

BILATERAL VARIATION IN THE TERMINATION OF RENAL VEINS – A CADAVERIC STUDY

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ABSTRACT

Anatomical variations of renal veins are seen more on abdominal and pelvic surgeries. During the routine dissection of a male cadaver, variation of renal vein was found associated with agenesis of common iliac vein. Although they may not be functional importance but knowledge of such variations is essential for surgical point of view. During routine PG dissection in department of Shareera Rachana Alva's Ayurveda medical college Moodbidri, a bilateral Renal vein variation were found in 70yrs old male cadaver. Right and Left renal veins took its origin from corresponding common iliac veins at the level of T12. The Renal veins, origin of Common iliac veins and its course observed carefully. Union of common iliac vein and origin of renal veins at the level of T12 may play important role in clinical and surgical field. The detailed explanation about the variation will be carried out in this paper.

Keywords: Renal veins, common iliac veins, inferior vena cava

INTRODUCTION

Normally, the venous drainage of each kidney proceeds through a single vein that drains into the inferior vena cava at a right angle. The renal veins are formed near the hilum in front of the renal artery. The right renal vein is shorter (2-4cm) than the left (6-10cm). 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

kidney¹. The left renal vein passes horizontally between the abdominal aorta and the superior mesenteric artery to reach the Inferior vena cava. The most common spinal level for renal veins is between the first and second lumbar vertebrae².

In the present case, we report right and left renal veins drains to corresponding common iliac veins at the level of T12.

COURSE OF RENAL VEIN

The renal vein is formed by the union of 2 to 3 renal parenchymal veins in the renal sinus. It emerges from the renal hilum anterior to the renal artery and drains into the inferior vena cava at the level of L2.

The left renal vein is much longer, at 6 to 7cm, than the right renal vein, at 3 to 4cm.

The left renal vein courses anterior to the abdominal aorta³.

TRIBUTARIES

Left Renal vein

- Left gonadal vein
- Left inferior phrenic vein
- Left adrenal vein

Small branches from kidney capsule, proximal ureter and renal pelvis

Right Renal vein

- Small branches from kidney capsule, proximal ureter and renal pelvis⁴.

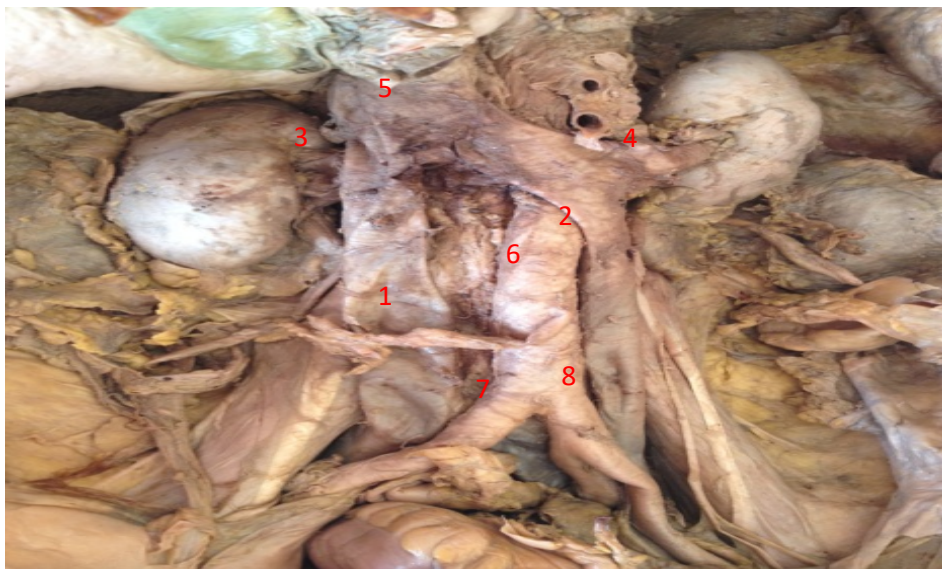
CADAVERIC STUDY

During routine PG dissection of posterior abdominal wall in the department of Shareera Rachana, Alva's Ayurveda medical college

Moodbidri, we encountered a variation in 70 yr old male cadaver. Abdomen of formalin fixed cadaver was dissected using Cunningham's manual of practical Anatomy. Anterior abdominal wall was dissected fully along its length from xiphisternum to pubic symphysis. All other structures were exposed. In the posterior abdominal wall centrally placed abdominal aorta, Inferior vena cava, right and left common iliac vein were exposed.

OBSERVATION

- Two kidneys are placed normally at the level of T12 to L3.
- Union of common iliac veins were at the level of T11
- **Bilateral variation of renal vein was observed terminating into the common iliac veins**
- The right testicular vein opened to the right common iliac vein just below the entrance of renal vein.
- Suprarenal veins were not observed.



- 1) Rt common iliac vein
- 2) Lt common iliac vein
- 3) Rt renal vein
- 4) Lt renal vein
- 5) Inferior vena cava
- 6) abdominal aorta
- 7) Rt common iliac artery
- 8) Lt common iliac artery

DISCUSSION

Renal veins are the veins that drain the kidney and they drain into Inferior vena cava. But in this particular case we have seen that renal veins are terminated into the common iliac veins.

The kidneys are normally placed at the level of T12-L3. In this cadaver there is a variation in the union of common iliac vein and inferior vena cava, which is at the level of T11. Thus the inferior vena cava gets origin from the level of T11 only. Because of these in this case renal veins which were at the level of L2 drains into the common iliac veins.

Normally the left testicular veins drains into the left renal vein and right testicular vein drain to the inferior vena cava. In this cadaver the right testicular vein joined to right renal vein. Since the testicular vein goes all the way up to the renal vein before it empties, there is more chance for left testicle to develop varicocele. As in this case testicular vein is attached to right renal vein there is a chance for developing varicocele in the right testicle.

CONCLUSION

Bilateral variation in the termination of renal veins is common in the cadaveric dissection. But the termination of renal veins into common iliac vein is uncommon. These variations may result in the testicular varicocele.

The knowledge regarding anatomical variations about its origin, tributaries and course of renal veins and common iliac veins need to take care during surgery.

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