Case 9344

Eurorad

Xanthogranulomatous pyelonephritis and a perinephric abscess presenting with large paraspinal fluid collection

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Section: Uroradiology & genital male imaging
Area of Interest: Urinary Tract / Bladder
Imaging Technique: CT
Special Focus: Abscess Case Type: Clinical Cases
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Patient: 82 years, female

Clinical History:

An 82-year-old female patient presented with 2 week history of lethargy, vomiting, suspected fall and a tense firm swelling on her left flank. Bloods showed an inflammatory picture with deranged renal function. Ultrasound showed a large para-spinal collection not typical of traumatic haematoma, suggesting that it originated within the abdomen.
Imaging Findings:

The abdominopelvic CT examination showed renal appearances in keeping with bilateral duplex collecting systems, with bilateral staghorn calculi related to both lower renal moieties.

The fluid collection in left flank originated from the upper moiety of the left kidney, with perinephric inflammatory changes extending to form an abscess pointing superficially in the left flank (Fig. 1 & 2).

The right upper renal moiety appeared atrophic, and was associated with a large mixed attenuation mass, at its largest 15 cm in diameter. The images demonstrated that this extensive right sided peri-renal expanse of fatty tissue had caused destruction of renal parenchyma with multiple low-density rounded areas, extension to the psoas muscle inferomedially, and squashing of the inferior vena cava (Fig. 2, 3, 4 & 5). The second staghorn calculus was seen in the right lower renal moiety (Fig. 5).
Discussion:

Chronic xanthogranulomatous pyelonephritis is a rare and severe form of chronic renal infection associated with obstructive uropathy, commonly secondary to nephrolithiasis, with staghorn calculi being present in 34 - 48% of cases [1, 2]. The condition is almost exclusively unilateral and is characterised renal parenchymal destruction by lipid-laden macrophages, with definitive diagnosis made by histopathological assessment [1].

Clinical features vary from patient to patient but often include fevers, rigors, loin tenderness, loin mass and weight loss [1, 3, 4]. Our patient presented with vague and non-specific symptoms common in cases of XGP, with the flank swelling initially thought to be a haematoma related to a fall some weeks before.

The common CT characteristics of XGP from the literature include; an enlarged kidney maintaining a reniform shape, the presence of a calculus within renal pelvis/calcies, multiple low-density fluid filled areas representing

abscess and necrotic areas, contrast enhancing rims, the bear paw' sign and spread of the disease beyond the kidney (often to psoas muscle, peri- and pararenal spaces, with further cases documenting spread to lung and spleen) [1, 2, 4].

It was felt that in view of our patient's other co-morbidities, further investigation for definitive diagnosis by biopsy was not warranted. However, the CT scan showed many of the features of XGP, namely the presence of a calculus within renal calyces with multiple low-density areas spreading extensively through the abdomen to the psoas muscle and compressing the inferior vena cava.

Optimal treatment of XGP involves appropriate antibiotic therapy with surgical intervention in the form of either percutaneous drainage or open drainage, with partial or total nephrectomy [3].

Of course this case XGP was an incidental finding on CT study aimed at identifying the source of our patient's flank fluid collection. This case illustrates an obstructive uropathy with bilateral staghorn calculi manifesting in two clinical conditions; on the left side with formation of a large peri-renal abscess, and on the right with advanced and extensive chronic XGP.

Differential Diagnosis List: Bilateral duplex collecting systems with staghorn calculi, perinephric abscess and xanthogranulomatous pyelonephritis, Renal cell carcinoma, Haematoma, Tuberculosis

Final Diagnosis: Bilateral duplex collecting systems with staghorn calculi, perinephric abscess and xanthogranulomatous pyelonephritis

References:

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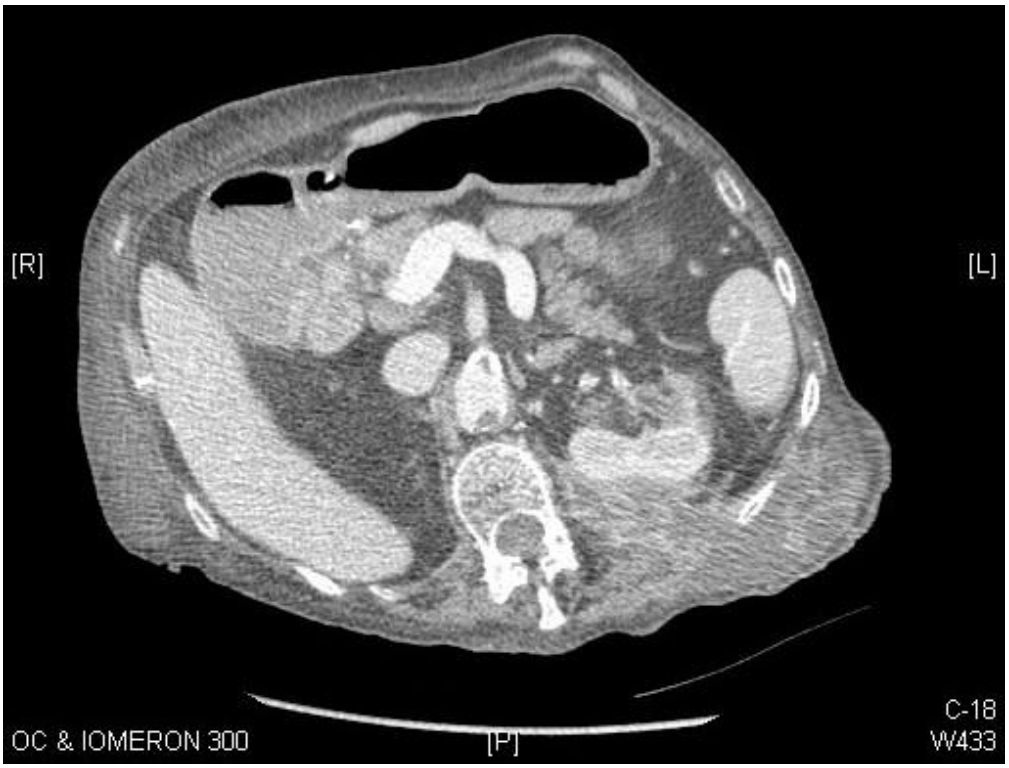
Figure 1

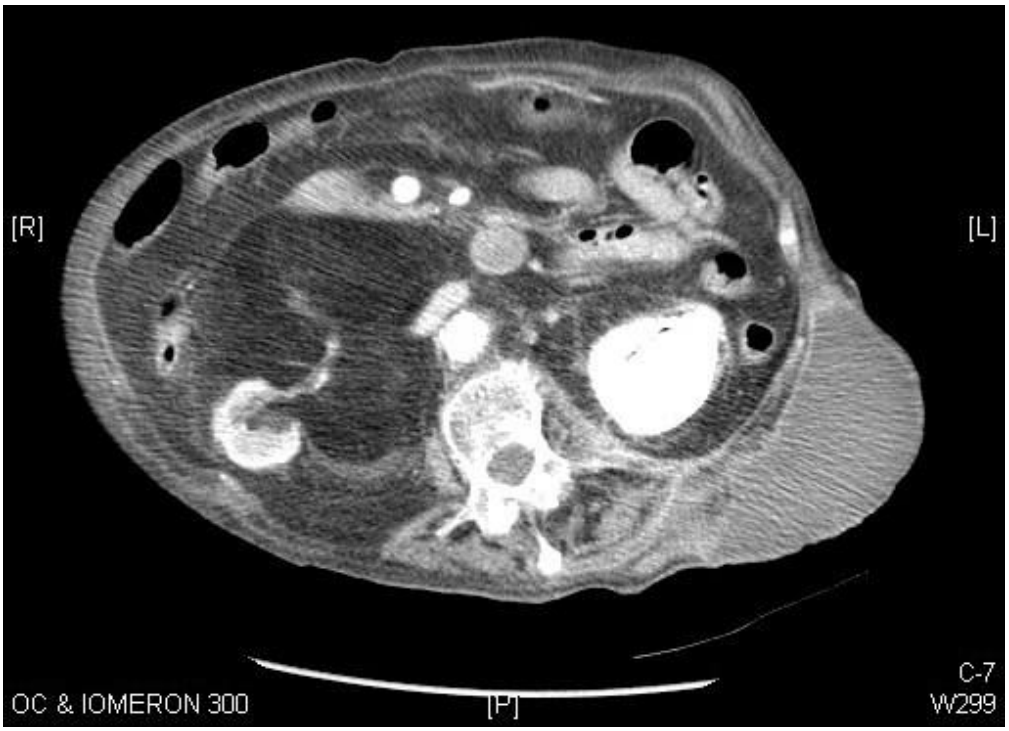
a



Description: An axial non-contrast CT image at the level of the left kidney demonstrating the perinephric inflammatory changes associated with the left upper moiety, with extension to form an abscess pointing superficially in the left flank. **Origin:**

Figure 2

a

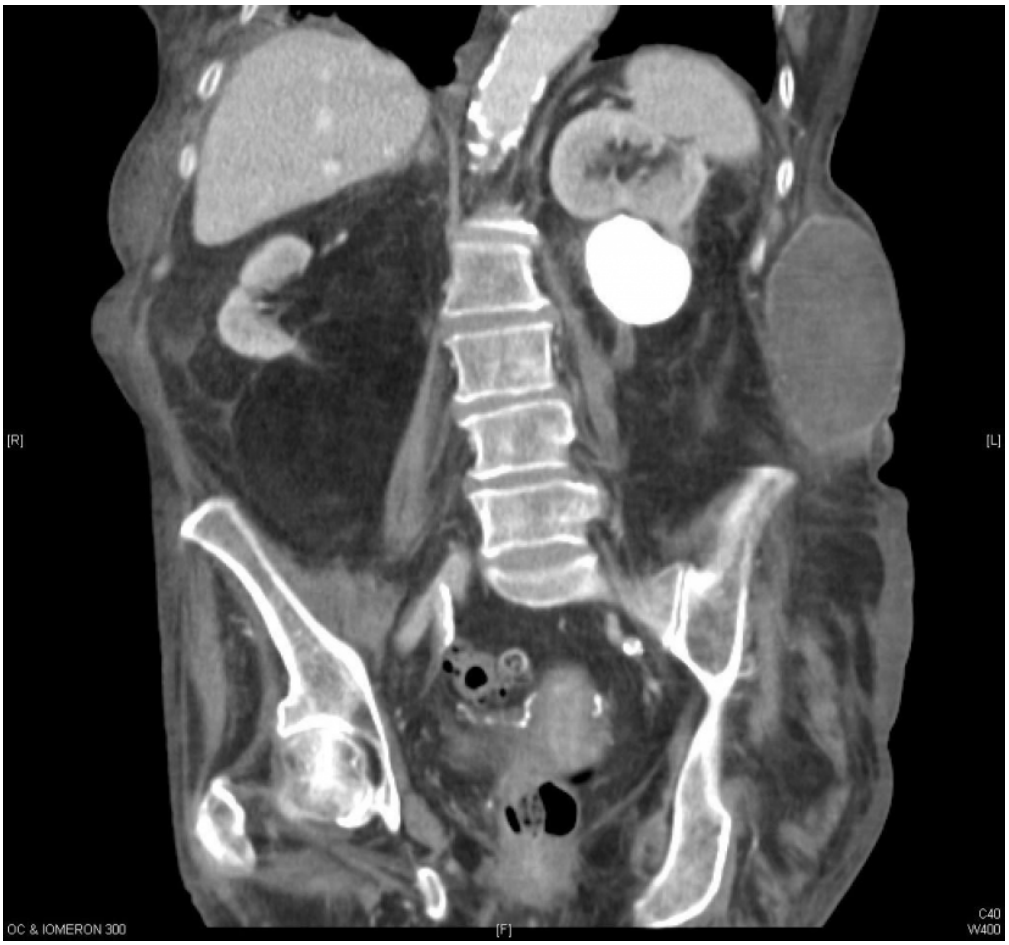


Description: CT image demonstrating the left flank fluid collection and staghorn calculus. Also note the right sided mixed attenuation mass associated with an atrophic appearing right upper renal moiety.

Origin:

Figure 3

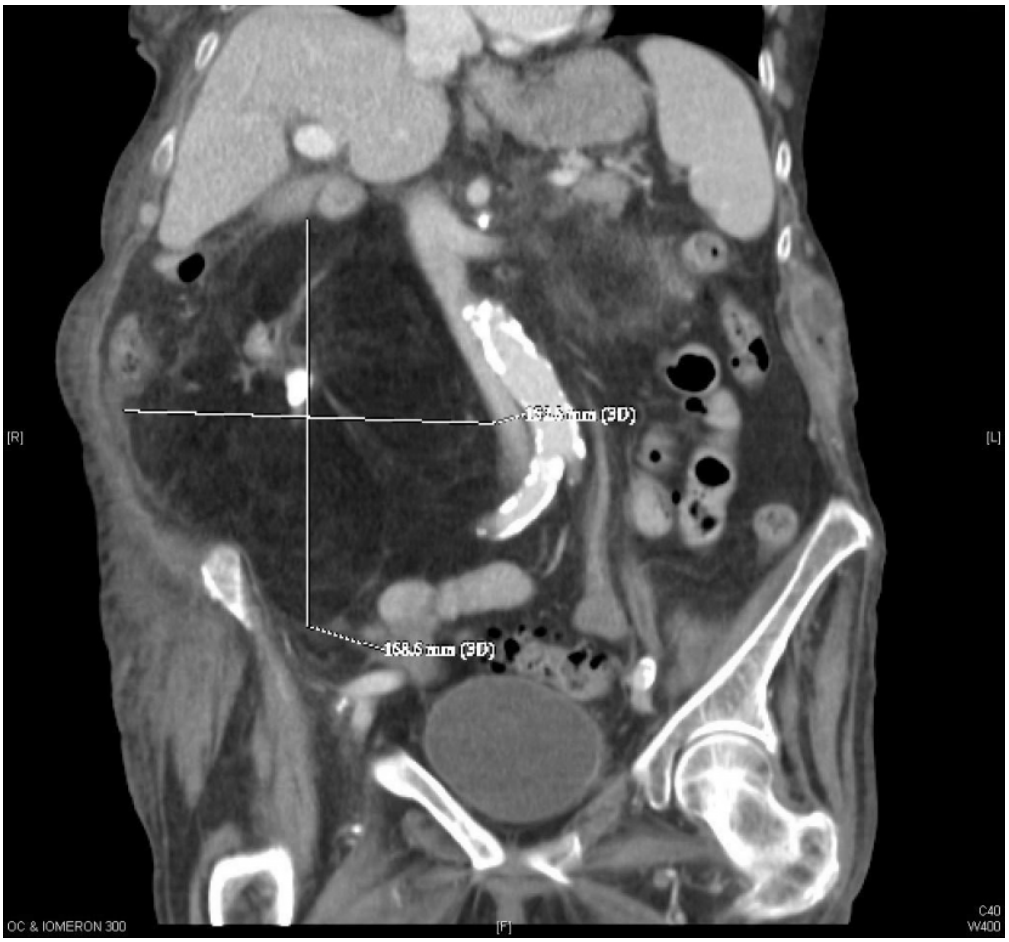
a



Description: A coronal view showing the large mixed attenuation mass associated with right upper renal moiety, with extension to the psoas muscle inferomedially. Note also the left renal staghorn calculi and left flank fluid collection. **Origin:**

Figure 4

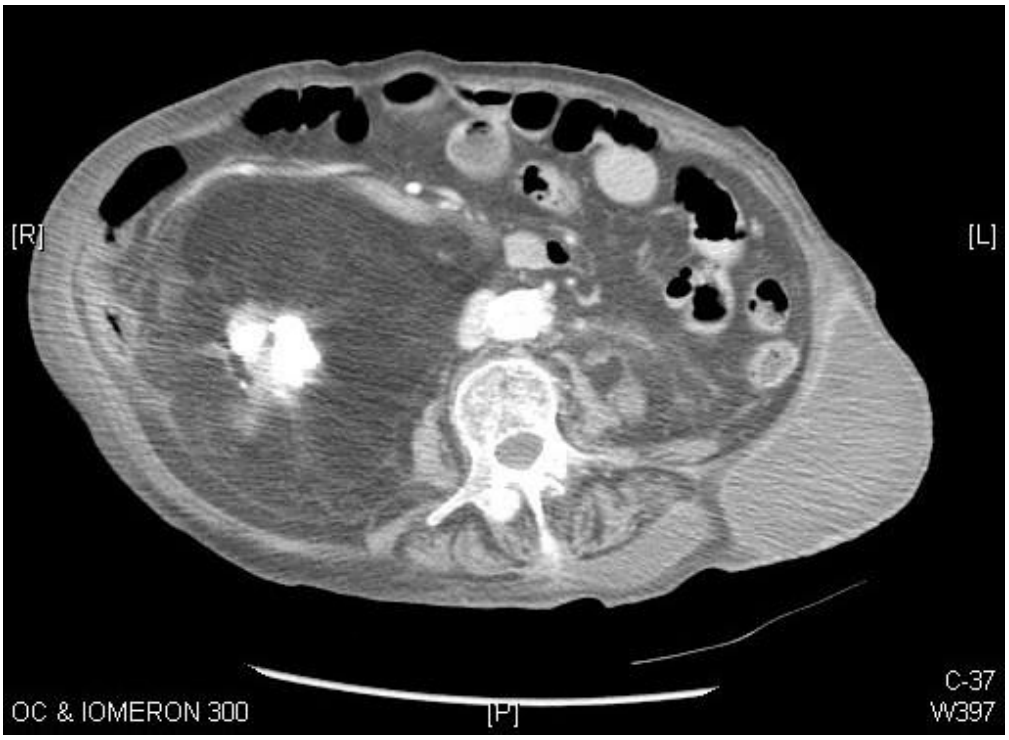
a



Description: Further coronal view showing the large right sided mixed attenuation mass at its greatest diameter of 15 cm. The right staghorn calculus is also seen here. **Origin:**

Figure 5

a



Description: An axial non-contrast CT image at the level of the right kidney demonstrating the right staghorn calculi and compression of the inferior vena cava. **Origin:**