



THE ROLE OF ULTRASOUND IN THE EVALUATION OF APPENDICITIS FILES

Assistant Lecturer Dr. Mazin Kauther Abdul Latif

M.B.CH.B.- D.M.R.D. (**Radiologist**)

Ministry of Higher Education and Scientific Research, Dijlah University College, Baghdad, Iraq.

mazinkauther5@gmail.com

Abduljabbar Jameel Asal

M.B.CH.B.- D.M.R.D. (**Radiologist**)

Iraqi Ministry of Health, Retired, Baghdad, Iraq.

Abdaljabbarasal@gmail.com

Kafia Raof Rashed

M.B.CH.B.-D.G.S. (**General Surgeon**)

Iraqi Ministry of Health, Kirkuk Health Directorate, AZADI Teaching Hospital, Kirkuk, Iraq.

kafiarraof@yahoo.com

Article history:	Abstract:
<p>Received: January 11th 2022 Accepted: February 11th 2022 Published: March 30th 2022</p>	<p>This study aims to make a re-diagnosis of patients with appendic who underwent a diagnosis by other methods to know the problems the patients where Sixty patients were collected from different hospitals in Iraq, for the purpose of a reassessment of appendicitis patients</p> <p>A noticeable increase was observed in the positive predictive value of patients, as it exceeded 90%. As for the positive predictive value, it was sensitive to patients, where it was noted that a clear and present change in the diagnosis by ultrasound if compared to computerized tomography.</p> <p>Independent ultrasound findings to distinguish appendicitis were incompressible ($p = 0.002$) and increased flow on the appendix wall ($p = 0.001$).</p> <p>Appendicitis is an acute disease that requires immediate surgical intervention. Failure to take steps to remove the appendix from the body can lead to life-threatening complications such as peritonitis. Inflammation can occur at any age.</p>

Keywords: Appendicitis, ultrasound, UVA, preoperative, incompressible.

INTRODUCTION

Diagnosing appendicitis is often difficult because symptoms are often vague, so ultrasound examination for appendicitis is becoming more important in addition to palpation and checking blood values [1,2,3].

With the help of high-resolution ultrasound devices, small bulges of the appendix can often be seen, which are from 2 to 6 millimetres' thick in adults, as well as in obese children, the appendix is too deep in the stomach to be recognizable [4,5,6,7].

Ultrasound provides less certainty: only in about 70 percent of cases, the question of inflammation in the appendix can be answered with a yes or no using this technique. In addition to scanning typical pressure points and laboratory diagnoses for inflammation

values in the blood, computerized tomography (CT) scans Often important Although this is not possible without radiation exposure, CT scans are often a strong basis for combating inflammation initially with antibiotics rather than acting immediately [8,9,10,11,12].

The intestinal ultrasound method can be used primarily to detect appendicitis (acute appendicitis) [13,14,15], acute intestinal obstruction of the small intestine (ileus), acute diverticulitis (diverticulitis is inflammation of the diverticulum (a sac-shaped protrusion of the large intestine)), and Changes in the intestinal wall, such as these can occur in chronic inflammatory bowel diseases (Crohn's disease and ulcerative colitis) [16,17,18,19,20].

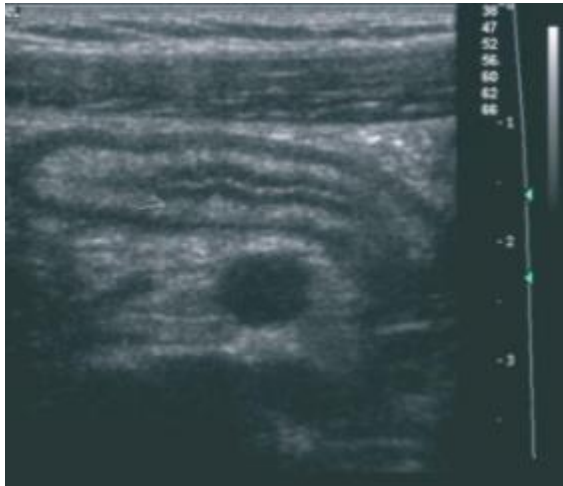


Figure 1-Appendicitis

MATERIAL AND METHOD

Patient sample

Sixty patients were collected from different hospitals in Iraq for the purpose of conducting a reassessment of appendicitis patients who underwent computed tomography, and this study relied on ultrasound diagnostics

Study design

Reassessment was done by ultrasound diagnostics for patients with appendicitis to patients undergoing computed tomography.

These patients noticed several problems, so another diagnosis was made based on ultrasound

'Appendicitis' was diagnosed, and there was only one positive criterion, the CT scan was categorized as 'inconclusive,' or when the scope could not be evaluated in patients, the radiologists recommended an additional ultrasound examination

RESULTS

Table 1- demographic results of patients

P	M	F
Age	30.2±5.5	25.6±7.8
BMI	24.3±4.7	24.1±4.4
Smoking	40%	2%
UVA	20.7%	29%
accessory max diameter (mm)	6.2±2.9	6.9±1.8
Attachment wall thickness	2.5±0.6	2.6±0.3
Retest mellowness above appendix	N=3% YES=80% UD=17%	N=5% YES=83% UD=13%
US period	1500 ± 2500	1725 ± 2475

Acute appendicitis was found on CT scans in 150 surgically treated patients. CT findings were evaluated as 'inconclusive,' and ultrasound examination was recommended in 60 of them.

Ultrasound is initially preferred by many clinicians - it is considered a low-radiation alternative, although it is becoming increasingly rare in diagnostic algorithms.

Study period

Patients' demographic information and data were collected for a full year, this period from 3-8-2020 to 4-7-2021

Aim of study

This study aims to make a re-diagnosis of patients with appendicitis who underwent a diagnosis by other methods to know the problems that the patients underwent during the wrong diagnosis.

Problem of study

Sometimes the diagnosis of acute appendicitis is problematic. A prompt and accurate diagnosis is recommended in an effort to reduce morbidity because errors in diagnosis lead either to late treatment or to unnecessary surgery. In recent years a large number of new procedures and diagnostic methods have been developed or further developed as well as models and grading systems for structuring the history and clinical examination; these also include technical procedures such as sonography, computer tomography, and laparoscopy. This overview illustrates the diagnostic capabilities of different modalities in patients with suspected acute appendicitis and its clinical significance, and it can be seen that in clinical routine, none of the technical approaches still amounts to performing surgical exploration by experienced examiners.

Fig 2- sensitivity results performance of US

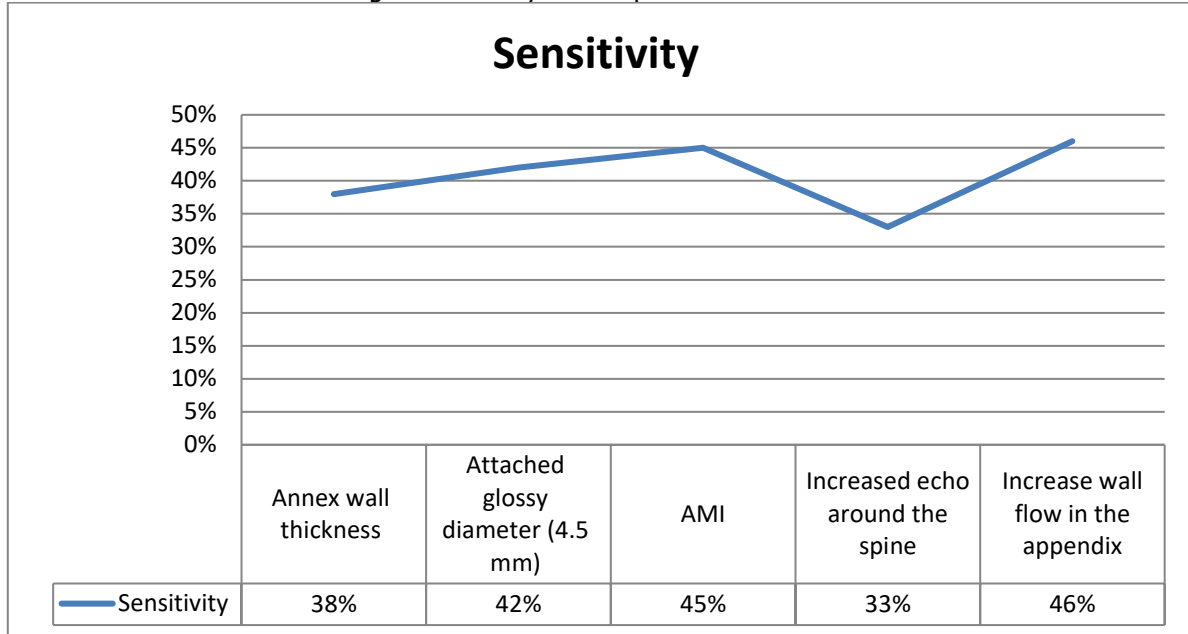


Fig 3- Predictive value results

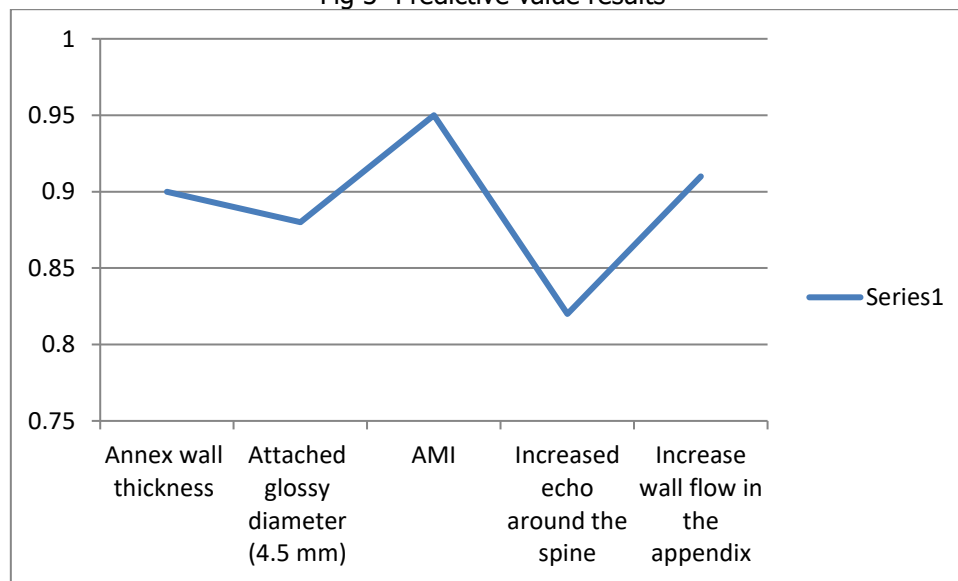
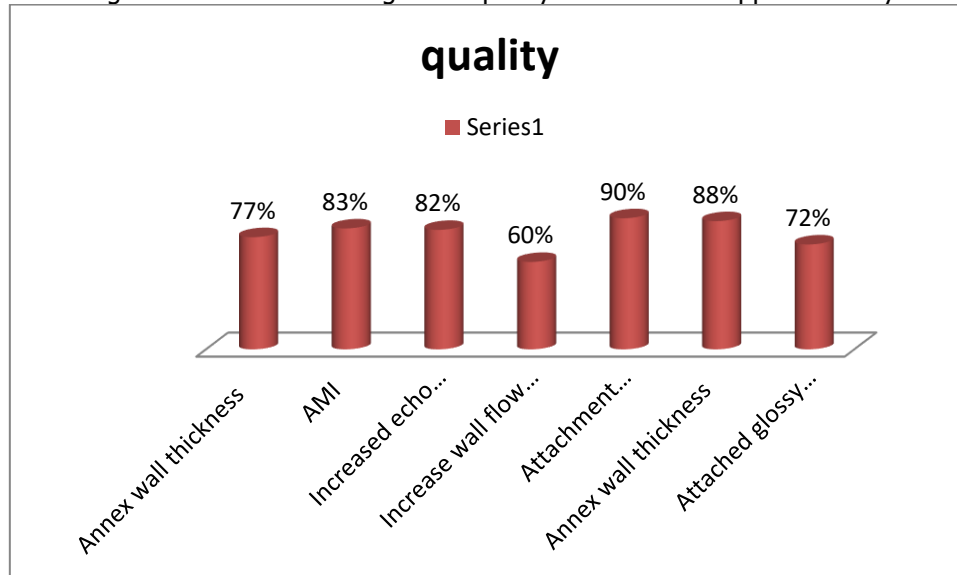


Table 3- Clinical signs in patients being studied

Signs and symptoms	Normal	p-value
Abdominal pain	20%	0.98
Loss of appetite	30%	0.543
Nausea	40%	0.88
Tenderness	30%	0.5
Rebound tenderness	33%	0.02
Abdominal guarding	39%	0.03
Mean WBC count	9988.2±2991.8	0.45

Fig 4- Evaluation of rediagnostic quality of ultrasound appendectomy



DISCUSSION

Sixty patients were collected from the hospital for the purpose of rediagnosing by ultrasound to patients with appendicitis. The patients were distributed according to gender: 40 patients, males, 20 patients. The average age for male patients was 30.2 ± 5.5 and female patients 25.6 ± 7.8

An increase in BMI was observed for both males and females, and the true value of the BMI for males was 24.3 ± 4.7 , and for females, 24.1 ± 4.4

This study provided us with several conclusions and proofs that indicate the correctness of the estimation by re-diagnosing by ultrasound, as the allergic value in diagnosing appendicitis international was more than 90%. As for the positive prophetic value, the rate increased more than 85% in general. Several studies similar to this study were found, such as the g rider 2013 study in which the quality improvement during re-diagnosis to patients was found to exceed 80%

Clinical signs and laboratory values can be negative up to 55% of cases, although appendicitis is still present and the high rate of preoperative misdiagnosis, which results in up to 30% of unnecessary appendectomy treatments

An increased flow was found within the wall of the appendix, and this finding is important in characterizing the inflammation present in the appendix. In addition, the patient's appendix showed some slight increase in vascular flow to the wall of the appendix

Signs of the inflammatory process in the appendix may differ in men and women. For example, women experience nausea, vomiting, and fever. At the

beginning of the development of the disease, the pain is pressing, pulling, and not necessarily on the right side, which can be mistakenly recognized as gynaecological problems.

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CONCLUSION

If a CT scan does not confirm the clinical suspicion of acute appendicitis but also cannot be completely ruled out, an ultrasound scan can help in the correct diagnosis. A larger multicenter study involving different investigators and different equipment should clarify whether these results can be generalized.

Acute appendicitis is the most common cause of acute abdominal pain, reflecting an illness requiring surgical intervention.

Depending on the location of the appendix process and the stage of pathological changes at the time of examination, two methods are used in clinical practice



Ultrasound diagnosis of acute appendicitis has a high positive and negative predictive value of the study - 96 and 95%, respectively

RECOMMENDATION

1. In the chronic form of inflammation, it can be treated with conservative methods (laxatives, antispasmodics, antibacterial drugs). The appendix is removed during a planned operation in case of persistent pain syndrome that interferes with the patient's activity.
2. During appendicitis, the body temperature does not rise above 37 degrees. But if you do not determine the cause of the pain in time and have complications, then the body temperature can reach 40 degrees. In this case, you need to call an ambulance since such a symptom can indicate such a serious complication (peritonitis).

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