Emphysematous Pyelonephritis in Renal Allograft - a case report

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Abstract

Emphysematous pyelonephritis (EPN) is a rare disease with devastating outcomes in healthy adults. It may affect renal allografts resulting in higher mortality rate, graft loss and permanent dialysis. Presentation is highly variable and non-specific requiring higher degree of suspension. Optimal management of EPN is controversial with recent case reports challenging a previously suggested management pathway. We report a case of a 71-year-old man who presented in septic shock who was diagnosed with EPN in an allograft kidney in the emergency department, treated with antibiotics and medical support but died on the 6th day of presentation. Based on the scarce literature of EPN in allograft kidneys, a nephrectomy might be indicated in a similar patient presentation.

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Introduction

Emphysematous pyelonephritis (EPN) is a severe infection resulting in microbial gas formation and necrosis of the renal parenchyma. The majority of cases are associated with the presence of diabetes mellitus (DM), and gender-age prevalence of middle aged females. [(1)] EPN in allograft kidneys present multiple challenges to clinicians: subtle presentations, controversial management options, and high mortality rate.

Case report

A 71-year-old male presented to the emergency department complaining of shortness of breath, constipation and vomiting for three days with no fever, cough, abdominal pain or chest pain. He is known to have DM and received a kidney allograft five months ago with no major complications.

The patient looked sick with a GCS of 15/15. He was self-voiding with no dysuria. His vitals where: Temp. 36˚C, HR 91bpm, RR 30, O_2 Sat 100% on 2l of O_2, BP 89/55 mmHg; and he was not in pain. The patient had a scar on his right iliac fossa with a palpable tender mass beneath it. Standard resuscitation started with administration of broad-spectrum antibiotics; and an abdominal X-ray was done (figure.1). Significant lab results were WBCs 8×109/l, platelets 85×109/l, BUN 33.6 µmol/L, creatinine 310µmol/l and lactate 1.41 mmol/l. The patient underwent a CT of the abdomen without contrast revealing a markedly enlarged transplanted kidney showing consistent features of EPN with air tracking to the urinary bladder, other surrounding tissues and pelvic veins. Clinical instability precluded transport to the OR for either nephrectomy or percutaneous drainage. Supportive management was continued but the patient went into asystolic arrest and died on the 6th day of admission.

Figure 1: lateral decubetous film at presentation showing air-fluid level in the urinary bladder.

Discussion

All of the reported cases of EPN in allografts presented in acute kidney injury and almost all of them (24 cases 88.5%) had a prior diagnosis of DM. CT is the gold standard for diagnosing EPN with the advantage of differentiating EPN from more common abdominal emergencies with similar presentations which made it the basis of classifying EPN, guide management and estimate prognosis.

Treatment of EPN is controversial, the sicker the patient the more likely he will get treated medically creating a selection bias that precludes real potential of conservative management.

Huang and Tseng [(2)] classified EPN and recommended therapeutic pathways but all patients with allografts will fall in class 4 in their classification warranting a nephrectomy. Al-Geizawi et al. [(3)] suggested a specific staging system for EPN in allografts. Total of five cases did not appear in their report, one appears to have had been missed by the authors which will fall in stage three but was managed successfully with antibiotics and PCD. A similar scenario is observed later with a case report in 2012. Two other cases including the current report were managed with antibiotics alone while in stage 3 and resulted in death. The only case that appeared with a stage 2 disease, after their review, was treated successfully with antibiotics and PCD. [(4)]

In conclusion, we report an EPN case in an allograft kidney which was unsuccessfully treated with antibiotics and medical management. Current literature suggests a nephrectomy might be a lifesaving procedure in a similar patient presentation.

References:

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