Ruptured emphysematous renal cyst

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Abstract
Renal Cyst infections are rare, account for approximately 10% of causes for hospitalization in patients with adult polycystic kidney disease. We reported a rare case of ruptured emphysematous renal cyst with infection extending into the right perinephric space with gas forming organism involving the renal collecting system and the urinary bladder.

Key Words: Cyst, emphysematous, infection

INTRODUCTION
Renal cyst infections are rare clinical entity that usually occurs in patients with adult polycystic kidney disease. It is estimated that patients with adult polycystic kidney disease have an incidence of 0.01 episodes/patient/year. Cyst infections account for approximately 10% of causes for hospitalization in patients with adult polycystic kidney disease.1

CASE REPORT
We report a case of a 55-year-old morbidly obese male patient, who is a known case of diabetes mellitus, end-stage renal disease on hemodialysis and peripheral vascular disease. He had left below knee amputation, right above knee amputation and right extra anatomical axillobifemoral bypass graft.

Presentation
The patient presented to our emergency department (emergency room [ER]) with right-sided abdominal pain, vomiting and fever for 2 days.

On examination, the patient was conscious, alert and oriented, but he looked pale and sick.

He had a temperature of 37.8°C, blood pressure of 150/90 mmHg and oxygen saturation of 95% on room air. His abdomen was distended and tympanic with right upper quadrant and right flank tenderness.

Investigations
Total leukocyte count was 20 × 10³ hemoglobin 10.7 gm%. He was acidotic with pH 7.33, with laboratory evidence of end-stage renal disease.

A chest X-ray demonstrated air under the right hemidiaphragm, [Figure 1].

The patient was evaluated by the general surgeon with the impression of perforated viscous. So computed tomography (CT) scan with contrast was done by general surgeon, demonstrated right perinephric collection with extension into the right sub-phrenic region, [Figures 2 and 3] with gas in the right collecting system and urinary bladder. There was no gas in the renal parenchyma.
Computed tomography also showed an incidental finding of the right atrial thrombus [Figure 4].

Started on parenteral antibiotics in ER and admitted to intensive care unit.

Because of the very high risk for surgical intervention, the patient had a trial of percutaneous drainage, which failed because of the dry and very thick nature of the collection.

He was evaluated by the anesthetist who suggested that he is not fit for general anesthesia, and requested to do the minimal life-saving procedure.

So under epidural anesthesia and sedation the patient had an open drainage of a very thick, foul smelly, loculated perinephric and sub-phrenic collection. Cystoscopy then showed a very abnormal bladder mucosa with multiple cystic lesions with air “bubbles” all over the bladder. A ureteric Double J stent was inserted in the right ureter to drain the collecting system and urethral catheter to drain the bladder. The patient was reasonably well during the procedure. Unfortunately, his condition started to deteriorate on the next day. Culture of the collection showed *Klebsiella pneumonia* extended-spectrum β-lactamase.

The patient’s condition continued to deteriorate, and he died after 2 days with severe sepsis and multiple organ failure.

**DISCUSSION**

Emphysematous renal cyst infections are rarely reported in the literature we only know five reported cases. All other cases were reported in patients with adult polycystic kidney disease.

Kim, *et al.* reported a successfully treated emphysematous renal cyst infection in a patient with adult polycystic kidney disease with a combination of intravenous antibiotics and intracystic...
antibiotic therapy.[2] Sooraj et al. referred to the condition as (emphysematous polycystic renal infection) and he reported the condition in a nondiabetic patient with autosomal dominant polycystic kidney disease who did not recover even after emergency nephrectomy and succumbed to his illness.[3] Three other cases have been reported and treated successfully with nephrectomy.[4-6]

Our case represents a different entity, as the patient did not have adult polycystic kidney disease, but he presented with a ruptured emphysematous renal cyst. The condition is usually fatal, and aggressive management is warranted.

Unfortunately, percutaneous drainage was not successful in our case as it has been mentioned as a reasonable treatment in seriously ill patient.[1] Nephrectomy was not suitable option here in view of the patient critical condition. There was no apparent gas in the renal parenchyma on CT scan; we thought drainage of the abscess, renal collecting system and the bladder may be a reasonable option to save his life.

The rarity of this condition added more challenge in our case and made our case report worth publishing.

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