

Case report

Posterior nutcracker syndrome: rare cause of hematuria: case report



Irzi Mohamed^{1,&}, Tarik Mhanna¹, Amine Houmaidi¹, Mohammed Aynaou¹, Wassim Alaoui Mhammedi¹, Abdelghani Ouraghi¹, Mohamed Moukhtari¹, Chenoufi Mehdi¹, Ahmed Jdaini¹, Ali Barki¹

¹Department of Urology, Mohammed IV University Medical Center, Mohammed The First University Oujda, Oujda, Morocco

[&]Corresponding author: Irzi Mohamed, Department of Urology, Mohammed IV University Medical Center, Mohammed The First University Oujda, Oujda, Morocco

Received: 08 Mar 2020 - Accepted: 16 Mar 2020 - Published: 19 Mar 2020

Domain: Urology

Keywords: Left renal vein, hematuria, flank pain

Abstract

Nutcracker syndrome (NCS) results most commonly from the compression of the left renal vein by the aorta and vertebral column. Although NCS had been described in many studies, her prevalence is still not known, usual clinical signs are gross hematuria and flank pain. Diagnosis requires a high index of suspicion and treatment consists of a wide range of vascular surgical options with a more recent focus using an endovascular approach. We present a case of a 23-year-old male with intermittent hematuria and flank pain.

Case report | Volume 2, Article 120, 19 Mar 2020 | 10.11604/pamj-cm.2020.2.120.22224

Available online at: <https://www.clinical-medicine.panafrican-med-journal.com/content/article/2/120/full>

©Irzi Mohamed et al PAMJ - Clinical Medicine (ISSN: 2707-2797). This is an Open Access article distributed under the terms of the Creative Commons Attribution International 4.0 License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.



Introduction

Nutcracker syndrome (NCS) is a rare and underestimated vascular cause of multiple urological and systemic symptomatology in a young population. Surgical treatment decision is difficult and controversial. Different methods of surgical treatment are proposed and proven to be effective. We report our experience of 1 case of NCS with transposition of the left renal vein.

Patient and observation

A 23-year-old female was presented to the emergency department with 2 days history of hematuria. This hematuria was characteristically intermittent without any other symptom. On clinical examination, there was a left flank tenderness, and left varicocele (Figure 1). Urine examination was sterile, and creatinine clearance was within normal limit, he had not anemia and fever. A computed tomography scan showed left renal vein (LRV) passes posterior to the aorta draining to the vena cava inferior. The LRV showed entanglement between the aorta and vertebral column (Figure 2). There are many different treatment options available, we decided to use open surgical management, and transposition of the left renal vein to a distal level in the inferior vena cava which was performed. Three days later the patient was discharged to his home, wound healing was favorable. After 1 year of surveillance, the patient was asymptomatic without any episode of hematuria.

Discussion

Posterior nutcracker syndrome is a left renal venous hypertension secondary to the entrapment of the retroaortic left renal vein, which between the aorta and the vertebral column. Vertebral osteophytes can also cause posterior nutcracker syndrome, as defined by Rassi *et al.* [1]. The

nutcracker syndrome is one of the rarest causes of hematuria. Hematuria and flank pain are the most common signs as reported by Alaygut *et al.* [2]. Varicocele can be associated, explained by pressure increasement secondary to left renal vein entrapment. Diagnostic tests include urine analysis, ultrasonography, color Doppler scan, computed tomography (CT) or magnetic resonance (MR) angiography, and left renal vein phlebography and manometry. The referential method for diagnosis of nutcracker syndrome is the abdominal angio scan, but also the retrograde phlebography, is useful for diagnosis. Different treatment modalities have been proposed for this syndrome, including follow-up, conservative treatment, and surgical therapy. Treatment depends on the severity and symptoms, it can be non invasive like simple surveillance, or surgical. The general objective of surgical treatment was decreasing LRV hypertension, using intra or extra vascular stents, open surgical techniques likes transposition of LRV renal or renal auto transplantation [3, 4]. The current case is a transposition of the left renal vein to a distal level in the inferior vena cava which was performed.

Conclusion

A posterior NCS is a rare anomaly and undiagnosed by a lot of clinicians, we report this case with the aim of showing a rare cause of hematuria recapitulating the consideration of NCS.

Competing interests

The authors declare no competing interests.

Authors' contributions

All the authors have read and agreed to the final manuscript.

Figures

Figure 1: varicocele intermittent caused by nutcracker syndrome

Figure 2: left retroaortic renal vein entrapped between aorta and vertebra

References

1. Rassi I, Khabbaz Z, Chelala D, Jebara VA. "A new variant of the posterior nutcracker phenomenon." *J Vasc Surg.* 2010;51(5):1279. **PubMed | Google Scholar**

2. Alaygut D, Bayram M, Soylu A, Cakmakci H, Turkmen M, Kavukcu S. "Clinical course of children with nutcracker syndrome." *Urology.* 2013;82(3):686-690. **PubMed | Google Scholar**

3. Kurklinsky AK, Rooke TW. "Nutcracker Phenomenon and Nutcracker Syndrome." *Mayo Clin Proc.* 2010;85(6):552-55. **PubMed | Google Scholar**

4. Cecil G Wood, LeRoy J Stromberg, Carla B Harmath, Jeanne M Horowitz, Chun Feng, Nancy A Hammond *et al.* "CT and MR imaging for evaluation of cystic renal lesions and diseases." *Radiographics.* 2015;35(1):125-141. **PubMed | Google Scholar**



Figure 1: varicocele intermittent caused by nutcracker syndrome



Figure 2: left retroaortic renal vein entrapped between aorta and vertebra