Case 9116

Ureteral obstruction complicating Crohn disease
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Section: Abdominal imaging
Area of Interest: Abdomen Urinary Tract / Bladder Small bowel
Imaging Technique: CT
Special Focus: Inflammation Obstruction / Occlusion
Acute Abscess Case Type: Clinical Cases
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Patient: 19 years, female

Clinical History:
A young patient was admitted to the Emergency Department with characteristic clinical picture and laboratory abnormalities of an acute exacerbation of her known Crohn disease. One year earlier, she had undergone surgery with segmental ileal resection. Beyond intestinal and systemic complaints, the patient denied symptoms related to the urogenital system.

Imaging Findings:
Abdominal radiographs showed a gasless right hemiabdomen, moderately distended small bowel loops in the pelvic area without obstructive gas-fluid levels, and some gas in the left colon and rectosigmoid.
Further investigation included contrast-enhanced abdominopelvic CT, performed without any bowel preparation or distension. In the right iliac fossa, recurrent ileocaecal Crohn disease was diagnosed with convergent loops indicating enteric fistulisation. Peritoneal fluid was present in the pelvis.
Right hydronephrosis (with preserved renal parenchymal thickness and enhancement) was noted, with upper lumbar ureteral dilatation and progressive thinning when reaching an abscess collection abutting the retroperitoneal fascial plane.
Double-J ureteral catheter was placed preoperatively, and the patient underwent ileocecal resection with ureterolysis.
Postoperative CT at hospital discharge, completed with excretory-phase acquisition, revealed partial resolution of the right hydronephrosis with persistent dilatation of upper calyces and renal pelvis; ureteral double-J catheter was still in place.
The patient did well postoperatively and the ureteral stent was removed.

Discussion:
Urinary tract involvement, diagnosed in 4.3% of Crohn disease patients, is most common in females and may be clinically unsuspected due to minimal urogenital symptoms masked by intestinal complaints [1, 2].
Besides common manifestations such as cystitis and urolithiasis, unusual urologic complications include enterovesical fistulas and ureteral obstruction [2, 3].
Obstructive uropathy represents a rare extraintestinal manifestation of Crohn disease and has been reported to involve 1.9% of patients in a large series [4-6].
Hydro-ureteronephrosis is caused by transmural bowel inflammation through mechanisms of compression, fibrosis
or fistulisation [4]. Ureteral obstruction is by far more common on the right side (because of the right-sided ileum) and, as confirmed by the presented case, is highly associated with fistulising ileocolic disease and presence of an inflammatory mass [1, 5].

To avoid a delayed diagnosis and to ensure correct Crohn disease assessment, symptoms relating to the urinary tract such as recurrent infections, fever, dysuria, pneumaturia and fecaluria should be clinically addressed [1]. In the past urinary tract abnormalities were usually assessed with intravenous urography and renal scintigraphy. Currently, collecting systems dilatation is usually detected initially with ultrasound and further investigated by CT or MRI.

During imaging evaluation of Crohn disease with all modalities (ultrasound, CT and MRI) detection of hydronephrosis requires focused attention and careful reporting, since this uncommon feature may lead to altered surgical management.

Most patients are treated surgically, usually with ileocolic resection and ureterolysis; positioning of ureteral double-J catheter is minimising the risk of ureteral damage during surgery [1,3,5].

**Differential Diagnosis List:** Right-sided hydronephrosis due to ureteral obstruction by Crohn disease, Crohn disease acute relapse, Ureteropelvic junction obstruction, Ureteral fibrosis

**Final Diagnosis:** Right-sided hydronephrosis due to ureteral obstruction by Crohn disease

**References:**


Description: The supine (a) and upright (b) positions show gasless right abdomen, distended pelvic ileal loops without significant levels, some gas in the left colon and rectosigmoid. Origin:
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Figure 2

**Description:** Axial (a,b) and coronal-reformatted images (c,d) show recurrent ileoceleal Crohn disease with convergent loops aspect consistent with enteric fistulisation. Abscess collection abuts the retroperitoneal fascial plane. **Origin:**
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**Description:** Excretory phase CT acquisition with coronal MIP reformations show ureteral stent in place, partial resolution of right hydronephrosis, normal opacification of left urinary tract. **Origin:**
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