Case 14220

Retrocaval ureter: a congenital cause of right ureteral obstruction
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Section: Uroradiology & genital male imaging
Area of Interest: Kidney Urinary Tract / Bladder
Procedure: Diagnostic procedure
Technique: CT
Technique: Ultrasound
Special Focus: Dilatation Case Type: Clinical Cases
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Patient: 19 years, female

Clinical History:

We present a case report of a woman with lumbar pain and macroscopic hematuria.

Imaging Findings:

The proximal ureter courses posterior to the IVC and then emerges on the right side of the aorta and continues anterior to the right iliac vessels. CT and ultrasound are the main techniques used to study patients with these clinical symptoms, particularly the ultrasound which will easily show a right hydroureteronephrosis. CT usually permits additional characterization and proximal hydroureteronephrosis is easily identified. The abnormal position of the ureter in relation to the inferior vena cava is sometimes difficult to be detected. The accuracy of the study is improved with the late excretory phase, which allows identification of an opacified ureter. The right ureter’s course swings medially and passes behind the IVC by the inferior level of L3. It then exits anteriorly, between the IVC and the aorta, returning to its normal position.

Discussion:

A circumcaval ureter, also known as retrocaval ureter, is the result of an abnormal development of the inferior vena cava (IVC) and the ureter. The IVC develops ventral of the right ureter due to the persistence of the right subcardinal vein in the lumbar area [1].

Retrocaval ureter is a rare congenital abnormality [2] associated with right side hydroureteronephrosis. It usually has a S-shape that is due to the passage of the ureter posteriorly to the inferior vena cava (IVC). Although extremely rare, retrocaval ureter is the most common congenital venous anomaly that results in the obstruction of the ureter. Although congenital, some patients will only become symptomatic by the 3rd or 4th decade of life [2]. The typical symptoms are the lumbar pain, recurrent urinary tract infections due to urinary stasis, hematuria and kidney insufficiency. The radiologic imaging plays a crucial role in their diagnosis. The choice of surgical approach depends on the grade of the hydroureteronephrosis.
Differential Diagnosis List: Hydroureteronephrosis associated with retrocaval ureter, Retroperitoneal fibrosis, Retroperitoneal mass, Stone

Final Diagnosis: Hydroureteronephrosis associated with retrocaval ureter

References:


Description: Right kidney ultrasound showing a moderate degree of hydroureteronephrosis. Origin: Centro Hospitalar do Porto
Figure 2

Description: Moderate degree of right kidney hydroureteronephrosis. Origin: Centro Hospitalar do Porto
Figure 3

a

Description: Ureter encircling the IVC. Origin: Centro Hospitalar do Porto

b

Description: Ureter encircling the IVC. Origin: Centro Hospitalar do Porto
Figure 4

a

Description: Medial displacement of the ureter, with S shaped at the level of L3

Origin: Centro Hospitalar do Porto

b

Description: Maximum intensity projection (MIP) in coronal reconstruction showing the S configuration of the proximal ureter at the level of L3

Origin: Centro Hospitalar do Porto
Figure 5

a

Description: Non-dilatated ureter (arrow) emerges between the aorta and the IVC. Origin: Centro Hospitalar do Porto

b

Description: Non-dilatated ureter (arrow) between the common iliac artery and common iliac vein. Origin: Centro Hospitalar do Porto
**Description:** Abdominal x-ray done after the contrast CT, showing opacification of the excretory system, dilated on the right side with the S configuration at the level of L3. It's also possible to see the heart normodimensionated. **Origin:** Centro Hospitalar do Porto