

Surgery of concomitant mesenteric ischemia and Nutcracker syndrome

Chirurgie d'une ischémie mésentérique associée à un syndrome de Nutcracker

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SUMMARY

The Nutcracker syndrome is a compression of the left renal vein by the superior mesenteric artery and the aorta. The co-existence with atherosclerotic mesenteric artery occlusion is rare.

We report the case of a 39-year-old patient, diabetic, admitted for post-prandial epigastric pain, weight loss and hematuria. CT scan revealed occlusion of the superior mesenteric artery, and compression of the left renal vein between the aorta and the superior mesenteric artery.

The left renal vein was re-implanted on the vena cava, and a prosthetic bypass was performed between the infra-renal aorta and the mesenteric artery. The post-operative evolution was favourable.

KEYWORDS

Nutcracker syndrome, mesenteric artery occlusion, left renal vein, bypass.

RÉSUMÉ

Le syndrome de Nutcracker est dû à la compression de la veine rénale gauche entre l'artère mésentérique supérieure et l'aorte. La coexistence avec une occlusion athéromateuse de l'artère mésentérique est rare.

Nous rapportons le cas d'un patient de 39 ans, diabétique, admis pour des douleurs épigastriques post-prandiales, perte de poids, et hématurie. L'angio-scanner a révélé une occlusion de l'artère mésentérique supérieure et une compression de la veine rénale gauche entre l'aorte et l'artère mésentérique.

La veine rénale a été réimplantée sur la veine cave, et un pontage mésentérique a été réalisé. Les suites opératoires ont été favorables.

MOTS-CLÉS

Syndrome de Nutcracker, occlusion de l'artère mésentérique, veine rénale gauche, pontage.

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INTRODUCTION

The Nutcracker syndrome is defined by anatomic compression of the left renal vein by the superior mesenteric artery and the aorta [1]. It causes an increase in the intraluminal pressure and development of renal hilar varices around the renal pelvis and ureter, and macroscopic hematuria. The co-existence of atherosclerotic mesenteric artery occlusion and nutcracker syndrome is rare, and challenging.

We report a rare case of association of mesenteric ischemia and Nutcracker syndrome in a symptomatic patient, managed surgically.

CASE REPORT

A 39-year-old male patient, with a past-medical history of diabetes since 10 years, was admitted to the emergency department for post-prandial epigastric pain, associated with weight loss and hematuria since 8 months.

Physical examination revealed a cachectic patient, with diffuse abdominal sensibility.

The diagnosis of chronic mesenteric ischemia was suspected. So, CT scan was performed. It revealed a long occlusion of the superior mesenteric artery, and a compression of the left renal artery between the aorta and the mesenteric artery.

The diagnosis of Nutcracker syndrome associated with atherosclerotic occlusion of the mesenteric artery was confirmed.

We opted for surgical management of the patient under median laparotomy.

After dissection and clamping of the left renal vein and the inferior vena cava, the stenotic segment was resected. Direct re-implantation of the renal vein was not possible, so it was re-implanted on the vena cava by end-to-end anastomosis with a PTFE prosthesis (figure 1).

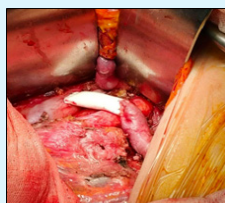


Figure 1. Intra-operative photograph showing the re-implantation of left the renal vein to the vena cava by a prosthesis.

A retrograde bypass was performed between the infra-renal aorta and the distal mesenteric artery by a prosthesis at the same time (figures 2 and 3).

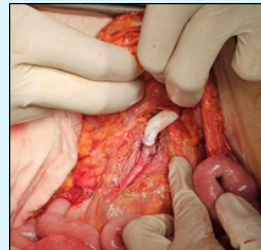


Figure 2. Intra-operative photograph showing the anastomosis between the prosthesis and the superior mesenteric artery.

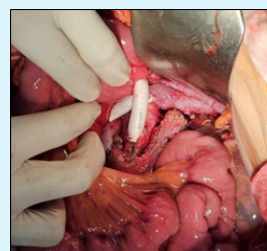


Figure 3. Intra-operative photograph showing the two prostheses.

The post-operative evolution of the patient was favorable, and the patient was discharged from hospital 3 days after the operation.

DISCUSSION

Nutcracker syndrome is an uncommon syndrome that presents with signs or symptoms caused by compression of the left renal vein, within the aorto-mesenteric window [1].

It is most common in young and middle-aged patients [2]. The peak age of incidence is between 10 and 30 years [3]. It predominantly affects women, while atherosclerotic stenoses and occlusions of the mesenteric vessels are more observed in old men [4].

Symptoms at the time of presentation include abdominal and left flank pain, macroscopic and microscopic hematuria, proteinuria, dyspareunia, dysmenorrhea, orthostatic hypotension, fatigue with high left renal vein-inferior vena cava gradients, and varicocele [5].

CT scan and magnetic resonance venography can accurately demonstrate compression and dilatation of the left renal vein proximal to the kidney [6].

It can be associated with superior mesenteric artery syndrome by entrapment of the third portion of the duodenum and the left renal vein, respectively, between the abdominal aorta and the superior mesenteric artery [7].

The association of Nutcracker syndrome with atherosclerotic lesions of the superior mesenteric artery is rare. A few cases are reported in the literature.

In our case, the patient has symptoms of chronic mesenteric ischemia. The compression of the left renal vein was diagnosed fortuitously in the CT scan.

Conservative management is recommended for patients with an established diagnosis of Nutcracker syndrome who have mild symptoms. Open, endovascular, and laparoscopic techniques have been described for the treatment of isolated Nutcracker syndrome with invaliding symptoms [8]. Surgical direct transposition of the left renal vein into the vena cava or by a prosthesis in case of impossibility of direct transposition, is an effective treatment that showed good short and long-term results. Left autologous renocaval bypass has been used in a few case reports [9].

The endovascular stenting of the left renal vein has shown good short-term results. However, stent placement has several limitations: The necessity of indefinitely anticoagulation, the risk of stent migration into the inferior caval vein or right atrium, and the risk of secondary stenosis [10].

An endovascular approach is recommended as preferred treatment strategy for patients with chronic mesenteric ischaemia and suitable anatomy of the superior mesenteric artery lesions [11].

The endovascular treatment was not preferred in our patient because of the complexity of the mesenteric lesion.

CONCLUSION

Nutcracker syndrome is a rare disease, observed mainly in young patients.

Open surgery, endovascular, and laparoscopic techniques have been described for the treatment of isolated Nutcracker syndrome. All techniques have proven efficacy with satisfactory results.

The association of this syndrome with atherosclerotic long occlusion of the superior mesenteric artery in symptomatic patients, is rare and challenging. It can be managed surgically by re-implantation of the renal vein and aorto-mesenteric bypass, such as the case of our patient

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