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Xanthogranulomatous Pyelonephritis

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Clinical Image

A 32-year-old female with medical history of schizoaffective disorder presented with on and off fever, chills, abdominal pain, fatigue and 30 pounds weight loss over the period of last 6 months. Examination was positive for right flank tenderness. A CT (Computed Tomography) scan of abdomen showed staghorn type calculus and calyceal dilatation, commonly known as Bear Paw sign (Figure 2A). An MRI (Magnetic Resonance Imaging) abdomen with and without contrast was performed that showed 15.3 x 11.8 x 10.9 cm mass in the right kidney with restricted diffusion and thin peripheral enhancement suggestive of xanthogranulomatous pyelonephritis (Figure 3). A CT guided nephrostomy tube was placed in multiloculated right renal collection and noted to have drainage with milky consistency. A urine and nephrostomy drain fluid culture came back positive for proteus mirabilis and the patient was treated with antibiotics for 2 weeks. An open radical right nephrectomy was performed with subsequent improvement in her symptoms of fatigue and abdominal pain. The histology exam revealed marked granulomatous inflammation without any evidence of malignancy.

Xanthogranulomatous pyelonephritis (XGP) is also known as pseudotumor due to its clinical and radiological similarities. The incidence varies from 0.5% to 1% of all kidney infections and is more common in women than men. It is a rare variant of chronic pyelonephritis and commonly associated with nephrolithiasis resulting in chronic obstruction and infection. This chronic infection of the kidneys is characterized by the destruction of renal parenchyma and the presence of granulomas, abscesses, and cellular infiltrates of lipid-laden macrophages (foam cells). It is classified into diffuse, segmental, and focal based on kidney involvement. The abscess and fistulae formation are a rare complication. Antibiotics can be given in acute infection, but partial or total nephrectomy remains the definitive treatment and carries excellent prognosis.

Figure 1: Ultrasound renal showing dilatation of the collecting system with heterogeneous debris and scattered calcifications in right kidney.

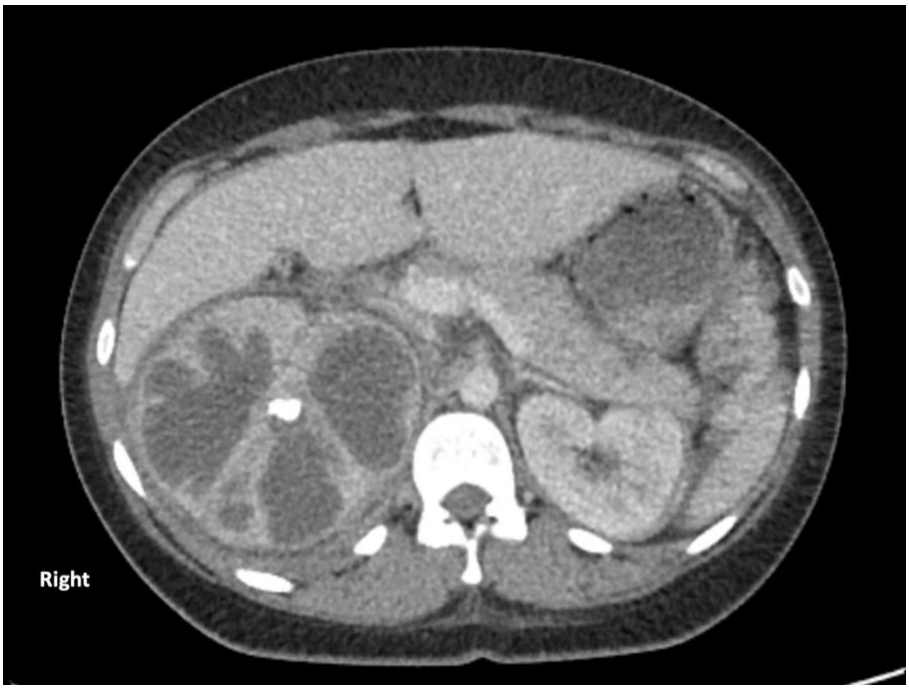

Figure 2A: A CT Scan image demonstrates enlarged right kidney with calyceal dilatation (Bear Paw sign) and staghorn calculi.

Figure 2B: A Coronal view of CT scan showing cystic lesion and staghorn calculi in right kidney.

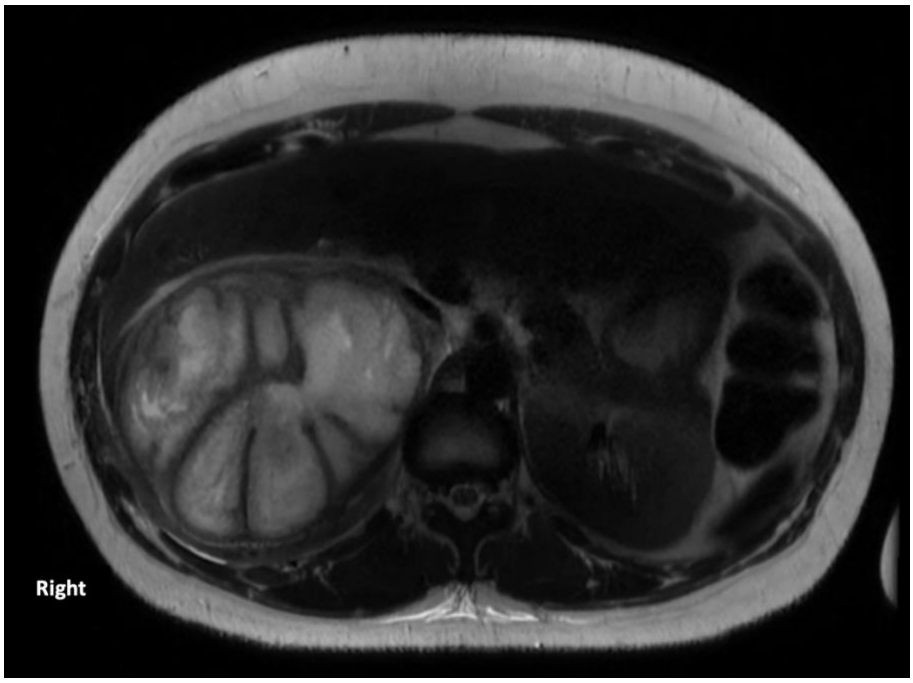

Figure 3: An MRI showing a large mass like lesion in the right kidney replacing the upper and mid polar region of the kidney imaging characteristics most consistent with simple granulomatous pyelonephritis.

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