A Prospective Study of Ct Imaging in Pyelonephritis in a Tertiary Care Hospital

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Abstract

Background: Acute Pyelonephritis is a common and potentially serious infection of the renal parenchyma and collecting system. Early diagnosis is essential to prevent complications such as renal abscess, emphysematous infection, and sepsis. Imaging plays a crucial role in evaluating renal infections, with Computed Tomography being the most sensitive modality for detecting renal parenchymal involvement and associated complications.

Objectives: To evaluate the role of CT imaging in diagnosing pyelonephritis and identifying associated complications in patients presenting with suspected renal infection.

Materials and Methods: This prospective study included **55 patients** clinically suspected of renal infection who underwent CT evaluation of the abdomen at PES Institute of Medical Sciences and Research, Kuppam. CT imaging was performed using a **32-slice multidetector CT scanner (GE Revolution Aspire 32 slice CT scanner)**. CT KUB (plain) and contrast-enhanced CT were performed when clinically indicated. CT findings such as renal enlargement, perinephric fat stranding, hydronephrosis, renal calculi, ureteritis, and complications including abscess formation and emphysematous infection were evaluated.

Results: The age of patients ranged from **18 to 78 years**, with the majority belonging to the **41–60 year age group (40%)**. There was a **slight male predominance (56.4%)**. The most common presenting symptom was **flank pain (78%)**, followed by fever (62%). The most frequent CT finding was **perinephric fat stranding (91%)**, followed by renal enlargement (64%), renal calculi (47%), and hydronephrosis (40%). Complications detected included obstructive uropathy (12 cases), ureteritis (9 cases), perinephric abscess (2 cases), and emphysematous pyelonephritis (2 cases). Approximately **32.7% of patients had associated Diabetes Mellitus**, which was associated with more severe infection.

Conclusion: CT imaging is a highly valuable diagnostic tool in the evaluation of acute pyelonephritis. It allows accurate detection of renal parenchymal inflammation, identification of underlying causes such as calculi, and early detection of complications. Early CT evaluation can significantly improve clinical management and patient outcomes.

Keywords

Computed tomography, Pyelonephritis, Renal infection, Urinary tract infection.