

XANTHOGRANULOMATOUS PYELONEPHRITIS

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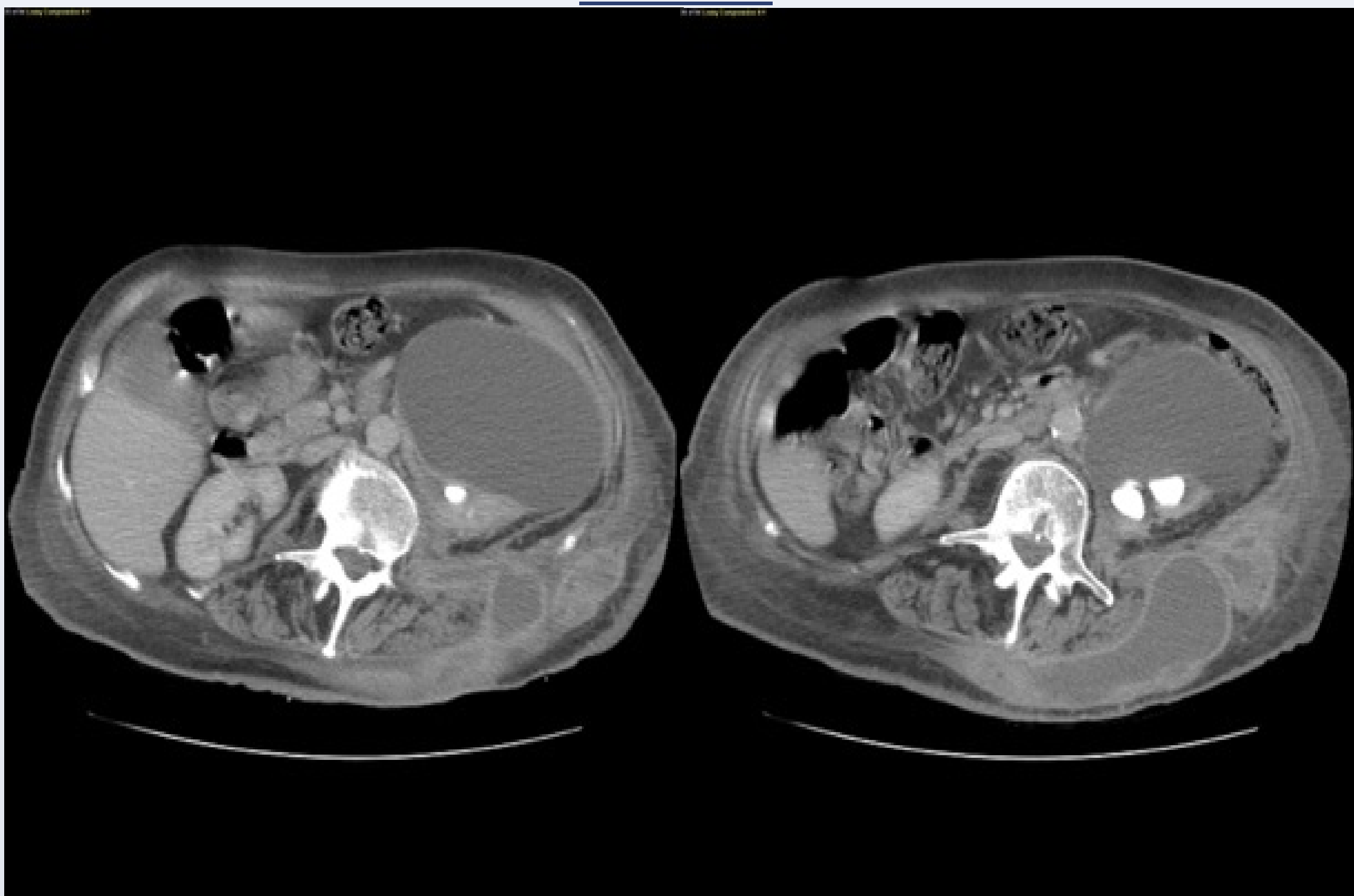
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INTRODUCTION

BACKGROUND: 83-year-old female with past medical history of chronic lymphocytic leukemia presented to the emergency department after her stepdaughter noticed an enlarging raised erythematous left flank lesion. In the ED the patient had the lesion lanced with copious purulent drainage which prompted the provider ordered a follow up CT due to clinical suspicion of further extent.

IMAGING



CT: Initial contrast enhanced axial CT images at the level of the kidneys show left kidney stone with adjacent intrarenal fluid collection and adjacent small peripherally enhancing fluid collection in the left flank extending through the peritoneal cavity (left image). Lower axial CT image shows larger extent of the extraperitoneal left flank fluid communication (right image).



CT: Coronal CT shows staghorn calculi of the left kidney with large renal fluid collection. Extraperitoneal communication and extension into the left flank is not appreciated. Incidental levoscoliosis involving the lumbar spine is also present.

CLINICAL COURSE

The patient had the multiple subcutaneous fluid collections drained which turned out to be abscesses and urology was consulted to biopsy and possibly drain the complex left renal collection. After the left renal abscess was drained and multiple drug resistant *Proteus* was cultured, it was felt that the staghorn calculi represented xanthogranulomatous pyelonephritis and was acting as a nidus for the bacterial infection. The patient underwent left nephrectomy and was subsequently discharged after recovery.

DISCUSSION

Xanthogranulomatous pyelonephritis (XGP) is the clinical manifestation of a chronically infected staghorn calculi most commonly by *Proteus mirabilis* or *Escherichia coli*. The chronic infection results in destruction of renal parenchyma which can appear as hypoattenuating masses composed of fibrofatty debris and lipid laden macrophages in a radial arrangement resembling a bear's paw which has given rise to the "bear paw sign". Symptoms are usually nonspecific and consist of dull flank pain, fever, weight loss, anemia, and hematuria. Occasionally the inflammation can extend through the pararenal space, through the abdominal wall, and into the subcutaneous soft tissues and present with abdominal wall or flank abscess which was what happened in this case. Large renal calculi are almost always present and act as the source of continued infection. Ultrasound findings are a large echogenic calculi with posterior shadowing and surrounding hypoechoic or complex fluid collections. There is usually parenchymal thinning, hydronephrosis, and perinephric fat stranding or fluid. CT shows multiple hypoattenuating masses throughout the kidney and a characteristic staghorn calculi. Perirenal fat stranding and potential abscesses may be present as well as significant hydronephrosis. Contrast reveals rim enhancement of the fluid collections without contrast uptake or excretion from the collecting system of the effected kidney. The differential diagnosis of XGP includes renal abscess, pyelonephritis, primary neoplasms such as renal cell carcinoma, and transitional cell carcinoma, as well as renal metastases or lymphoma. There is a gender predilection of 3/1 or 4/1 female to male ratio based on the source. Treatment is nephrectomy with generally a favorable prognosis.

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