Malaysian Journal of Medicine and Health SciencesVol.2(1)January 2006: 81-83

A Case Study

Concurrent Anomaly of Right Renal and Testicular Vein

[1]N Jeyaseelan & [2]S Sundarapandian

Department of Human Anatomy, Faculty of Medicine and Health Sciences
University Putra Malaysia,
43400 UPM, Serdang
Selangor
[2]Department of Human Anatomy
Amrita Institute of Medical Sciences and Research Centre
Kochi - 682 026, Kerala, INDIA.

ABSTRACT

Concurrent venous anomalies were observed during routine dissection of the posterior abdominal wall in a 55 year old male cadaver. The right renal vein was double; one upper right renal vein (URRV) and one lower right renal vein (LRRV). Concurrently, the right testicular vein (RTV) drained into the LRRV. These anomalies if unidentified can lead to morbidity during surgical exploration. The knowledge of these anatomic variations in the retroperitoneal region is of importance to both surgeons and invasive radiologists.

Keywords: Venous anomalies, renal vein, right testicular vein

INTRODUCTION

Double right renal vein [1,2] and its formation by persistence of some embryonic renal veins arranged in ladder-like pattern have been described. Additional renal veins have been reported to be more common on the right side (26%) and rarely affect the left side (2.6%) . Variations in the evolution of the vena cava dictate different venous anomalies that may be encountered in the retroperitoneum. We hereby report a case of double right renal vein with a concurrent anomaly of the right testicular vein with drainage into the lower right renal vein.

During routine dissection of a cadaver for teaching purposes, an uncommon venous anomaly was observed in the posterior abdominal wall. The parietal peritoneum was removed to clearly expose the renal veins. The veins in the retroperitoneal region were dissected carefully on both sides to display the venous anomaly on the right side.

On the right side, the renal vein was double. There was one upper and one lower right renal vein. The renal vein on the left side was normal. The testicular vein on the right side drained into the lower right renal vein (Fig. 1). The drainage pattern of the left testicular vein was normal.

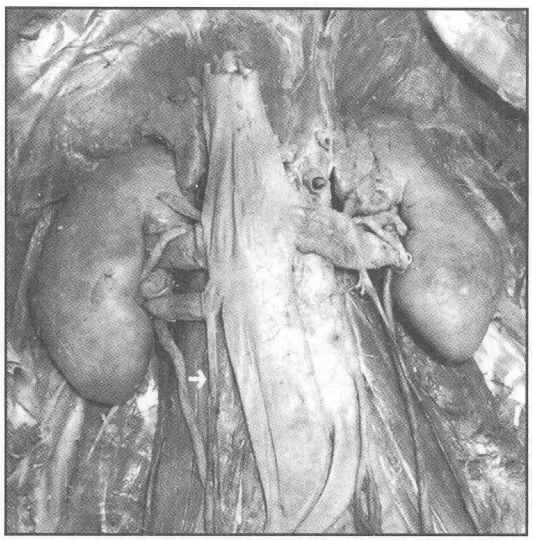

Figure 1. Arrow showing the right testicular vein draining into the lower right renal vein. Note the left testicular vein draining into the single left renal vein.

DISCUSSION

During the development of veins in the abdominal region, the supracardinal anastomosis on the right side forms the post renal segment of the inferior vena cava (IVC) while on the left side, it forms part of the left renal vein (LRV). This leads to the difference in the opening of the right and left gonadal veins into the IVC and LRV respectively. The subcardinal veins below the intersubcardinal anastomosis form the corresponding gonadal veins and the right renal vein (RRV) is formed from one of the persistent tributaries of the subcardinal vein. Since the development of the right gonadal vein is from the right subcardinal vein below the intersubcardinal anastomosis and the development of the RRV is also from one of the tributaries of right subcardinal vein, there is a possibility of the right gonadal vein opening into the right renal vein. Cases of varicoceles on the right side due to visceral or vascular malformation involving the right spermatic vein are demonstrated [3] by urographic, phlebographic and arteriographic techniques and the presence of this type of varicoceles is in the ratio of 1 out of every 3270 cases.[3]The anatomical difference of the gonadal veins induces weak haemodynamics in the left testicular vein and is considered to cause to the development of left sided varicocele .

The present anatomical difference may be a causative factor of the rare finding of a right sided varicocele. Such a finding should raise the suspicion of the examining clinician to watch the possibility of an anatomical anomaly involving the drainage pattern of the right testicular and right renal vein.

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