

Emphysematous Pyelonephritis Presenting as Pneumomediastinum: A Rare Case Scenario

Vilvapathy Senguttuvan Karthikeyan¹, Venugopal Mohan², Jayaprakash Narayanan³, Aswathaman Karthikeyan⁴

ABSTRACT

Emphysematous pyelonephritis (EPN) is characterized by fulminant necrotizing infection of the kidney and perirenal tissues. Emphysematous pyelonephritis presenting as pneumomediastinum is quite rare. A 65-year-old gentleman presented to us with respiratory failure on ventilator support and uncontrolled sugars. He had fever with chills, abdominal pain, and breathlessness. He was evaluated and computed tomography showed right Huang et al. class 3 EPN with pneumomediastinum. He also had renal failure, respiratory distress syndrome, and metabolic acidosis. Pigtail drainage of right EPN was performed. He succumbed to the disease despite treatment. This case highlights the rare presentation of EPN as pneumomediastinum.

Keywords: Emphysematous pyelonephritis, Pneumomediastinum, Urosepsis.

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Sir,

A 65-year-old gentleman presented with breathlessness, fever with chills, abdominal pain, and dysuria for 2 days. He was a diabetic patient with uncontrolled sugars. He was initially treated for respiratory failure with septic shock and was referred to our hospital on ventilator support and inotropes. On evaluation for source of sepsis, he was detected to have right emphysematous pyelonephritis (EPN), perinephric gas (Huang et al. class 3), and pneumomediastinum (Figs 1 and 2). His serum creatinine was 3.3 mg/dL and total leukocyte count was 18,000/mm³. He had adult respiratory distress syndrome and severe metabolic acidosis. Right pigtail drainage was performed. He continued to worsen on life supports and he succumbed to the disease the next day.

Pneumomediastinum complicating EPN portends a severe form of EPN and can be fatal. There are few reports of EPN presenting as pneumomediastinum. A patient with pneumomediastinum and

^{1,4}Department of Urology, Sri Narayani Hospital and Research Centre, Vellore, Tamil Nadu, India

²Department of Radiology, Sri Narayani Hospital and Research Centre, Vellore, Tamil Nadu, India

³Department of General Medicine, Sri Narayani Hospital and Research Centre, Vellore, Tamil Nadu, India

Corresponding Author: Aswathaman Karthikeyan, Department of Urology, Sri Narayani Hospital and Research Centre, Vellore, Tamil Nadu, India, Phone: +91 9443283189, e-mail: akarthick75@yahoo.com

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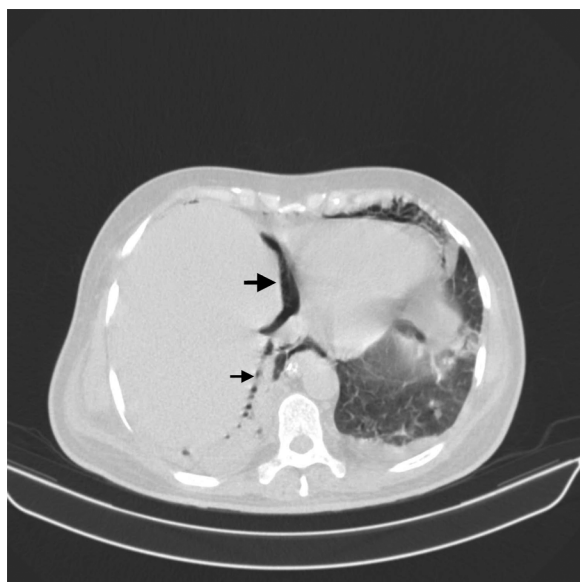


Fig. 1: Axial images of plain computed tomogram of the abdomen showing right emphysematous pyelonephritis with pneumomediastinum (black arrows)



Fig. 2: Coronal images of plain computed tomogram of the abdomen showing right emphysematous pyelonephritis with pneumomediastinum (black arrows)

pneumoperitoneum complicating EPN in a diabetic patient was reported in 2005. In this patient, laparotomy was done to rule out visceral perforation. After this, the patient underwent nephrectomy and the patient survived. This highlights that retroperitoneal gas can migrate to the mediastinum.¹ A diabetic lady, relatively younger (aged 50 years) than our patient, who presented with retrosternal chest pain, septic shock, and respiratory failure, was detected to have left EPN and pneumomediastinum after evaluating for other causes. She improved after placement of a pigtail drain in the perinephric space and an open nephrectomy was performed after 5 days.² Emphysematous pyelonephritis with pneumomediastinum and subcutaneous emphysema was detected in a patient presenting with chest pain and shortness of breath. She had palpable crepitus on left side of the neck and high sugars. She recovered after open nephrectomy.³ A relatively elderly patient presented with fever, renal failure, and was detected to have left EPN with septic emboli in lungs and pneumomediastinum.⁴

The mediastinum is connected to the retroperitoneum by fascial planes. Air can migrate from the retroperitoneum to the mediastinum by pressure gradient. The escape route of air from retroperitoneum is through diaphragmatic hiatus, along great vessels or through paravertebral tissues.⁵ Nephrectomy has been described as the definitive treatment in previous reports. The current trend in the management of EPN is percutaneous drainage.⁶ Although the patients who survived after nephrectomy were reported much earlier, our patient was critically ill and was not fit for a major surgical procedure. In such patients with

pneumomediastinum and sepsis, a high index of suspicion is required for diagnosing EPN, and immediate drainage should be performed.

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