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Case Report

When Despair Hides a Rare Medical Secret: Nutcracker Syndrome Revealed by a Suicide Attempt

Quand le Désespoir Cache un Secret Médical Rare : Le Syndrome de Casse-Noisette Révélé par une Tentative de Suicide

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ABSTRACT

Nutcracker syndrome is a rare vascular disorder that occurs when the left renal vein becomes compressed or narrowed between the aorta and the superior mesenteric artery. The name "nutcracker" refers to the compression of the renal vein between the two arteries, resembling the action of a nutcracker crushing a nut. Early detection and diagnosis of Nutcracker syndrome are vital to prevent complications, improve patient outcomes, and guide appropriate management strategies. In this paper, we describe the case of a 24 year old patient with a history of adrenal insufficiency and Li Fraumeni syndrome who developed nutcracker syndrome while taking long-term corticosteroid therapy. This case highlights the potential association between Nutcracker and chronic corticosteroid use in predisposed individuals, suggesting the need for increased vigilance and prompt evaluation in such patients.

RÉSUMÉ

Le syndrome du casse-noisette est un trouble vasculaire rare qui se produit lorsque la veine rénale gauche est comprimée ou rétrécie entre l'aorte et l'artère mésentérique supérieure. Le nom "casse-noisette" fait référence à la compression de la veine rénale entre les deux artères, rappelant l'action d'un casse-noisette écrasant une noix. La détection précoce et le diagnostic du syndrome du casse-noisette sont essentiels pour prévenir les complications, améliorer les résultats des patients et orienter les stratégies de prise en charge appropriées. Nous décrivons le cas d'un patient de 24 ans présentant des antécédents d'insuffisance surrénalienne et de syndrome de Li-Fraumeni qui a développé un syndrome du casse-noisette sous traitement prolongé par corticostéroïdes. Ce cas met en évidence l'association potentielle entre le syndrome du casse-noisette et l'utilisation chronique de corticostéroïdes chez les individus prédisposés, suggérant la nécessité d'une vigilance accrue et d'une évaluation prompte chez ces patients.

INTRODUCTION

Nutcracker syndrome, also known as Nutcracker syndrome, is a rare condition that involves compression of the left renal vein between the aorta and the superior mesenteric artery **[1]**. The compression can lead to renal venous hypertension and various clinical symptoms. Nutcracker syndrome was initially described in 1857 by German physician R.W. Schultze, who referred to the compression of the renal vein as resembling a nutcracker. This lesion can be caused by different anatomical structures, such as the abdominal aorta, the superior mesenteric artery, or the ligation of the gonadal vessels **[2]**. Although Nutcracker syndrome is considered rare, its exact prevalence remains difficult to determine due to underdiagnosis and variability in clinical symptoms. Recent epidemiological studies suggest that Nutcracker syndrome can affect both children and adults, with predominance in women **[3]**.

The discovery of Nutcracker Syndrome can occur in a variety of circumstances. Some patients may be asymptomatic and the diagnosis may be incidental on imaging tests performed for other medical reasons. Other patients may present with symptoms such as abdominal pain, lower back pain, hematuria, or pelvic varices, which

may lead to further diagnostic investigation **[4]**. We report the case of a 24-year-old patient with this syndrome whose circumstance of discovery was exceptional. Through this case, we discuss the specificities of such a syndrome and the management in this context.

OBSERVATION

This was the case of a suicide attempt by defenestration in a 34-year-old patient in a context of persecutory delirium with a hallucinatory mechanism and mental automatism. The patient had a history of adrenal insufficiency and Li Fraumeni syndrome, for which she had been on long-term corticosteroid therapy since childhood. The patient was admitted to care under constraint one week ago for the same context of a delirium. After obtaining permission the day before, she reportedly fell under the influence of auditory hallucinations. Following her fall, the patient lost consciousness and woke up in the ambulance and then in the hospital.

She was calm, with a suitable touch, but the auditory hallucinations persisted, and she did not understand what was happening to her. CT scan of the skull revealed a large subcutaneous hematoma at the vertex level, with no traumatic bone lesions or intracranial bleeding. Pictures of the cervical spine showed no traumatic bone lesion. Thoracic-abdominal-pelvic pictures revealed a fracture of the left obturator frame, minimal compression fractures of the upper plates of D4, D6, and D7 without the involvement of the posterior walls, and no sign of visceral, vascular, or digestive lesion of traumatic origin. A slight dilation of the left renal vein upstream of the aortomesenteric clamp (compression) was also observed, requiring urological advice **(figure 1, 2).**

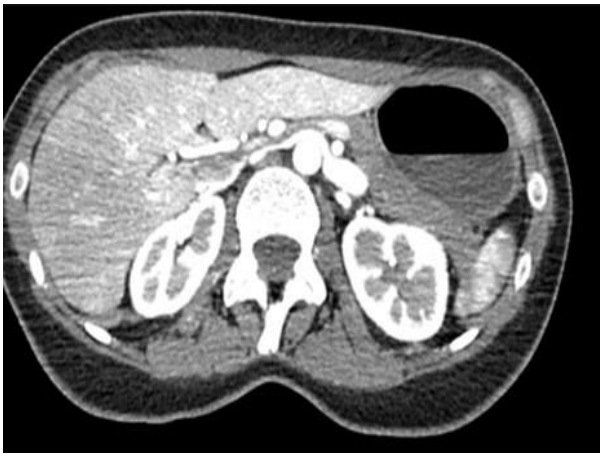

Fig 1: Abdomino-pelvic CT showing nutcracker syndrome: dilation of the left renal vein upstream of the aortomesenteric clamp.

The provisional conclusion was a fortuitous discovery of a Nutcracker syndrome not related to trauma in a particular clinical context. Additoonal Doppler ultrasound of the renal vessels confirmed the nutcracker syndrome that was found on CT **(figure 2).**

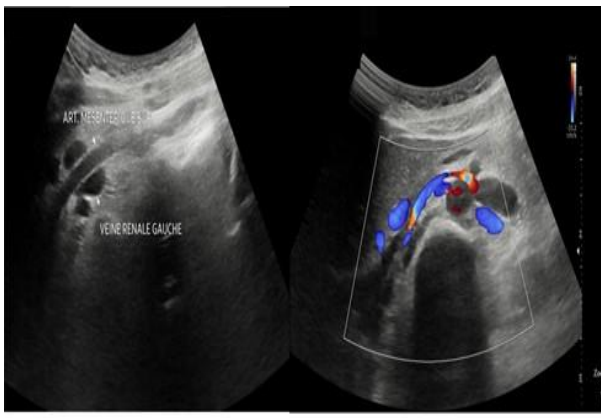

Fig.2: Renal doppler ultrasound showing dilatation of renal vein

Biological results were unremarkable with good renal function not requiring an emergency urological procedure. However, there was an indication of symptomatic, biological and radiological monitoring.

DISCUSSION

The Nutcracker syndrome (CNS) is an infrequent clinical entity; compression of arterial or venous renal vessels, whatever the cause, affects less than 1% of the general population **[5]**. It is generally characterized by compression of the left renal vein as it passes between the superior mesenteric artery and the abdominal aorta. This arrangement corresponds to the anterior SCN as observed in our clinical case **[3]**. Two other variations of the syndrome concern the posterior SCN when the left renal vein is retro-aortic and is compressed between the abdominal aorta and the vertebral column and the mixed CNS when there is an association of the anterior and posterior types in the event of duplication of the left renal vein **[1]**. Nutcracker syndrome can also be associated with other clinical situations, such as aorta-mesenteric clamp syndrome **[6]** or compression of the left gonadal vein **[7]**, as described in different publications. Clinically, Nutcracker syndrome is usually characterized by a symptomatic triad, which may be incomplete, including abdominal pain, proteinuria, and hematuria **[8]**. The incidental finding of Nutcracker syndrome was reported in a study published in the International Journal of Medical Review and Case Reports **[9]**. The authors presented two cases where the syndrome was diagnosed during routine medical examinations in asymptomatic patients. Our patient was in a crisis of transient acute psychotic disorders with delusions of persecution and mental automatism that would have pushed her into a suicide attempt by defenestration. The complete lesion assessment made it possible to detect this syndrome which was asymptomatic. Imaging plays an essential role in the diagnosis of Nutcracker syndrome. Doppler ultrasound may show indirect signs of renal vein compression, such as increased blood velocity in the left renal vein **[3]**. However, computed tomography (CT scan) and magnetic resonance imaging (MRI) are considered the most sensitive and specific imaging methods to confirm the

diagnosis **[10]**. On CT or MRI imaging, one can observe the compression of the left renal vein between the aorta and the superior mesenteric artery, characteristic of Nutcracker syndrome. The discovery of the syndrome in our clinic was made during the complete lesional assessment by carrying out the additional examinations requested as part of its care, such as the Body-Scanner with injection. The thoracic-abdomen-pelvic scanner revealed a slight dilation of the left renal vein upstream of the aortomesenteric clamp. The management of Nutcracker syndrome depends on the symptoms and the severity of the vascular compression. In some cases, regular monitoring may be sufficient, while in other cases, surgical interventions, such as vascular compression release or kidney transplantation, may be required **[11]**. Multidisciplinary collaboration between specialists in radiology, urology, and internal medicine is essential to ensure an accurate diagnosis and adequate management.

CONCLUSION

Nutcracker syndrome is a rare disease characterized by compression of the left renal vein. Its discovery can be fortuitous or occur following specific clinical symptoms. The means of exploration, such as Doppler ultrasound and computed tomography, are essential for the diagnosis. This clinical case highlights the importance of a thorough diagnostic evaluation and individualized care for patients with this rare condition.

DECLARATIONS

Consent
We obtained the patient's written and signed consent to publish this case report.
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Contributions of the authors
Ziba Ouima wrote, corrected, and reviewed the paper.
Kaboré Klovis, Paré and Yaméogo, reviewed the paper
Traoré and Gawa wrote the paper. Ouattara, Kirakoya, Kaboré Fasnéwindé supervised the work

REFERENCES

1. Kurklinsky AK, Rooke TW. Nutcracker phenomenon and nutcracker syndrome. Mayo Clin Proc. 2010 ; 85 (6): 552-9.
2. Granata A, Distefano G, Sturiale A, Figuera M, Foti PV, Palmucci S, et al. From nutcracker phenomenon to nutcracker syndrome: a pictorial review. Diagnostics. 2021; 11 (1) :101-15.
3. Kolber MK, Cui Z, Chen CK, Habibollahi P, Kalva SP. Nutcracker syndrome: diagnosis and therapy. Cardiovasc Diagn Ther. 2021 ; 11 (5) : 1140-49.
4. Haboussi MR, Tabakh H, Mouffak A, Fahl A, Kebbou T, Touil N, et al. Syndrome de Casse-Noisette: cause rare de douleurs abdominales chez l'adulte, à ne pas méconnaître (à propos d'un cas). Pan Afr Med J. 2021 ; 38 (288).
5. Zucker EJ, Ganguli S, Ghoshhajra BB, Gupta R, Prabhakar AM. Imaging of venous compression syndromes. Cardiovasc Diagn Ther. 2016;6(6):519.
6. Echchikhi M, Bellamlih H, Allali N, Chat L. L'association Classique Du Syndrome De La Pince Aorto-Mesenterique Avec Le Syndrome De Casse-Noisette. International Journal of Recent Innovations in Medicine and Clinical Research. 2019 ; 1 (2) : 38-42.
7. De Bayser H, Crouzet S, Badet L. Anastomose gonado-iliaque dans le cadre d'un nutcracker syndrome. Prog En Urol. 2020 ; 30 (13) : 849.
8. Chaabene I, Mzabi A, Rezgui A, Mrad B, Karmani M, Fredj FB, et al. Hématurie microscopique révélant un syndrome de Nutcraker dans sa forme complète: à propos d'un cas. Rev Médecine Interne. 2015 ; 36 : A210-1.
9. Kriouile K, Barekensabe E, Jayi S, Alaoui FZF, Chaara H, Melhouf MA. Syndrome de Nutcracker de découverte fortuite: À propos de 2 cas. Int J Med Rev Case Rep. 2020 ; 4 (10) : 28-30.
10. Nautiyal A, Sharma D, Sharan A, Kumar P, Saxena S, Maurya R, et al. Variations of nutcracker phenomenon: A cadaveric and computed tomography angiographic study. Natl J Clin Anat. 2023 ; 12 (1) : 4-8.
11. Macedo GL, Santos MA dos, Sarris AB, Gomes RZ. Diagnosis and treatment of the Nutcracker syndrome : a review of the last 10 years. J Vasc Bras. 2018 ; 17 : 220-8.