



Hematuria and low back pain: think of nutcracker syndrome



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BACKGROUND

Nutcracker syndrome is a rare cause of haematuria and low back pain. The left renal vein can be constricted between aorta and superior mesenteric artery (anterior nutcracker syndrome) or between aorta and spine (posterior nutcracker syndrome). Nutcracker syndrome incidence is underestimated and it can be an incidental finding or present with microhaematuria,

macrohaematuria, low back pain or varicocele.

We retrospectively revised our 11 nutcracker syndromes (Female 9/11=82%, age at diagnosis 35.5 ± 17.6), focusing on clinical presentation, radiological examination, complications and treatment.

RESULTS - Presentation

In 4/11 patients (36%), the nutcracker syndrome was diagnosed as an incidental finding during radiological examinations for other causes. Pain (with or without hematuria) was the most common cause of referral (6/11 cases) and an isolated relapsing macroscopic haematuria was present in one patients.

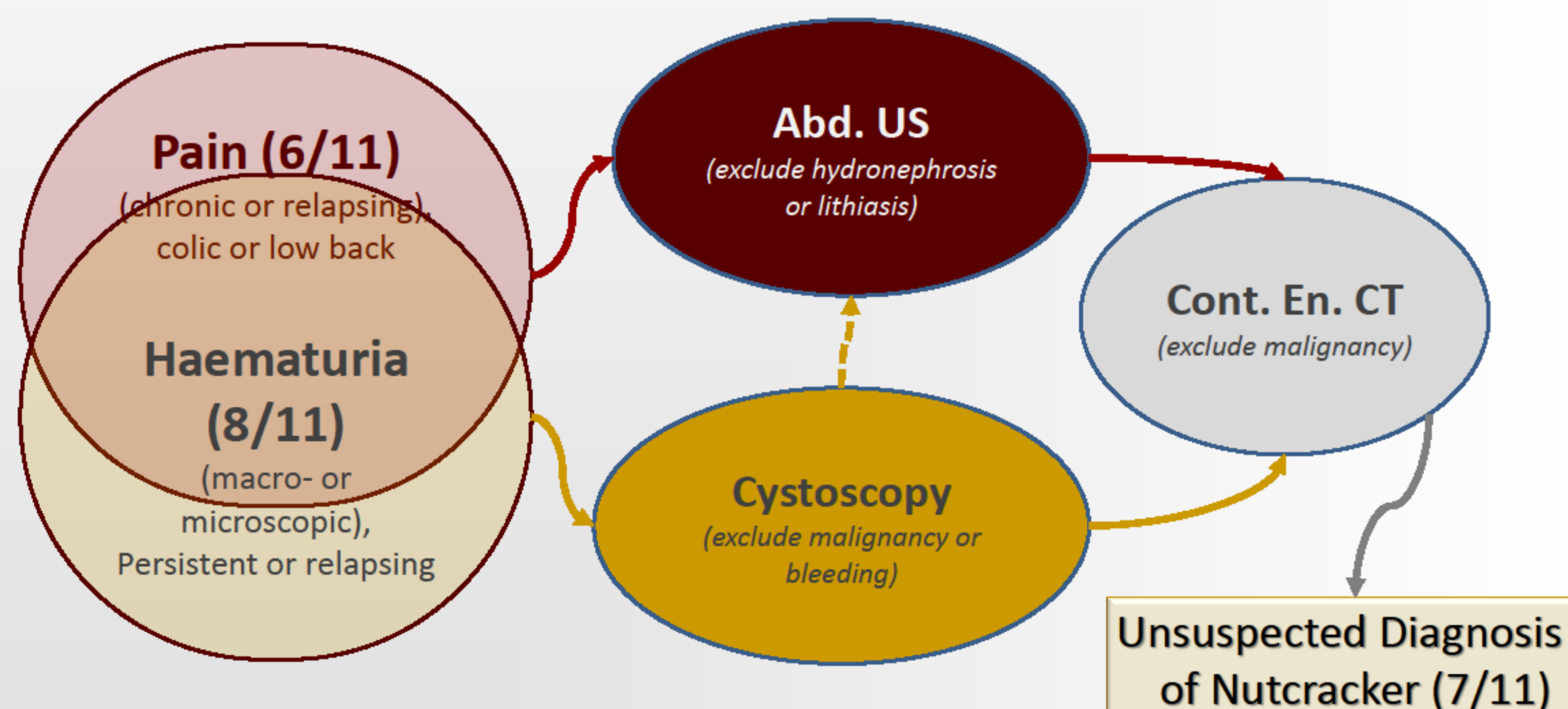
Signs and Symptoms

- Overall haematuria was present in 8/11 patients (73%), of which in 5/8 (63%) it was microscopic. Other causes of hematuria were excluded before diagnosing the syndrome.
- Proteinuria was found in 3/11 patients (27%): two of them had a low-grade proteinuria (<25 mg/dL), while the other one had an orthostatic proteinuria of more than 1 g/24h.
- Left low back pain or left colic pain was found in 6/11 patients (55%).
- No acute kidney injury episode was detected
- No recurrent UTIs were noted in any patient

RESULTS - Imaging

Common studies for recurrent or persistent haematuria include abdomen ultrasound and cystoscopy (which are usually unable to diagnose a nutcracker syndrome).

Back pain may be investigated with several imaging studies, the most common being CT and MRI.



Radiological diagnosis was made by CT scan (73%, 8/11), echo-color-doppler (18%, 2/11) or magnetic resonance (9%, 1/11). Posterior nutcracker were 36% (4/11) and anterior nutcracker were 64% (7/11).

DIAGNOSTIC CRITERIA

CT/MRI: compression of left renal vein (diameter reduction > 70%) with a pre-compression dilatation (>1.5x normal vein). Presence of collateral veins (not needed for diagnosis)

ECD: renal vein hypertension or flow reduction before compression or flow inversion.

DISCUSSION

Nutcracker syndrome is a rare cause of haematuria or low back pain.

This diagnosis should be taken into account after excluding urological causes of haematuria (neoplasia, infection, lithiasis) and "severe" nephrological causes (vasculitis, lupus nephritis, nephritic or nephrotic syndrome).

We cannot advice for a specific radiology examination, but -in our experience- **contrast-enhanced CT scan has proved to be very accurate.**

Specific therapy is usually not necessary, but a strict surveillance of pyelonephritis should be considered, particularly in high risk patients (ie: patients with relapsing UTIs, diabetic patients, smokers).

Anterior and posterior nutcracker syndrome had a similar benign outcome.

RESULTS – Follow up

None of the patients underwent any surgical or medical therapy. Painkillers were needed by most patients.

Renal functions has been stable in all patients after a mena follow up of 5.5 years.

One patient (9%) developed an acute pyelonephritis during the follow up, without any other known risk factor.

