



CLINICAL CASE

Nutcracker syndrome: Cause of non-glomerular hematuria and massive proteinuria

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Received 28 August 2014; accepted 2 October 2014

Abstract

Background: Nutcracker syndrome caused by compression of the left renal vein between the aorta and superior mesenteric artery is a non-glomerular cause of left renal bleeding and left varicocele. It has also been recognized to be an important cause of orthostatic proteinuria.

Case report: A 17-year-old male was evaluated due to recurrent macroscopic hematuria. Physical examination showed left varicocele. Body mass index was 16.3 kg/m². Urinalysis demonstrated hematuria and massive proteinuria. Renal biopsy showed mild mesangial glomerular proliferation. Cystoscopy showed hematuria originating from the left ureter. Doppler ultrasonography and contrast-enhanced computed angiogram revealed a peak velocity of the left renal vein of 20 cm/s, ratio of peak velocity of aortomesenteric and hilar portions of left renal vein of 7.7 and enlargement of the left renal vein in the hilar portion. With a diagnosis of nutcracker syndrome, the patient received conservative treatment. During follow-up, progressive remission of the recurrent episodes of hematuria and proteinuria was observed. The patient had no clinical symptoms or abnormal urinalysis. At 13 months of follow-up the body mass index was 19 kg/m².

Conclusions: This case shows the relationship between the increase in body mass index and remission of nutcracker syndrome, manifested as left varicocele, hematuria and massive proteinuria. All symptoms disappeared with the increase of body mass index, probably due to increase in retroperitoneal fat with improvement of the aortomesenteric angle of the left renal vein.

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