# Clinical profile and successful outcomes of conservative and minimally invasive treatment of emphysematous pyelonephritis

## Abstract

### Introduction

Emphysematous pyelonephritis (EPN) is a rare clinical entity, characterized by gas in the renal system, due to an acute, fulminant and potentially fatal necrotizing process with varying clinical presentations. It is much more aggressive than uncomplicated pyelonephritis, with the mortality of 20–40% in the contemporary meta-analysis.

### Material and methods

A retrospective record review of inpatients at the Institute of Nephro Urology, Bangalore, India (2007–2014), who were treated after EPN was diagnosed with the aid of a CT (computed tomography) scan.

### Results

Sixty-six patients (M:F 27:39) treated for EPN over the past seven years with the mean (±SD) age of 52.32 (±12.48) years were analyzed. Median (interquartile range) duration of hospital stay was 8 (11.25) days with 4 (6%) patients requiring intensive care unit admission (median, IQR = 5.5, 1.5 days) of whom two passed away due to septicemia. Fifty-six (84.85%) patients were diabetics, forty (60.6%) patients had estimated glomerular filtration rate (eGFR) <60 ml/min/1.73 $m^2$, 6 (9.1%) patients had eGFR <30 ml/min/1.73 $m^2$ including 3 (4.5%) with eGFR <15 ml/min/1.73 $m^2$ requiring hemodialysis and twenty-two (33%) had thrombocytopenia. Fifty (75.76%) patients were classified as Huang and Tseng Class 2, 7 (10%) as Class 3 with perinephric abscess requiring open drainage and 9 (13.64%) had bilateral EPN (Class 4). Majority (43; 65%) responded to piperacillin-tazobactam treatment. Double J stenting was done in 17 (25.76%) patients, percutaneous drainage in 5 (7.58%) patients and nephrectomy in 2 (3%) patients.

### Conclusions

Although EPN historically carries high morbidity and mortality, modern day medical management with timely intervention in the form of urinary drainage is effective and curative in most patients resulting in a low mortality rate.