sometimes drains into the right renal vein. In the present study, bilateral variations of the testicular vessels were observed and these variations are of some clinical significance. The bifurcated right testicular vein might be a predisposing factor for the right sided varicocele.

MATERIALS AND OBSERVATIONS

Presenting variations were found at the department of anatomy, Southern Medical University, Guangzhou P.R, China, during our routine Anatomy dissections.

Fig. 1: Showing the Abnormal origin of Gonadal Vessels.



Fig. 2: Showing the Abnormal Right Testicular Vein.



Fig. 3: Showing the Normal Left Testicular Vein.



DISCUSSION

The anatomy of the testicular vessels has assumed importance because of the development of new operative techniques within the abdominal cavity for operations such as varicocele and undescended testes [6,7]. The venous drainage of each kidney proceeds through a

single vein that drains into the inferior vena cava (IVC) at a right angle. The renal veins are formed near the hilum in front of the renal artery. The right renal vein is shorter (2-4 cm) than the left (6-10 cm). It receives blood only from the right kidney, whereas the left renal vein receives the left adrenal and gonadal veins in addition to the vein coming from the kidney. The left renal vein passes horizontally between the abdominal aorta and the superior mesenteric artery to reach the IVC. The most common spinal level for renal veins is between the first and second lumbar vertebra [8].

The right testicular vein drains blood into the inferior vena cava, while the left testicular veins drains into the left renal vein. An anomalous path of the right testicular vein was observed on the cadaver. The anomaly discovered was that both the left and right testicular veins drained into the left renal vein [9]. Testicular venous drainage is done through the pampiniform plexus, which in the region of the internal inguinal ring gives pathway to the testicular vein. The left testicular vein discharges in the left renal vein in a straight angle, whereas the right testicular vein discharges directly in the inferior vena cava in an oblique angle [10]. Studies on the anatomic distribution of the testicular veins performed in cadavers are scarce. These studies were done in fixed cadavers through the dissection of the retroperitoneum with identification of the course of the gonadal vessels [11]. Right testicular vein - Of the 120 cases, we observed the presence of Right single testicular vein in 97 % and of Right double testicular veins in 3 %. The drainage of the Right testicular vein when it has only one trunk was the inferior vein cava in cases and in few cases the Right testicular vein drained to the right renal vein (Figures 1-3) [12]. In our dissections also we identified The right testicular vein bifurcated into two veins just before its termination and both the branches terminated into the inferior vena cava [13] but in our dissections drained into Right renal vein and usual the left testicular vein drained into Left renal vein.

CONCLUSION

These anatomical variations can influence testi-

cular drainage and even lead to varicocele, these anatomical variations can influence testicular drainage and even lead to varicocele, one of the causes of male infertility. Variations in the number and in the local of termination are frequent, Abnormalities of testicular vessels may lead to loss of gametogenesis and hormone Production. Testicular vessels may be clinically, radiologically, surgically and functionally important.

Conflicts of Interests: None

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