

Emphysematous Pyelonephritis: Retrospective Analysis of 15 Cases in A Single Centre

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Introduction

Emphysematous pyelonephritis (EPN) is a rare but potentially life threatening necrotizing renal parenchymal infection characterized by intra-parenchymal gas formation, especially in diabetic population. Till mid-80s, nephrectomy was the preferred treatment as conservative approach led to very high mortality, even up to 80%.¹ Management alternatives now range from more conservative approach to invasive surgery. In our centre most of our patients were managed conservatively and the result was very encouraging. Still, as EPN carries a grave prognosis, early recognition and proper management of this entity is of paramount importance.

Patient & Method

- This was a retrospective study of 15 diabetic cases admitted in BIRDEM general hospital during 3 years period from April 2010 to March 2013.
- Data were analyzed for demographics, clinical picture, investigation profile and in-hospital outcome.
- Risk stratification and classification of the cases were done according to Huang & Tseng.²

Risk Factors:

Altered level of consciousness
Thrombocytopenia
Shock
Acute kidney injury

Classification:

Class 1 : Gas in collecting system only
Class 2 : Parenchymal gas only
Class 3A: Extension of gas in perinephric space
Class 3B: Extension of gas into pararenal space
Class 4 : EPN in solitary kidney or bilateral involvement

Results

- Total number of patients was 15, female 12, male 3 (F:M ratio 4:1). Mean age of the patients was 50.5 (±15.4) years
- All patient had poor glycemic status [mean HbA1c 11.92(±1.84)%]. Mean duration of DM was 11.57 (±5.1) years
- Right kidney was involved in 53% cases, followed by left side 40% and bilateral involvement in 7% cases
- Patients were treated conservatively (correction of dehydration & electrolyte imbalance, insulin therapy, haemodynamic support, antibiotics etc) and by open drainage (Fig 6)
- Survival was high (93%)
- Mean hospital stay was 20±6 days

Fig 1: Clinical features of patients with EPN

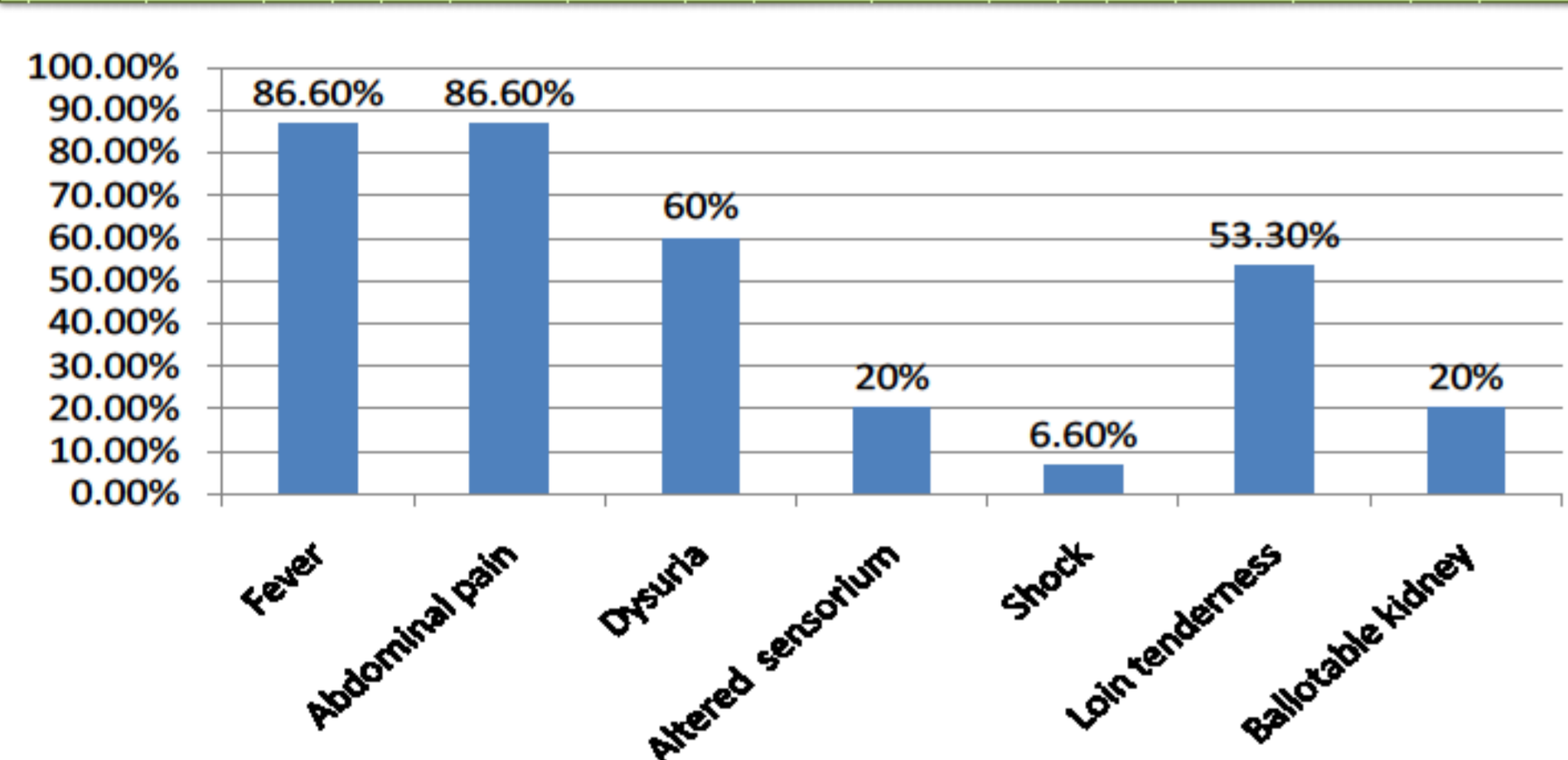


Table I: Kidney function status

Kidney function test	Normal	Chronic kidney disease	Acute kidney injury(AKI)	AKI on CKD	Total no of patients
Baseline	09	06	00	00	15
At admission	04	03	05	03	15
During hospital stay	02	03	07	03	15
At discharge	08	06	00	00	14*

* One patient with AKI expired in hospital

Fig 2: Important investigation profile

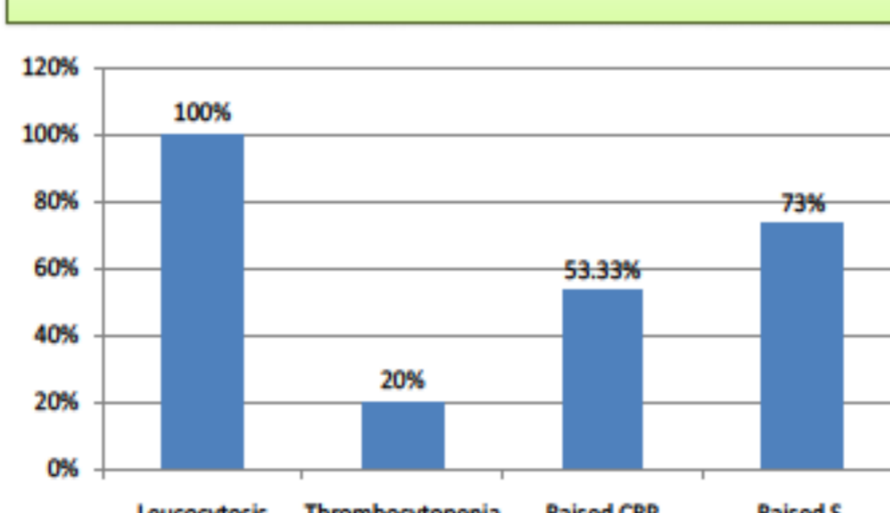


Fig 3: Pathogens in urine & blood culture

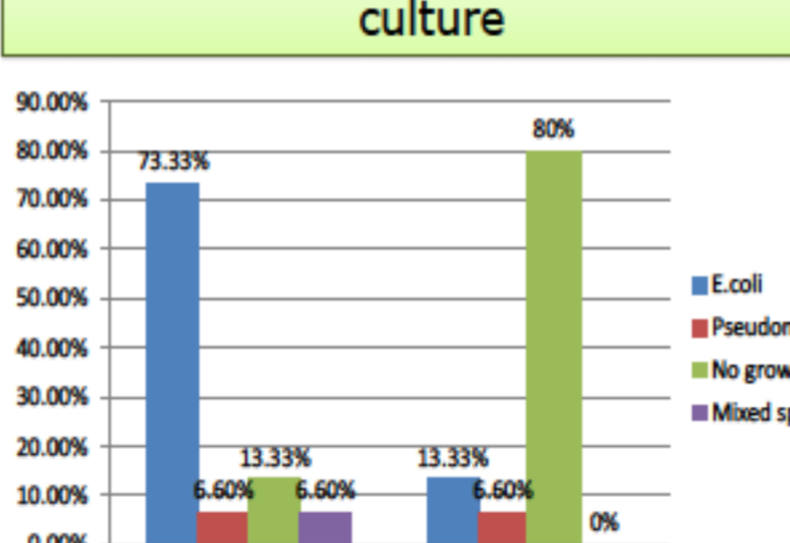


Table II: Imaging modality with their percentage of detection of EPN

Imaging technique	Done in	EPN detected N (%)	p value
Usg of abdomen	15	09 (60%)	
CT scan of abdomen	12	12 (100%)	≤ .05

Fig 4: Risk factors

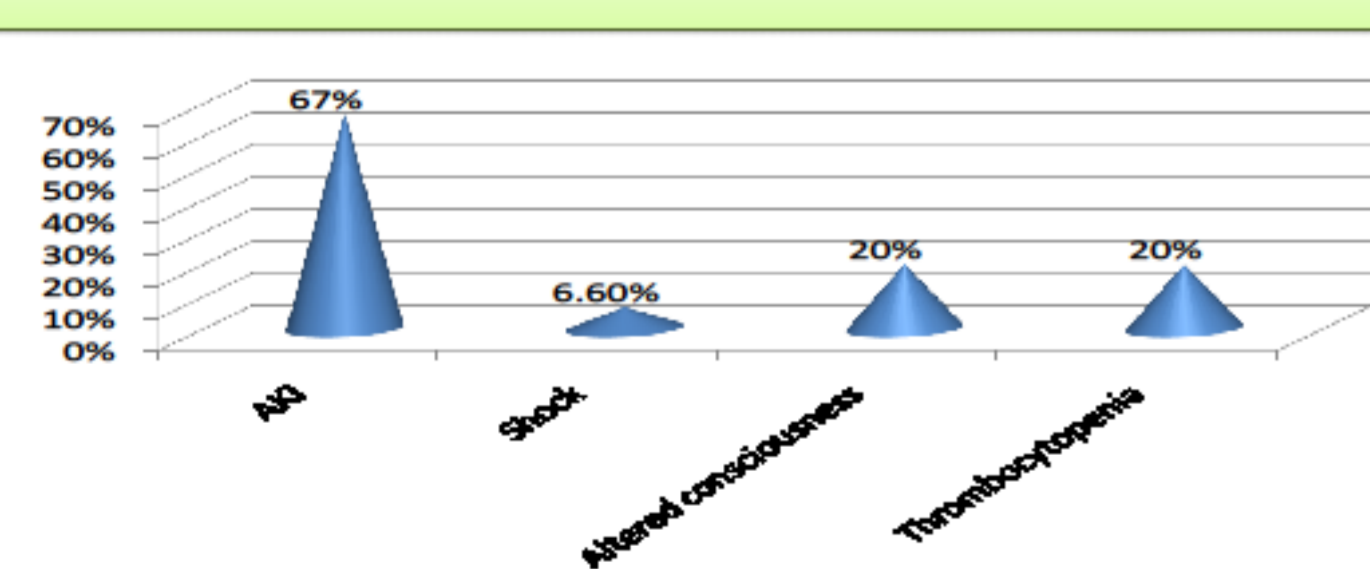


Fig 5: Classification of cases in the study

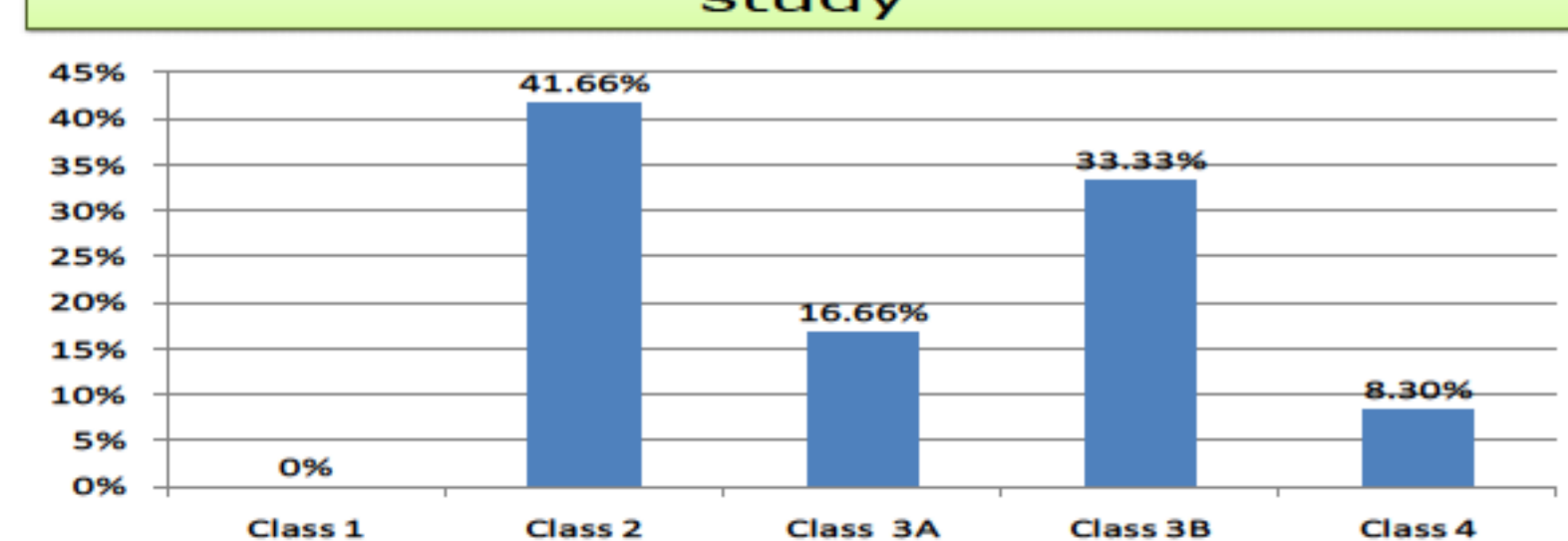


Fig 6: Treatment given

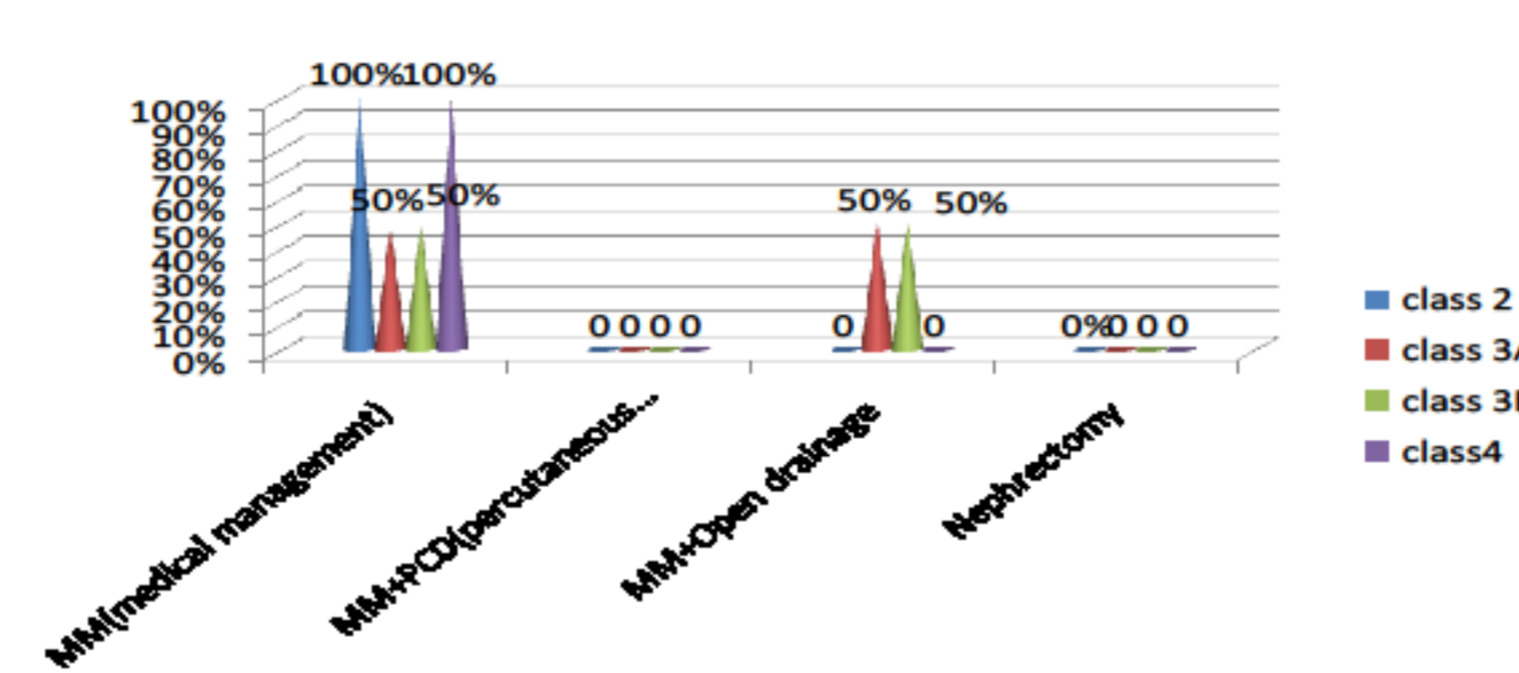


Table III: Number of risk factors, Management & Outcome

No of risk factors (≥2 poor prognosis)	0	1	2	3	4
Number of Patients	5	6	2	1	1
Proposed treatment (Huang & Tseng)	*Conservative *Nephrectomy (if conservative fails)	*Conservative *Nephrectomy (if conservative fails)	*Conservative *Nephrectomy in Class 3A & B conservative fails		
Treat ment given	1	1	0	1	0
Nephrectomy	0	0	0	0	0
Survival	5	6	2	1	NONE

Conclusion

- Uncontrolled diabetes mellitus is the commonest risk factor for EPN
- *Escherichia coli* is the most common pathogen
- CT scan of abdomen is the investigation of choice for proper diagnosis
- Main focus should be salvaging the kidney

SCOPE OF THE STUDY

- Follow up of the patients treated conservatively for renal status
- Prospective study with large sample

REFERENCES

- Hooton T. Urinary tract infection in adult. Comprehensive Clinical Nephrology.2010;134:638-639.
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