

# Does right-sided varicocele indicate a right-sided kidney tumor?

Miguel Bonfitto<sup>1</sup>, Leandro Shogo Matuy Kimura<sup>2</sup>, José Maria Pereira Godoy<sup>3</sup>, Miguel Zerati Filho<sup>4</sup>, Luis Cesar Fava Spessoto<sup>4</sup>, Fernando Nestor Facio Junior<sup>4</sup>

<sup>1</sup> Urology, Hospital de Base de São José do Rio Preto/Famerp/Funfarme, Brazil;

<sup>2</sup> General Surgery, Hospital de Base de São José do Rio Preto/Famerp/Funfarme, Brazil;

<sup>3</sup> Vascular Surgery Division, São José do Rio Preto School of Medicine, Famerp/Funfarme, Brazil;

<sup>4</sup> Urology Division, São José do Rio Preto School of Medicine, Famerp/Funfarme, Brazil.

**Summary** *Varicocele is a dilation of the pampiniform venous plexus, mainly affecting the left side of the scrotum. In rare cases, however, the right side is affected. When this occurs, a retroperitoneal disease should be suspected, such as right-sided renal neoplasm. The present case report highlights the importance of right-sided varicocele in the diagnostic investigation of neoplasm of the right kidney.*

**KEY WORDS:** *Acute right-sided varicocele; Right-sided renal neoplasm; Renal tumor.*

Submitted 11 September 2018; Accepted 25 September 2018

## INTRODUCTION

Varicocele is defined as a dilation of the pampiniform venous plexus, affecting 10 to 15% of urology patients (1-6). The left side of the scrotum is affected in up to 85% of cases (6). In rare cases of presentation on the right side, a neoplasm or a retroperitoneal mass in the right kidney should be the diagnostic hypothesis (3, 6). A physical examination is the gold standard for the diagnosis of varicocele, which is characterized by the dilation of veins in the spermatic cord (7). Currently, Doppler ultrasound is the main complementary exam (7).

Right-sided varicocele may be explained by an increase in hydrostatic pressure due to compression of the renal or spermatic vein caused by a tumor or the formation of thrombi (1, 8). This condition is scored as Grade I when the varicose cord is palpated only during the Valsalva maneuver, Grade II when it is palpable in the standing position and Grade III when it is visible without palpation (1, 4). In this paper, we report a rare case of right-sided varicocele associated with a neoplasm in the right kidney and highlight the importance of this finding in the investigation of kidney tumors.

## CASE REPORT

A 49-year-old male patient with no previous comorbidities sought care due to a varicose cord on the right testicle that had appeared 40 days earlier. The patient reported no pain, local swelling, weight loss, abdominal pain or urinary problems. During the physical examination, the patient presented a good general health state and

flaccid, depressible, painless abdomen with no palpable masses. The scrotal veins on the right side were dilated and an increase in caliber was observed during the Valsalva maneuver (Figure 1). Doppler ultrasound of the scrotum confirmed accentuated right-sided varicocele. The complementary examination of the abdomen revealed a mass in the right kidney. The patient was submitted to computed tomography of the abdomen and pelvis, which revealed a solid, heterogeneous, expansive formation with circumscribed and lobulated contours, occupying nearly the entire right kidney, measuring 14.6 x 10.9 cm, with invasion of the right renal vein causing ectasia of the gonadal vein and accentuated varicocele (Figure 2). The patient was submitted to right nephrectomy with lymphadenectomy. The anatomic-pathological analysis confirmed the occurrence of kidney cell carcinoma (stage pT2 Nx Mx). Following good clinical evolution, the patient was discharged from hospital on the fourth day of the postoperative period and is currently in outpatient follow up.

## DISCUSSION

We report a rare case of a right kidney neoplasm associated with right-sided varicocele. This is an uncommon finding and documented little in the literature. Approximately 0.2% of patients present right-sided varicocele, which should lead to the hypothesis of ipsilateral kidney tumor (1, 5-10). In the present report, the diagnostic investigation initiated with the observation of varicose veins in the right side of the scrotum. Subsequent Doppler ultrasound and computed tomography of the abdomen confirmed the diagnosis of right kidney neoplasm and the patient was submitted to nephrectomy.

Cases of renal cell carcinoma in patients with right-sided varicocele are rare in the literature. We found only two case reports (11, 12). *Ates et al.* (13) reported an association between right-sided varicocele and retroperitoneal paraganglioma exerting extrinsic pressure on the inferior vena cava and causing grade 3 dilation of the right pampiniform plexus. *DeWitt et al.* (6) performed a retrospective investigation of 337 cases of right-sided varicocele, but found no statistically significant association with the diagnosis of a malignancy. These studies con-

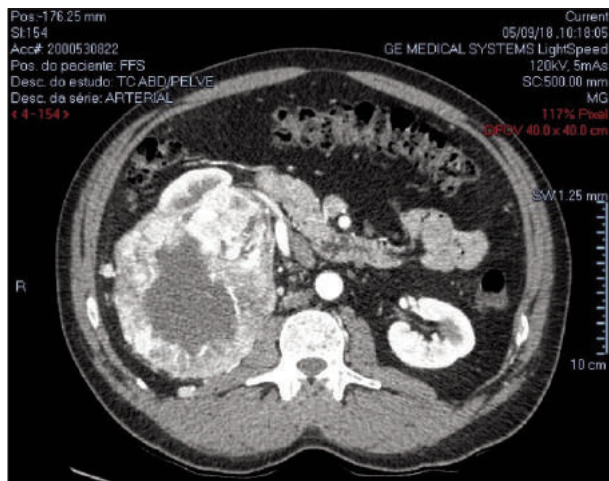
**Figure 1.**

Physical examination revealing grade 3 right-sided varicocele.



**Figure 2.**

Computed tomography of abdomen revealing tumor in right kidney.



firm the initial aim of the present report of describing a rare association and highlighting the importance of the diagnostic investigation of an abdominal disease following the confirmation of right-sided varicocele.

Right-sided varicocele is rare and should alert physicians to the possibility of compression of the inferior vena cava (14). Varicocele in the left side of the scrotum is more frequent due to the anatomic relationship between the left spermatic vein and left renal vein. Therefore, right-sided varicocele should be seen as a possible indicator of neoplasm in the right kidney (14-17).

## CONCLUSIONS

As the majority of cases of varicocele occur on the left side, right-sided varicocele is a potential indicator for the clinical investigation of a concomitant abdominal disease. The present report underscores the need for a discerning investigation of right kidney neoplasm following the diagnosis of right-sided varicocele.

## REFERENCES

1. Clavijo RI, Carrasquillo R, Ramasamy R. Varicoceles: prevalence and pathogenesis in adult men. *Fertility and Sterility*. 2017; 108:364-369.
2. Marte A. The history of varicocele: from antiquity to the modern ERA. 2017; 44:563-576.
3. Vanlangenhove P, Dhondt E, Everaert K, Defreyne L. Pathophysiology, diagnosis and treatment of varicoceles: a review. *Min Urol Nefrol*. 2014; 66:257-82.
4. Molly A, Dewitt E, Greene DJ, et al. Isolated right varicocele and incidence of associated cancer. *Urology*. 2018; 117:82-85.
5. Baden LR. Acute Varicocele Revealing Renal Cancer. *N Engl J Med*. 2016; 374:21.
6. Woldu S, Nees S, Batavia JV, et al. Physical exam and ultrasound characteristics of right varicoceles in adolescents with left varicoceles. *Andrology*. 2013; 1; 936-942.
7. Belay RE, Huang GO, Ken J, et al. Diagnosis of clinical and subclinical varicocele: how has it evolved? *Asian J Androl*. 2016; 18:182-185.
8. Georgiades F, Stylianides A, Grange P, Kouriefs C. Images in Clinical Urology Point to Sinister Causes. *Urology*. 2016; 97:e23-e24.
9. Robson J, Wolstenhulme S, Knapp P. Is There a Co-Association Between Renal or Retroperitoneal Tumours and Scrotal Varicoceles? A Systematic Review. *Ultrasound*. 2012; 20:182-191.
10. Hanna GB, Byrne D, Townell N. Right-sided varicocele as a presentation of right renal tumours. *Br J Urol*. 1995; 75:798-799.
11. Hadad Z, Norup K, Petersen C. Right-sided varicocele testis as the only sign of right-sided renal tumour. *Ugeskr Læger*. 2016; 178:2-3.
12. Fernández-Pello S, González I, Pérez-Carral JR, et al. Right varicocele as finding of right renal mass. *Arch Esp Urol*. 2015; 68:641-2.
13. Ates N, Habibi M, Ipekci T. Retroperitoneal paraganglioma presenting as right-sided varicocele: case report. *Ann Saudi Med*. 2016; 36:148-151.
14. Cheungpasitporn W, Horne JM, Howarth CB. Adrenocortical carcinoma presenting as varicocele and renal vein thrombosis: a case report. *J Med Case Rep*. 2011; 5:337-41.
15. Roy CR, Wilson T, Raife M, Horne D. Varicocele as the presenting sign of an abdominal mass. *J Urol*. 1989; 141:597-599.
16. Thompson JN, Abraham K, Janet H. Metastasis to pampiniform plexus from left renal adenocarcinoma presenting with acute varicocele. *Urology*. 1984; 24:621-622.
17. Shinsaka H, Fujimoto N, Matsumoto T. A rare case report of right varicocele testis caused by a renal cell carcinoma thrombus in the spermatic vein. *Int J Urol*. 2006; 13:844-845.

## Correspondence

Miguel Bonfitto,  
Resident Physician of Urology, Hospital de Base de São José do Rio Preto/Famerp/Funfarme, (Brazil)

Leandro Shogo Matuy Kimura,  
Resident Physician of General Surgery, Hospital de Base de São José do Rio Preto/Famerp/Funfarme (Brazil)

José Maria Pereira Godoy,  
Professor, Vascular Surgery Division, São José do Rio Preto School of Medicine, Famerp/Funfarme (Brazil)  
5416 Brig. Faria Lima Ave. 15090-000 São José do Rio Preto, SP, Brazil

Miguel Zerati Filho,

Luis Cesar Fava Spessoto,

Fernando Nestor Facio Junior, MD, PhD (Corresponding Author)  
fnfacio@yahoo.com.br

Professor, Urology Division, São José do Rio Preto School of Medicine, Famerp/Funfarme (Brazil)