

## Diagnostic Value of CT Scan in Acute Appendicitis

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**Abstract :** Introduction: Appendicitis is the most common surgical emergency globally and can have devastating consequences. Diagnostic imaging in acute appendicitis has become increasingly common in aiding the diagnosis of acute appendicitis. Computerized tomography (CT) and ultrasound (US) are the most commonly used imaging modalities for diagnosing acute appendicitis. Pre-operative imaging has contributed to a reduction of negative appendicectomy rates from between 10-29% to 5%. Literature report CT scan has a diagnostic sensitivity of 94% in acute appendicitis. This clinical audit was conducted to establish if the CT scan's diagnostic yield for acute appendicitis matches the literature. CT scan has a high sensitivity and specificity for diagnosing acute appendicitis and its use can result in a lower negative appendicectomy rate. The aim of this study is to compare the pre-operative imaging findings from CT scans to the histopathology results post-operatively and establish the accuracy of CT scans in aiding the diagnosis of acute appendicitis. Methods: This was a retrospective study focusing on adult presentations to the general surgery department in a district general hospital in central London with an impression of acute appendicitis. We analyzed all patients from July 2022 to December 2022 who underwent a CT scan preceding appendicectomy. Pre-operative CT findings and post-operative histopathology findings were compared to establish the efficacy of CT scans in diagnosing acute appendicitis. Our results were also cross-referenced with pre-existing literature. Data was collected and anonymized using CERNER and analyzed in Microsoft Excel. Exclusion criteria: Children, age <16. Results: 65 patients had CT scans in which the report stated acute appendicitis. Of those 65 patients, 62 patients underwent diagnostic laparoscopies. 100% of patients who underwent an appendicectomy with a pre-operative CT scan showing acute appendicitis had acute appendicitis in histopathology analysis. 3 of the 65 patients who had a CT scan showing appendicitis received conservative treatment. Conclusion: CT scans positive for acute appendicitis had 100% sensitivity and a positive predictive value, which matches published research studies (sensitivity of 94%). The use of CT scans in the diagnostic work-up for acute appendicitis can be extremely helpful in a) confirming the diagnosis and b) reducing the rates of negative appendicectomies and consequently reducing unnecessary operative-associated risks for patients, reducing costs and reducing pressure on emergency theatre lists.

**Keywords :** acute appendicitis, CT scan, general surgery, imaging

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