ISSN: 2349-2678

Contents lists available at www.ijpba.in

International Journal of Pharmaceutical and Biological Science Archive

Index Copernicus Value 2015: 43.92

Volume 3 Issue 4; 2015, Page No.06-09

STUDY OF ACUTE APPENDI-CITIS DIAGNOSED BY ULTRA-SONOGRAPHY IN THE PEOPLE OF MAHARASHTRA

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ARTICLE INFO

Research Article

Received 09 May. 2015
Accepted 19 June. 2015

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ABSTRACT

Background: The most prevalent cause of abdominal pain is acute appendi-citis. When diagnosing quickly, imaging techniques like ultra-sonography are safer for all age groups.

Aims & objectives: In our study, we evaluated how well ultra-sonography identified cases of acute appendi-citis.

Material & Methods: On a USG machine, 1000 patients with AA in various age groups were examined. Using a high frequency linear array transducer (4–12 MHz) and a defined approach incorporating graduated compression technique, the patient's partially filled urine was analysed. Right lower quadrant longitudinal and transverse pictures were acquired. The appearance of the appendix under compression was documented during compression sonography. The tip was included in the visualisation of the entire appendix. Retrospective evaluation of USG findings was assessed using a five point system, with categorys 1 and 2 being categorised as negative and categorys 3 to 5 being considered as positive. surgical/ pathological findings and sonographic diagnosis were contrasted.

Results: The biggest number of patients, or 204, were in the fifth category among 11 to 20-year-olds, followed by 110 patients in the sixth category and 210 cases in the fifth category, while the fewest cases of AA were found among people over 50. Out of 1000 sonographically diagnosed patients who had surgery and had surgical/pathological results, there were 664 true positives, 264 true negatives, 64 false positives, and 8 negatives.

Conclusion: First-line imaging modality is USG study. Due to its restricted range of sensitivity, USG is preferred in patients who are young and have children. Middle class patients can readily afford the USG method.

Keywords: Acute appendi-citis, Sonography, Ultrasound, USG category scale.

INTRODUCTION

Outing to the erect posture appendi-citis is quite common problem in human beings, as it is a lymphoid organ when it is inflamed it has to be operated immediately hence acute appendi-citis (AA) is commonest cause of Abdominal surgery[1]. It occurs at any age but commonly in youngsters and rare in old age people. The most common symptoms of the appendi-citis are abdominal pain. Typically, symptoms begin as peri-umbilical or epi-gastric pain that migrates towards the right lower quadrant of the abdomen[2-4]. Later a worsening progressive pain along with vomiting nausea and anorexia are described by the patients. It is reported that, since two decades, the negative appendectomy rate has been relatively constant but rate of perforated appendi-citis seems to be increasing. It is well-established that CT (computed tomography) is the first imaging modality of choice in AA with acute abdominal pain, with sensitivity up to 96% and specificity up to 97%. However, children are typically kept away from CT image radiations due to growing awareness of the radiation that CT subjects receive and the potential raised risk of cancer[5]. Therefore, an effort was made to assess the presence of AA in children and adults of both sexes using USG, which is more easily identified than histological examinations. So that there can be no radiation risk for any patient[6].

Aims & objectives: In our study, we evaluated how well ultra-sonography identified cases of acute appendi-citis.

MATERIAL AND METHOD

1000 patients of different age groups admitted in surgery department of a medical college in central India.

Inclusion Criteria: All patients, regardless of gender or age. In the study, those who had a

clinical suspicion of having acute appendi-citis were included.

Exclusion Criteria: Patients who required immediate surgery were not included since there was no way to scan them.

Method: Out of 1000 patients, 56 were between 1-10 years age group, 440 were age between 10-20 years and 300 were aged between 21-30 years remaining were above 30 years. After recording the history in detail and clinical examination of every patient, the USG of abdomen was done based on the American institute of Ultra sound in medicine practice guide lines which includes imaging of appendix, USG machine (Sonoscape) with 2-5 MHz curvilinear transducer followed by using a linear array transducer 4-12 MHz and a standardized protocol involving categoryd compression technique described by puylaert. Longitudinal and transverse images of the right lower quadrant were obtained. Compression sonography was performed with documentation of the appearance of the appendix during compression. A normal appendix compresses. The complete appendix was visualized including the tip. Doppler imaging was helpful to evaluate for hyperaemia however a necrotic appendix had decreased or no blood flow. Along the path of the appendix, the maximum exterior wall diameter and wall thickness were measured. Retrospective evaluation of the ultrasonographic (US) findings using a 5-point scale revealed the following:

Scale 1: Represented normal appendix

Scale 2: Indicated that Appendix was not seen but no inflammation changes or free fluid was evident.

Scale 3: Indicated that appendix was not seen but secondary sign of appendi-citis were present such as faecolith, periceacal fluid or raised pericecal echogenicity consistent with infiltration of the mesenteric.

Scale 4: Represent identification of an appendix of border line enlarged size (5-6 mm)

Scale 5: Indicated acute appendi-citis (AA) defined as an enlarged non-compressible appendix with an outer diameter greater than 6mm.

Results rated 1 to 2 were considered bad, while results rated 3 to 5 were considered positive for AA. The same standards were used to assess and category original reports. To assess the sensitivity and specificity of the sonographic test, US findings were contrasted with subsequent and pathological findings. The study took place between May 2019 and June 2021.

Statistics: Different USG findings were categorised, whether they were in comparison to surgical results or pathological findings. Software called SPSS was used to do the statistical analysis. The male to female ratio was 2:1. The Ethical Committee gave its approval for this study.

OBSERVATION AND RESULTS

Table 1: Ultra-sonographic grading of Acute Appendi-citis with references to age

US category	1-10	11-20	21-30	31-40	41-50	> 50
1st	0	0	0	0	0	0
2nd	20	164	84	84	42	14
3rd	18	32	0	08	0	6
4th	0	40	16	16	0	0
5th	18	204	110	56	42	26
Total	56	440	210	164	84	46

Present study of USG diagnosis for acute appendi-citis (AA) in central Indian Population. In USG category in 1-10 years of age, 20 cases had 2nd category, 18 cases had 3rd category, 18 had 5th category. In 11-20 years of age, 164 had 2nd category, 32 had 3rd category, 40 had 4th category, 204 had 5th category. In 21-30 years of age, 84 had 2nd category, 16 had 4th category, 110 had 5th category. In 31-40 years of age, 84 had 2nd category, 8 had 3rd category, 16 had 4th category, 56 had 5th category. In 41-50 years of age, 42 cases 2nd category, 42 were 5th category. In > 50 years of age, 14 had 2nd category, 6 had 3rd category, 26 had 5th category (Table-1).

Table 2: Comparison of sonographic diagnosis with surgical pathological findings in who had underwent surgery

Sonographic Diagnosis	Surgery		Total
	Negative	Positive	
Positive	8	664	672
Negative	264	64	328
Total	272	728	1000

Findings categoryd 1 to 2 were classified as negative; category 3 to 5 were classified as positive

Patients who underwent surgery and whose sonographic diagnoses were positive had surgical results that were 8 times negative and 664 times positive when compared to pathological or surgical findings. Sonographic exam results showed 264 negative and 64 positive surgery results (Table-2).

Table 3: Results of Sonographic studies in acute appendi-citis

Total No patients	Proven on Histopathology	True Positive	True Negative	False Positive	False Negative
500	504	664	264	64	8

As a result of a sonographic examination of 1000 patients, 304 had histopathological findings that were confirmed (664 true positive, 264 true negative, 64 false positive, and 8 false negative) (Table-3).

DISCUSSION

Present study of USG diagnosis for acute appendi-citis (AA) in central Indian Population. In USG category in 1-10 years of age, 20 cases had 2nd category, 18 cases had 3rd category, 18 had 5th category. In 11-20 years of age, 164 had 2nd category, 32 had 3rd category, 40 had 4th category, 204 had 5th category. In 21-30 years of age, 84 had 2nd category, 16 had 4th category, 110 had 5th category. In 31-40 years of age, 84 had 2nd category, 8 had 3rd category, 16 had 4th category, 56 had 5th category. In 41-50 years of age, 42 cases 2nd category, 42 were 5th category. In > 50 years of age, 14 had 2nd category, 6 had 3rd category, 26 had 5th category. In the comparison of sonographic diagnosis with surgical /pathological findings in the patients who underwent surgery were sonographic positive had 8 negative and 664 positive surgically[7]. In negative findings sonographic study 264 negative 64 positive surgically was observed. In the result of sonographic study of 1000 patients 304 were proved histo-pathologically 664 true positive, 264 true negative, 64 false positive 8 false negative. These findings are more or less in agreement with previous studies. Appendix being a lymphoid organ is prominent in children as other lymphatic organs is not well developed in childhood. The length of the appendix is longer in children than adults. Appendix is popularly called as soldier of the abdomen because it moves towards the infections by changing its various positions and gets infected, inflamed probably due to luminal obstruction which may result from faecolitis lymphoid hyperplasia, foreign bodies parasites and primary neoplasm's or metastasis[8-10]. AA is commonly observed in children due greater length of appendix and lack of development of the omentum in young children. It has been suggested that the peak of development of lymphoid tissue which occurs during adolescent leads to an raised liability of the appendix to obstruct and so accounts for the high incidence of the disease. A failure to recognise other presentations of AA will lead to a delay in diagnosis and raised patients morbidity. Right flank or casto-vertebral angle discomfort may only be present in patients with a retro-ceacal appendix or in those who appear in the later stages of pregnancy. Right testicular pain in male patients with a retro-ceacal appendix is possible. Sub-caecal and pelvic supra-pubic discomfort as well as frequent urination may be the main symptoms of an inflamed appendix that is located in the pelvis or retroileum. Pain may also refer to the rectum, adnexa, or, less frequently, the left lower quadrant. Three forms of AA exist pathologically: gangrenous appendi-citis, phlegmonous appendi-citis, and catarrhal appendi-citis. Numerous

investigations on paediatric and adult patients with AA have reported Alvarado scores[11,12].

SUMMARY AND CONCLUSION

The study of USG evaluation for AA will be very helpful to patients, particularly children and young female patients for whom the gonadal radiation dose should be kept to a minimum exposure and for whom it is crucial to exclude who has ovarian and uterine complications that might mimic appendi-citis in young children. Due to the limitations of AS USG study, which is the primary imaging modality, a CT scan image is required in cases where AA has not yet been diagnosed. Additionally, to confirm the diagnosis, clinical AA symptoms must also be connected with this study.

REFERENCES

1. Graffea CS, Counselaman FI –Appendi-citis Emerg Med. Clin. N Am. 1996, 14; 633-71.
2. Shelton T, MC Kinlay R – Acute appendi-citis, curr. Surg. 2003, 60; 502-5
3. Livingston EH, Woodward WA – Disconnect between incidence of non-perforated and perforated appendi-citis implications for patho-physiology and management Ann. Surg. 2007, 245 (6); 886-92.
4. Kaisur S, Frenckner - Suspected appendi-citis in children US and CT a prospective randomized study. Radiology 2002, 223; 633-638.
5. American Institute of ultrasound Medicine AI UM practice guide lines for the performance of ultra sound examination of abdomen J. Ultra sound Med. 2008, 27; 319-326.
6. Puylaert JB – Acute appendi-citis US evaluation using categoryd compression Radiology 1986, 158; 355-360
7. Memisoglu K, Karip B – The value of pre-operative diagnostic tests in acute appendi-citis.World J. Emerg. Surg. 2010, 5; 5-11.
8. Holoscher HC, Heij HA – Imaging of acute appendi-citis inchildren EU versus US. Paediatric Radiology 2009, 39; 497-499.
9. Pachan P, Yang J, Linam LE – Sonography in the evaluation of acute appendi-citis is negative sonographic findings good enough? J. ultrasound Med. 2010, 29; 1749-1455.
10. Murphy J – Two thousand operations for appendi-citis International J. of surgery 1904, 129; 187-211.
11. Hudson HW and Chamberlin SW – Acute appendi-citis in childhood a statistical study of 848 cases from children's hospital Baston J. Paed. 1939, 15; 408-411.
12. Leann E, Martha Mundon – Sonography as the first line of evaluation in children with suspected acute appendi-citis J. ultrasound Med. 2012, 31; 1153-1157.