

Importance of early computerised tomography scan in emphysematous pyelonephritis

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Abstract: Emphysematous pyelonephritis is infection of renal parenchyma resulting in gas formation of renal parenchyma collecting system, perinephric and paranephric area which was first reported in 1898 by Kelly and MacColumn. Emphysematous pyelonephritis term was coined by Schultz and Klorfelin in 1902. Emphysematous pyelonephritis is associated with diabetes patient, ureteral obstructive diseases and immunocompromised patients.

Aim of the study: To highlight the importance of early CT scan in emphysematous pyelonephritis for better prognosis.

Patient and methods: 22 patients of emphysematous pyelonephritis in Govt. Medical College, Kozhikode in the period from January 2016 to June 2017 was studied demographically, clinically, radiologically and treatment was given and outcome was studied.

Conclusion: Early diagnosis improved the prognosis considerably.

Keywords: Emphysematous pyelonephritis, CT scan

Date of Submission: 26-12-2017

Date of acceptance: 12-01-2018

I. Introduction

1. Emphysematous pyelonephritis is seen in diabetes, obstruction of ureter and immunocompromised patients characterized by gas in the renal collecting system, renal parenchyma, perinephric and paranephric area.

2. Patients and methods

Prospective study in Department of General Medicine, Govt. Medical College, Kozhikode, from January 2016 to June 2017 in 22 patients with diabetes was studied.

3. Exclusion criteria

Patients with ureteral obstruction were excluded.

4. Statistical analysis

Male : Female ratio 5:7.

Mean age 64.3 ± 13.7 years

Table 1: Clinical presentation

Clinical features	No.of patients
Fever	18
Loin pain	10
Septic shock	12
Azotemia	12
Thrombocytopenia	10
Prolonged prothrombin time	10
Severe hyperglycemia	18
Hypoalbuminemia	12
Palpable mass	4

Table 2: Lab investigation

	No.of patients	Percentage
Hemoglobin <11 gm	6	27.2%
Total count >10 x 10 ⁹	9	40.9%
Thrombocytopenia	10	44.5%
Azotemia	12	55.5%
Alkaline phosphatase >120	12	54.5%
Hypoalbuminemia	12	54.5%
Prolonged prothrombin time	10	44.5%
Hyperglycemia	18	81.8%

Table 3: CT scan findings

Type 1	Greater than 1/3 rd of renal parenchyma involved streaking or mottled appearance of gas intra or extrarenal fluid collection are characteristic. Mortality is 70%
Type 2	Destruction of less than 1/3 rd of renal parenchyma or extrarenal collection associated with localized gas or gas in the pelvicalyceal system or ureter mortality 20%.

Table 4: Huang Tsang CT finding

Class 1	Gas in the collecting system
Class 2	Gas in renal parenchyma without extra renal extension
Class 3	Gas in renal parenchyma with extra renal extension
Class 3a	Extension of gas or abscess to perinephric space
Class 3b	Extension of gas or abscess to paranephric space
Class 4	Bilateral emphysematous pyelonephritis or solitary kidney with emphysematous pyelonephritis

Table 5: Organism involved

Organisms cultured	Percentage
E.coli	60%
Klebsiella	20%
Proteus	10%
Enterococci	10%

II. Discussion

Early detection of emphysematous pyelonephritis considerably influenced the management and prognosis. Medical management included antibiotics. Surgical management included percutaneous drainage. Two patients went to acute renal failure and underwent hemodialysis. Commonest cause of death was hyperglycemia. Two patients had severely damaged kidney and underwent nephrectomy. Three patients died.

III. Results

40% had diabetes.
 2% had hydronephrosis.
 2 patients had acute renal failure
 2 patients underwent nephrectomy
 3 patients died

IV. Conclusion

Emphysematous pyelonephritis disease were early intervention can save the patient and CT scan has got a very decisive role in the management.

References

Journal papers

- [1]. JAMA 2000.
- [2]. American Journal of Medicine. July 1987.
- [3]. Journal of urology 1985 (134) pg.1086-1089.

Rosy Philips "Importance of early computerised tomography scan in emphysematous pyelonephritis." IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 17, no. 1, 2018, pp. 60-61