SCIENTIFIC LETTER

LEFT GONADAL VEIN TRANSPOSITION IN THE NUTCRACKER SYNDROME

ABSTRACT

The cause of pelvic congestion symptoms is usually nutcracker syndrome. We present the clinical case of a 58-year-old female patient who consulted for lumbar and left flank pain, microhematuria, and dyspareunia of 10 years of evolution. Angiotomography showed compression of the left renal vein at the level of the aortomesenteric compass, associated with pelvic varices. It was resolved with surgical treatment by transposition of the left gonadal vein to the inferior vena cava and embolization of the distal bed with coils and foam. The patient had an uncomplicated postoperative period with complete resolution of symptoms.

Keywords: *nutcracker syndrome, pelvic congestion, venous transposition.*

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INTRODUCTION

Nutcracker syndrome is caused by anatomical compression of the left renal vein, with venous hypertension and gonadal reflux.

Patients present clinically with hematuria, low back pain, left flank pain, and symptoms of pelvic venous congestion.[1]

It is essential to perform thorough imaging studies to identify anatomical abnormalities and hemodynamic alterations, thereby facilitating a definitive diagnosis. Conventional surgical treatment is a valuable tool for resolving this pathology. This article presents a clinical case treated using a hybrid approach, combining traditional surgery with embolization of the distal venous bed using coils and foam.

CLINICAL CASE

A 58-year-old female patient with a history of arterial hypertension and hypothyroidism consulted for symptoms of lumbar and left flank pain, pelvic pain with dyspareunia, and long-standing microhematuria.

An angiotomography of the abdomen and pelvis showed signs of pelvic congestion with pelvic varices (*Figure 1*), compression of the left anterior variant renal vein (*Figure 2*), and an angle between the aorta and the superior mesenteric artery of less than 16 degrees (*Figure 3*).

We decided to perform conventional surgery with transposition of the left gonadal vein to the inferior vena cava, associated with embolization of the distal bed with coils and foam.

A supra-infra umbilical median laparotomy was performed, with mobilization and exposure of the left renal vein, the gonadal vein, and the inferior vena cava. Distally, phlebography was performed, which revealed numerous pelvic varicose dilatations. Selective cannulation with a microcatheter and embolization with 3% polidocanol foam, followed by coil placement, was performed.

Then, a transposition of the left gonadal vein to the inferior vena cava was performed (*Figure 4*). The patient experienced an uncomplicated postoperative period, characterized by complete remission of symptoms and the absence of microhematuria.

FIGURE 1. Angiotomography reveals the presence of pelvic varices.

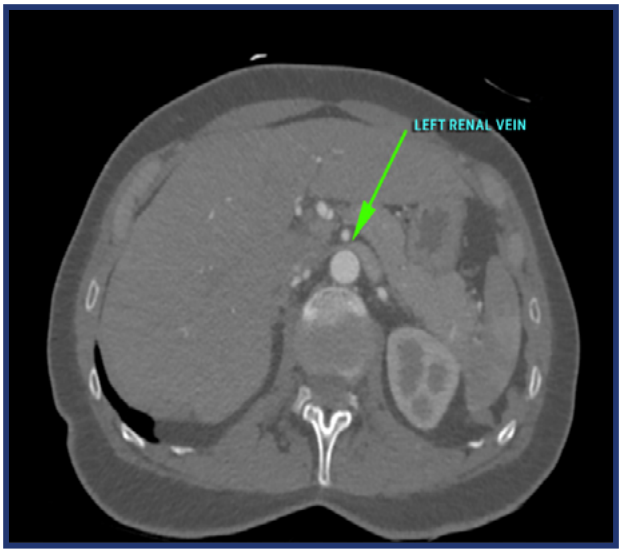

FIGURE 2. Angiotomographic image showing compression of the left renal vein at the level of the aortic-mesenteric junction.

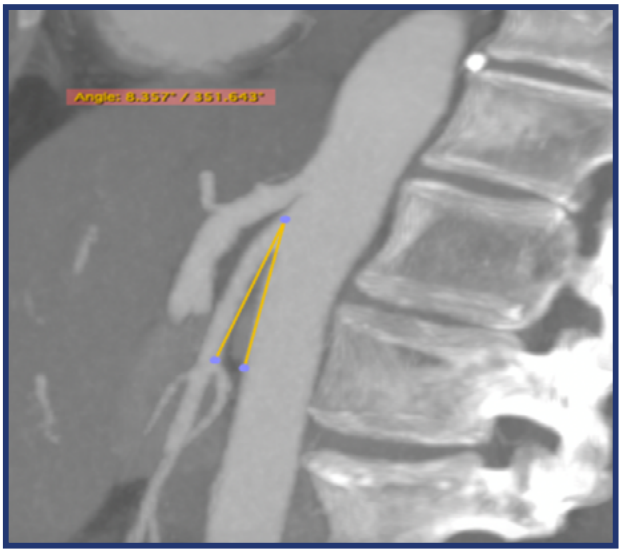

FIGURE 3. Angiotomographic image shows that the angle between the aorta and the superior mesenteric artery is less than 16 degrees.

FIGURE 4. Transposition of the left gonadal vein to the inferior vena cava.

DISCUSSION

Symptoms of pelvic venous congestion (pelvic pain, dyspareunia, and dysmenorrhea) are sometimes attributed to the presence of gonadal reflux. In some cases, this is associated with the concomitant presence of compression of the left renal vein between the aorta and the superior mesenteric artery.

Although recognizing the symptomatology and subsequently diagnosing nutcracker syndrome are essential, patient selection and the strategy employed are fundamental to achieving satisfactory results.

Among the therapeutic possibilities is endovascular treatment with stent placement in the left renal vein, first described in 1996. Most of the available data is found in case reports. One of the most extensive published series is that of Chen et al., with 61 patients who underwent left renal vein stenting, with a median follow-up of 66 months. Complications observed were stent maldeployment requiring surgical intervention and stent migration to the right atrium, which required cardiac surgery. New studies report a stent migration rate of 6.7%; this may be of concern because the stents often migrate to the right-sided circulation.[2]

Another study by Wu et al. included 75 patients treated with renal vein stent angioplasty, of whom 6.6% had stent migration.[3]

Nowadays, the endovascular approach with stent angioplasty in the renal vein has become popular, but it is not without potential serious complications such as thrombosis or migration. The long-term patency and durability of the stent have not yet been elucidated. A crucial point to consider is that most patients affected are young women, making the durability of the proposed treatment of utmost importance.

Concerning conventional surgical treatment, the therapeutic options include transposition of the left renal vein to the inferior vena cava, bypass using the saphenous vein, and transposition of the left renal vein with a saphenous vein cuff. An additional surgical alternative is gonadal vein transposition. This technique is feasible, as in many cases, the gonadal vein is dilated, and this procedure can

alleviate the symptoms of pelvic congestion.[4-5] One of the advantages is that it can treat patients with posterior nutcracker syndrome, avoids transection of the renal vein, requires only one anastomosis, and avoids the need for removal of the saphenous vein. Due to the characteristics and applicability of gonadal vein transposition, it has become a viable surgical strategy for treating anterior and posterior nutcracker syndrome.[6]

CONCLUSION

Nutcracker syndrome is a rare entity, and although multiple techniques have been developed for its treatment, the paucity of data and long-term follow-up do not allow for defining a single treatment strategy.

Some experts consider conventional surgery to be the primary treatment option. Although angioplasty with stenting has gained ground, the patency and long-term durability of this approach have yet to be clearly defined.

Declarations
The authors declare no conflict of interest.

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