Case 9363

Eurorad

Vesico-ureteric obstruction diagnosed on plain abdominal radiography

Published on 28.07.2011

DOI: 10.1594/EURORAD/CASE.9363
ISSN: 1563-4086
Section: Uroradiology & genital male imaging
Area of Interest: Kidney Urinary Tract / Bladder
Abdomen
Imaging Technique: Digital radiography
Imaging Technique: CT
Special Focus: Calcifications / Calculi Case Type:
Clinical Cases
Authors: Hughes-Roberts Y.With thanks to Professor AK
Dixon
Patient: 48 years, male

Clinical History:

A 48-year-old man presented with left loin pain. His pain was spasmodic and radiated to the groin. This was his first presentation. His renal function was within the normal reference range. On examination he was tender over the left renal angle and urinalysis confirmed microscopic haematuria.

Imaging Findings:

A kidney, ureter and bladder (KUB) radiograph was requested as the primary form of imaging. Calculi were identified, projecting over the upper pole of the left kidney and within the left distal ureter. Vesicoureteric obstruction was diagnosed with a standing column of urine within this distal ureter [Fig. 1]. It is also possible to identify the dilated distal ureter by virtue of the contrast provided by surrounding fat.

A subsequent prone unenhanced computed tomography (CT KUB) examination was performed. This confirmed a 4.5 mm upper pole calculus in the left kidney along with a further 4 mm calculus lodged at the left vesicoureteric junction (VUJ) causing left sided obstruction and a proximal hydroureter [Figs. 2 & 3].

Discussion:

The current gold standard for diagnosing suspected renal and ureteric colic is unenhanced multidetector CT [1]. Some centres prefer ultrasound in the first instance as a radiation free examination. Both techniques can identify calcification within the renal tracts and also confirm the presence of an obstructed system. These techniques have largely replaced previous protocols of performing a plain KUB abdominal radiograph with subsequent intravenous urography (IVU).

The diagnosis of obstruction was in this case made on the plain abdominal radiograph before the CT data became available. In this patient, the relationship of the distal obstructed ureter and its surrounding fat provided sufficient contrast for the distal ureter to be well demonstrated.

Differential Diagnosis List: Left vesico-ureteric obstruction, Vesico-ureteric obstruction, Renal colic

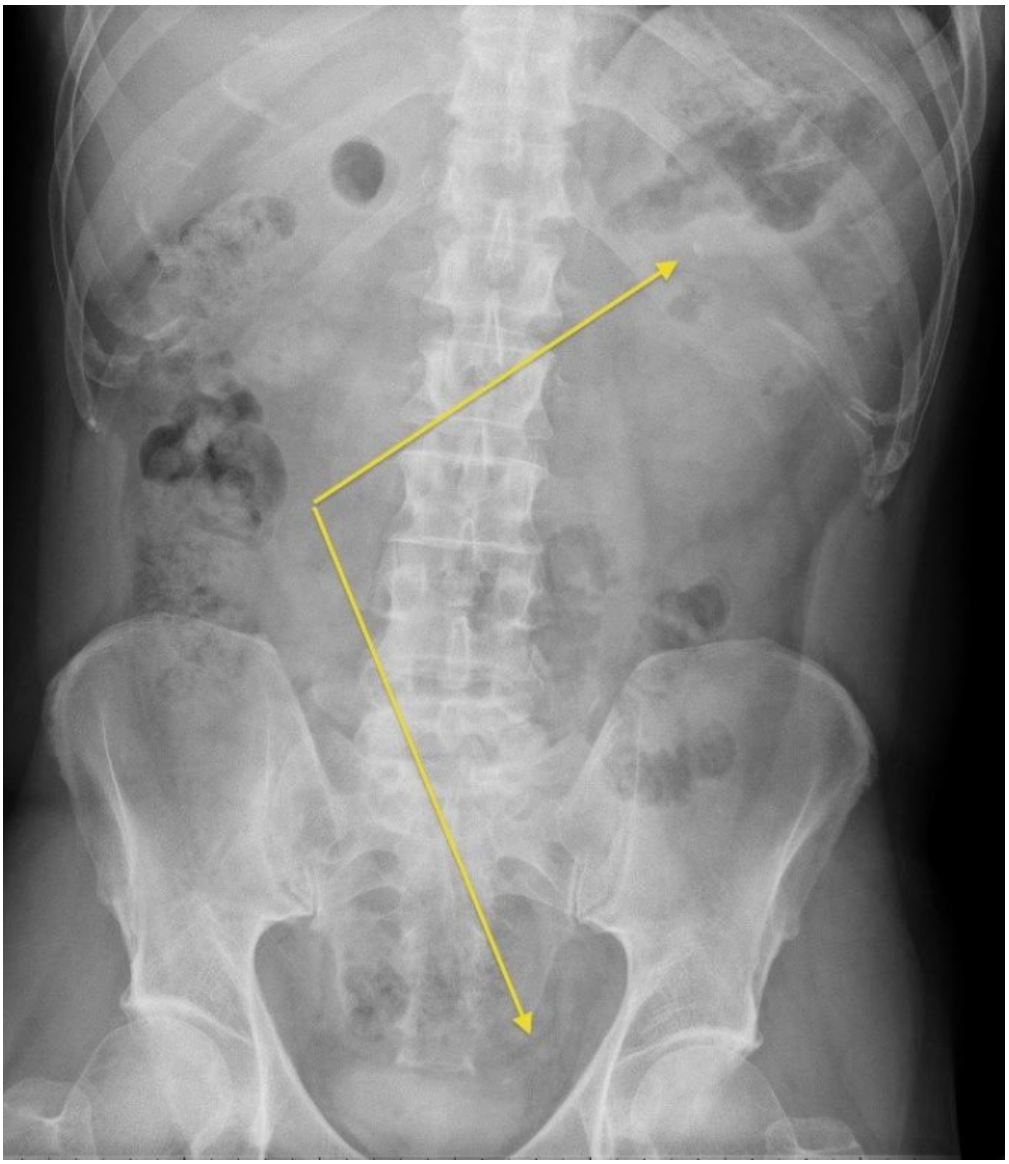
Final Diagnosis: Left vesico-ureteric obstruction

References:

The Royal College of Radiologists (2007) Making the best use of radiology services. Referral guidelines U04

Figure 1

a

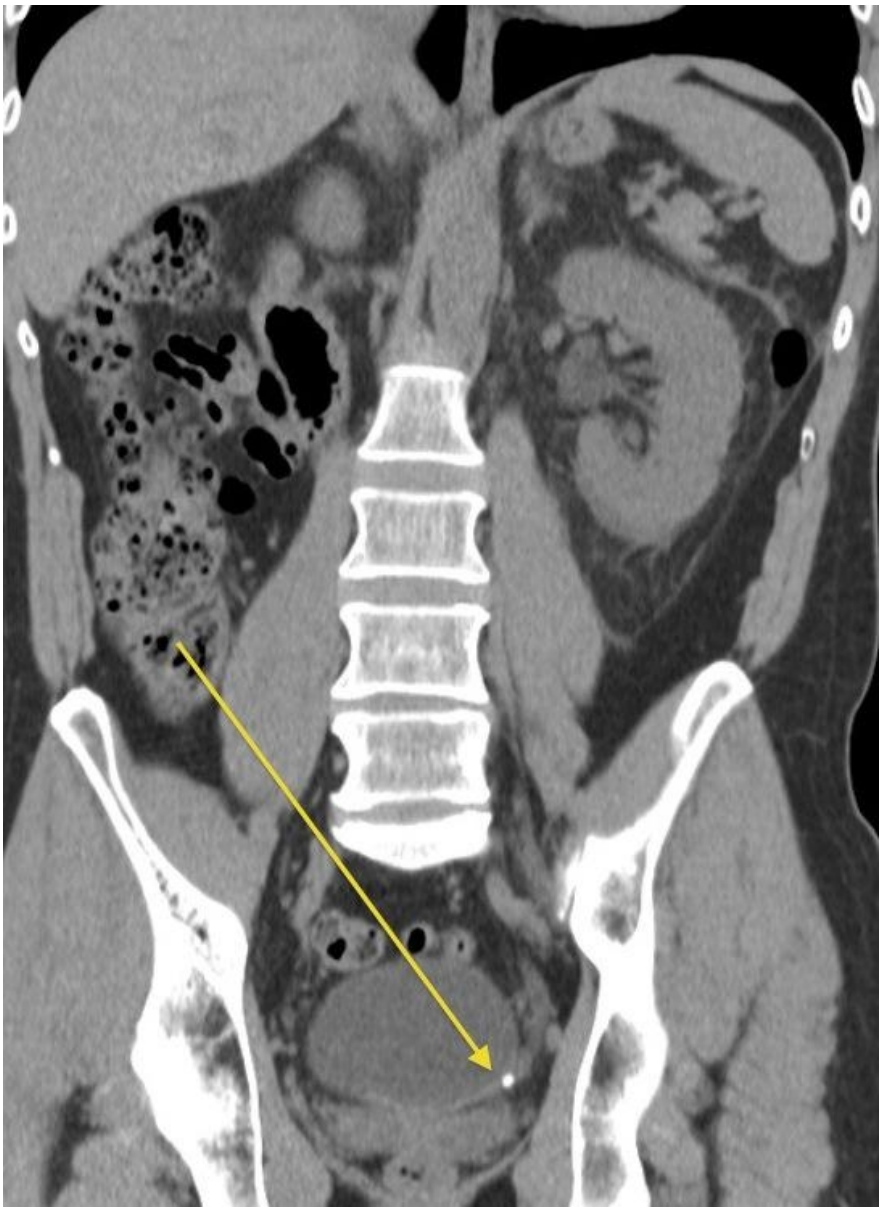


Description: Calculi are projected over the upper pole of the left kidney and at the VUJ (arrows). It is also possible to identify the dilated distal ureter by virtue of the contrast provided by surrounding fat.

Origin:

Figure 2

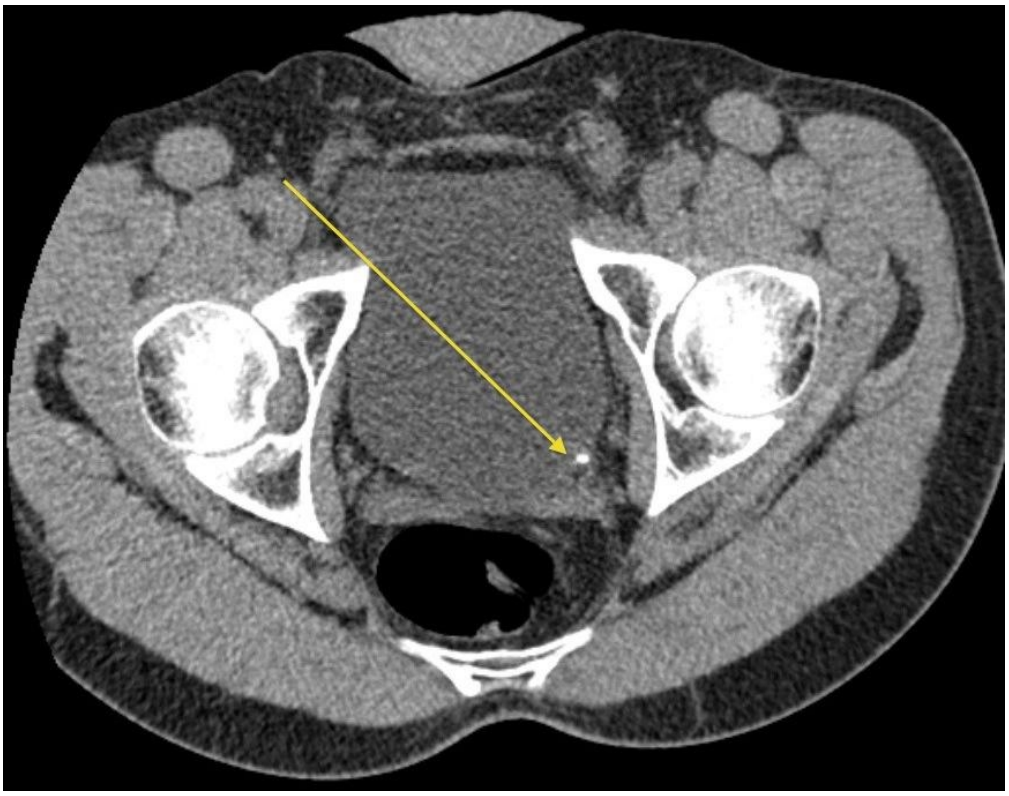
a



Description: Coronal oblique CT image showing a 4 mm calculus at the left VUJ with proximal dilatation of the left ureter surrounded by fat in the true pelvis, explaining the plain radiographic appearances. **Origin:**

Figure 3

a



Description: Axial CT image showing the calculus at the left VUJ. **Origin:**