



**Research Article**

**“ULTRA SONOGRAPHY AS A RAPID DIAGNOSTIC TOOL IN ACUTE APPENDICITIS AND EMERGENCY OPEN APPENDECTOMIES”**

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**ABSTRACT**

Ultrasonography being a non-invasive modality and it requires no patient preparation and less radiation, safe to use in a child and in pregnant women with doubtful diagnosis. Hence this study implies ultrasonography as a rapid and safe diagnostic tool in detecting acute appendicitis and appendicular perforation. Pelvic diseases like, fallopian tube and ovarian abscess or ovarian torsion, which might mimic acute appendicitis may be ruled out on doing a pelvic ultrasonogram in females.

Sonographic criteria for appendicitis (85% Specificity) : Noncompressible appendix of size > 6 mm AP diameter, Hyperechoic thickened appendix wall > 2 mm—target sign, Appendicolith, Interruption of submucosal continuity, Periappendicular fluid.

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**INTRODUCTION**

Acute appendicitis is the most common general surgical emergency, and early surgical intervention improves outcomes. Despite the increased use of intravenous antibiotics, blood investigations, clinical evaluation, the rate of misdiagnosis of appendicitis has remained constant (15.3%) as has the rate of appendicular perforation. Thus, Ultrasound evaluation of abdomen and pelvis will help in the early and accurate diagnosis of acute appendicitis, and if so does it have the predictive capacity to warn us about appendicular perforation.

**MATERIALS AND METHODS**

This study was undertaken in the General Surgery department, SRM Medical College Hospital and Research Centre, Kattangulathur, Tamil Nadu, during the period of July 2017 to October 2018.

**Study design**

Prospective non randomised study.

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**Source**

The study was undertaken in the General Surgery department, SRM Medical College Hospital and Research Centre, Kattangulathur, Tamil Nadu.

**Study period**

16 months from July 2017 to October 2018.

**Source of data**

Patients admitted under, the Department of General Surgery, SRM Medical College Hospital and Research Centre, with clinical diagnosis of acute appendicitis or appendicular perforation and underwent emergency open appendectomy during the study period.

**Sample size**

00 patients with a clinical diagnosis of acute appendicitis or appendicular perforation on admission were studied.

**RESULTS**

On Ultrasonography, 73 patients (73%) were diagnosed as Acute appendicitis, 14 patients (14%) as Appendicular perforation and 13 patients (13%) were reported as normal ultrasonographic finding.

Of the 100 patients, 83 patients (83%) had intra operative finding of acute appendicitis and remaining 17 patients (17%) had intra operative findings of appendicular perforation. Histopathologically, 87 patients (87%) were confirmed as Acute appendicitis while 13 patients (13%) were diagnosed with Appendicular perforation.

**DISCUSSION**

“Acute abdomen” mostly occurring during childhood and in young adults is due to acute appendicitis. The most widely done emergency surgery is appendectomy which is mostly, first major operative procedure done by a trainee surgeon. Close to 8% of the total western population might experience appendicitis once in their lifespan. Acute appendicitis is most common during the second and third decades and is least encountered in infants, and has high incidence among children and young adults. Before puberty, both males as well as females are equally affected. Whereas in adolescents and in early adulthood, males are more commonly affected than females in the ratio 3:2, around the age of 25. 12% of males and 25% of females have a lifetime risk of undergoing appendectomy. Acute appendicitis is caused mainly due to luminal obstruction with fecoliths being the most common cause of obstruction.

Other causes include lymphoid hypertrophy, malignancy, Worm infestations. The normal colon and the appendix have the same bacterial microorganisms. Escherichia Coli and Bacteroids fragilis are the most common microorganisms present in both complicated appendicitis and in uncomplicated appendicitis. The flora may contain a broad spectrum of aerobic, facultative as well as anaerobic bacteria.

The diagnosis of acute appendicitis is made out mainly by clinical examination; however, the decision to perform appendectomy on the basis of clinical suspicion only can lead to negative appendectomy in 15-50% of cases. Moreover, it is wise to operate on a normal appendix rather than delaying the diagnosis which may lead on to complications in 50% cases Even with the advent of variety of lab tests and imaging modalities, a rapid diagnostic tool which aids in diagnosing acute appendicitis would be welcomed.

The present study was undertaken with the concept that ultrasound examination of abdomen and pelvis can be added to diagnose acute appendicitis and in that case if helpful, does it have the credibility to even give us an idea about the complications of appendicitis.

The present study was undertaken in, General Surgery department, SRM medical college hospital and research centre, over a period of 16 months from July 2017 to October2018 on a total of 100 patients who are diagnosed with acute appendicitis or perforated appendicitis.

On Ultrasonographic examination, 73 patients (73%) were diagnosed to have Acute appendicitis, while 14 patients (14%) diagnosed to have Appendicular perforation and remaining 13 patients (13%) had normal sonographic recordings. On intra operative findings 83 patients (83%) were diagnosed to have Acute Appendicitis and 17 patients (17%) were diagnosed to have Appendicular Perforation. The sonography was 87%

sensitive for acute appendicitis and 76% sensitive for Appendicular Perforation. Therefore, sonography is a useful and reliable diagnostic imaging modality for appendicitis and its complications.

**Table 1** Clinical Diagnosis on Admission

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Acute appendicitis	91	91.0	91.0
	Appendicular perforation	9	9.0	100.0
	Total Cases	100	100.0	100.0

**Table 2** USG Abdomen Findings

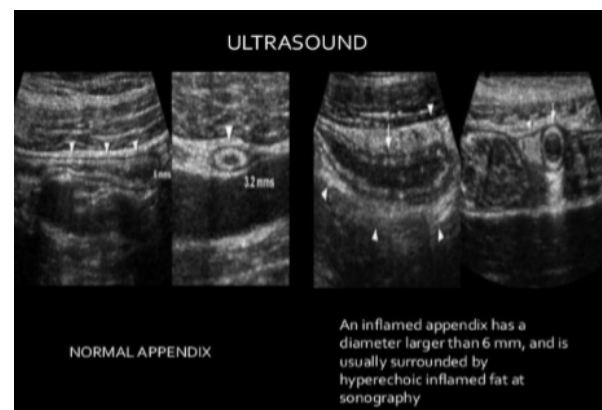
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Acute appendicitis	73	73.0	73.0
	Appendicular perforation	14	14.0	87.0
	Normal study	13	13.0	100.0
	Total cases	100	100.0	100.0

**Table 3** Intra Operative Findings

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Acute appendicitis	83	83.0	83.0
	Appendicular perforation	17	17.0	100.0
	Total cases	100	100.0	100.0

**Table 4** Histo Pathology Findings

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Acute appendicitis	87	87.0	87.0
	Appendicular perforation	13	13.0	100.0
	Total Cases	100	100.0	100.0



**Figure 1** Ultrasonography Findings in Acute Appendicitis

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