Xanthogranulomatous pyelonephritis

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Clinical

A 60-year-old woman was admitted with history of nausea, vomiting, lethargy and dizziness of 1 week’s duration. She denied any history of dysuria, polyuria or abdominal pain. She had no previous history of renal calculi or urinary tract infection.

Following blood results were obtained: sodium 130 mmol/L (135–145), potassium 7.6 mmol/L (3.5–5.0), chloride 104 mmol/L (98–110), anion gap 7 mmol/L (10–20), urea 76.6 mmol/L (3.0–7.1), and creatinine 1421 µmol/L (60–130). Arterial blood gas analysis revealed a pH of 7.14 (7.35–7.45), pCO₂ of 22 mmHg (33–45), pO₂ of 133 mmHg and a base excess of -20.3 whilst inhaling oxygen at 3 L/min.

Urinanalysis showed large amounts of blood and was positive for nitrite and Ca500. Renal ultrasound showed a large lobulated staghorn calculus in the right kidney and replacement of the right renal parenchyma with multiple round hypoechoic lesions. The left kidney had similar appearances however the calcification in the renal pelvis was smaller measuring 1.4 cm. The round hypoechoic lesions also appeared smaller and somewhat less numerous. *Escherichia coli* grew in urine culture. Ciprofloxacin was prescribed.

Computerised tomographic (CT) scan showed bilateral obstructive staghorn calculi. Left kidney was atrophic and both kidneys were largely replaced by circular communicating low density fluid collections (see Figure 1).

Figure 1
Discussion

Xanthogranulomatous pyelonephritis (XGP) is a rare chronic pyelonephritis caused by previous urinary tract obstruction and recurrent infection. The renal parenchyma is destroyed and replaced by lipid laden foamy macrophages. Vast majority of patients are middle-aged women and present with fever, flank or abdominal pain, anorexia, weight loss and lower urinary tract symptoms. In 90% of cases a single kidney is diffusely affected.

Involvement of both kidneys is exceedingly rare. Escherichia coli and Proteus mirabilis are the most common organisms. Diagnosis is usually suggested by CT scan findings, which typically shows renal enlargement, calcification filling the renal pelvis, and replacement of the renal parenchyma by multiple hypodense areas.

Treatment usually involves antibiotics and total or partial nephrectomy. Nephrectomy is usually done for advanced disease. Focal or bilateral XGP should be treated with antibiotics particularly if the patient is not a surgical candidate because of other comorbid conditions. Antibiotics are also required pre- and postoperatively in surgical patients.

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