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Nutcracker Syndrome as an Uncommon Cause of Isolated Hematuria in Adults

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Abstract

A 39-year-old patient presented with a 1-month history of isolated hematuria. Past history included chronic pelvic pain of 8 years' duration without identifiable organic cause. There was no personal or family history of genitourinary malformations, malignancy, or infection. Physical examination, laboratory tests, cystoscopy, and initial imaging were unremarkable. Computed tomography revealed compression of the left renal vein (LRV) between the abdominal aorta and superior mesenteric artery (SMA), with prestenotic dilatation and an aortomesenteric angle reduced to 14° (Figure 1, Figure 2). Magnetic resonance imaging showed dilated left pelvic veins (Figure 3). Based on clinical and imaging findings, the diagnosis of *Nutcracker syndrome* was established. Initial embolization of the left gonadal vein failed to provide symptom relief. Subsequently, renal autotransplantation involving laparoscopic nephrectomy and reimplantation into the right iliac fossa was performed. Recovery was uneventful, with complete resolution of symptoms at 12-month follow-up. *Nutcracker syndrome* is a rare vascular disorder that may present with chronic pelvic pain, hematuria, and, in males, varicocele. It is more commonly observed in young, slender women and represents an important cause of otherwise unexplained hematuria [1]. The underlying mechanism is compression of the LRV between the aorta and SMA, particularly when the aortomesenteric angle is reduced to less than 35° [2]. This leads to elevated venous pressure, the development of collateral circulation, and contributes to hematuria through pressure-induced vascular disruption. Diagnosis remains challenging because radiologic findings are often subtle and nonspecific, frequently delaying recognition in daily urologic practice. Endovascular interventions are considered the first-line therapeutic option; however, in refractory cases, surgical approaches—including renal autotransplantation—may be required [3].

Keywords: hematuria; *Nutcracker syndrome*; renal autotransplantation

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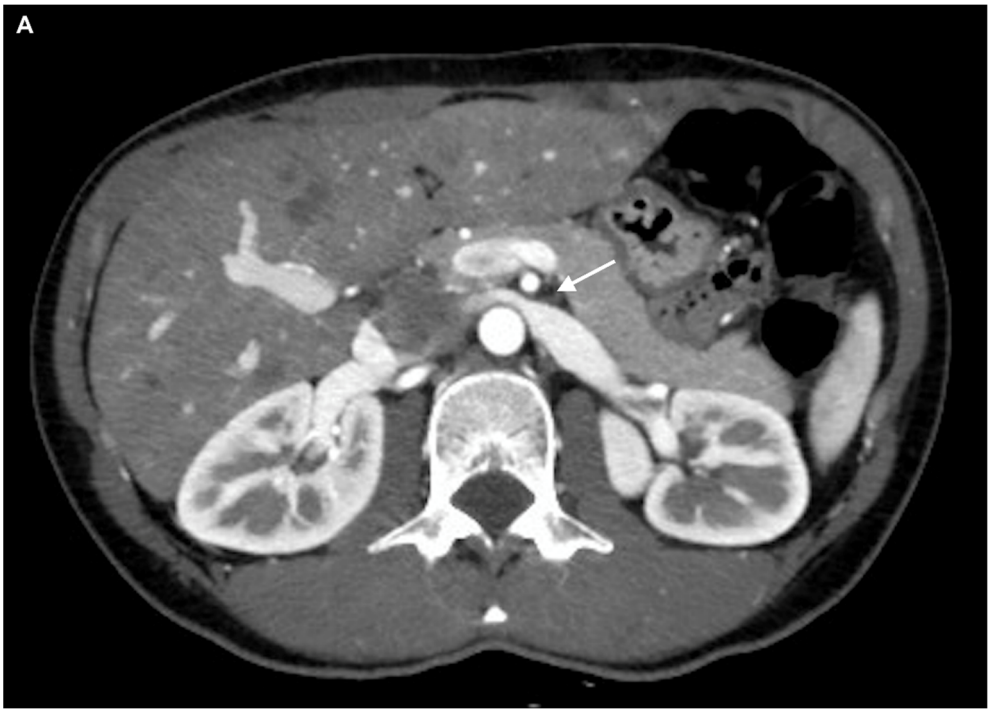

Figure 1. Axial computed tomography of a 39-year-old woman with Nutcracker Syndrome. There is compression of the left renal vein between the aorta and the superior mesenteric artery, with significant dilation of the left renal vein proximal to the stenosis (white arrow).

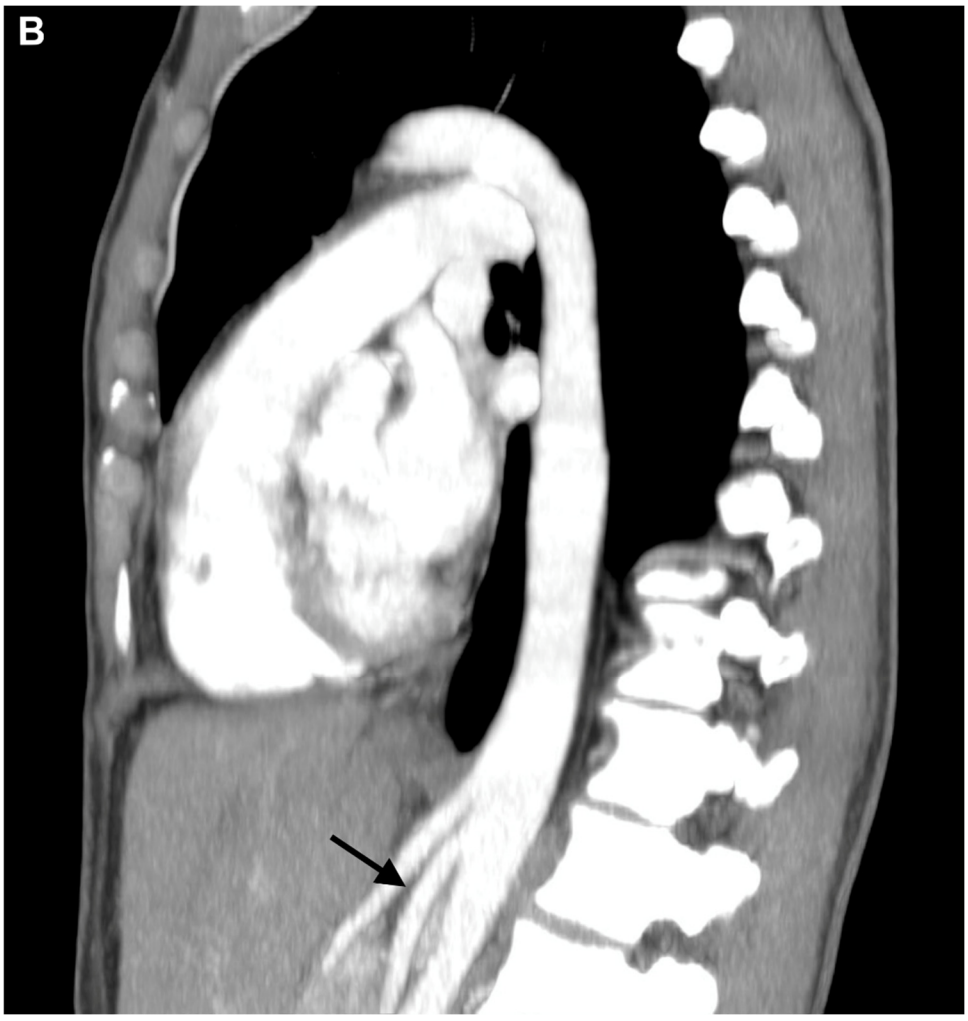

Figure 2. Sagittal computed tomography. The aortomesenteric angle is reduced to 14° (black arrow).

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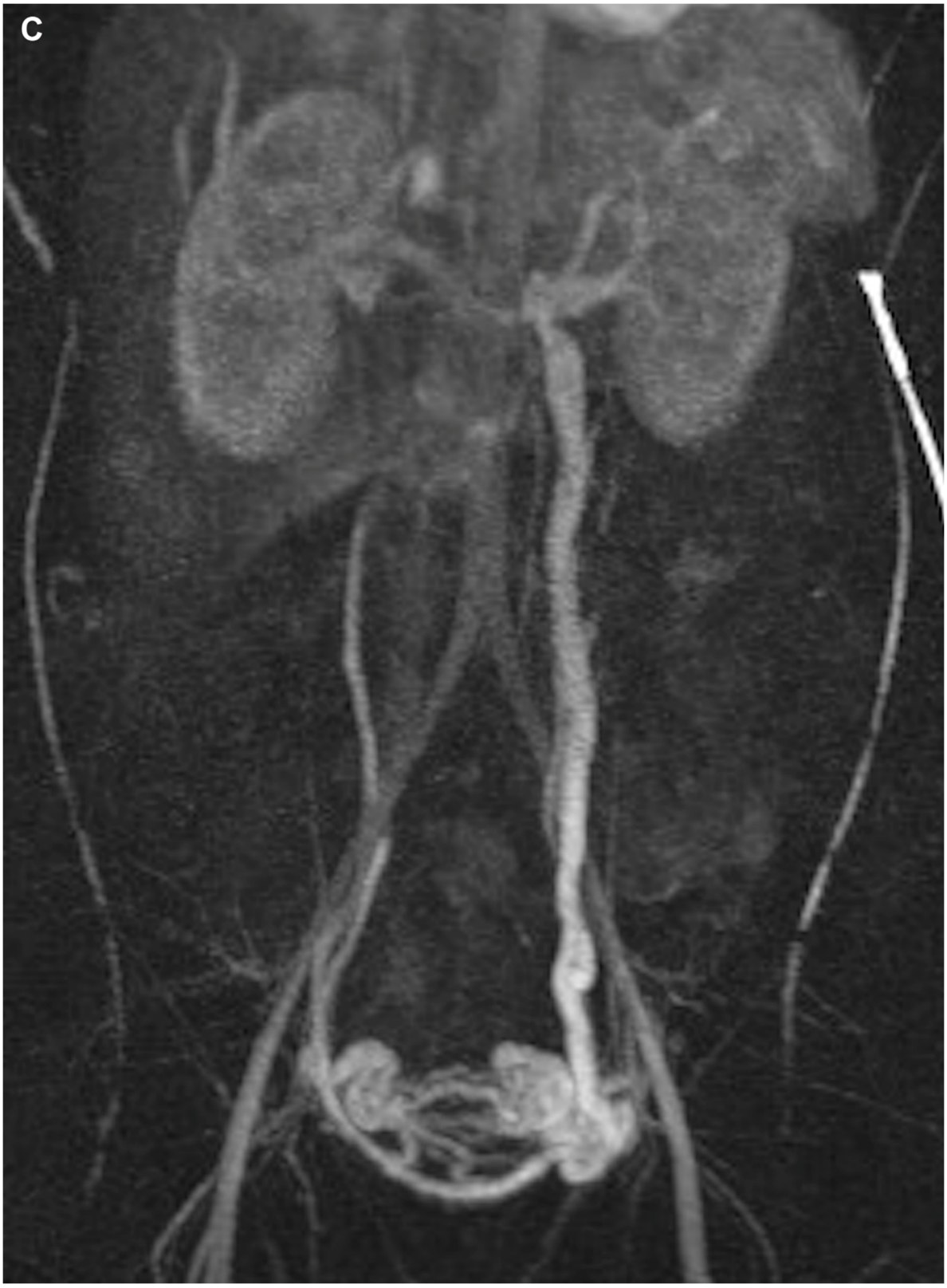

Figure 3. Magnetic resonance imaging, coronal plane. Dilated pelvic veins on the left side.

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Declaration of conflicting interest: The authors have no conflicts of interest to declare that are relevant to the content of this article.

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