



ORIGINAL RESEARCH PAPER

Surgery

A STUDY ON CLINICAL, RADIOLOGICAL AND OPERATIVE PROFILE OF ACUTE APPENDICITIS

KEY WORDS:

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ABSTRACT

Acute appendicitis is the most common surgically correctable cause of abdominal pain, the diagnosis of which remains difficult in many instances. Some of the signs and symptoms can be subtle to both the clinical and the patient and may not be present in all instances. Arriving at the correct diagnosis is essential; however, a delay may allow progression to perforation and significantly increased morbidity and mortality. Incorrectly diagnosing a patient with appendicitis although not catastrophic often subjects the patients to an unnecessary operation. The diagnosis of acute appendicitis is essentially clinical; however a decision to operate based on clinical suspicion alone can lead to removal of a normal appendix in 15-30% cases. Aims and objectives of the study was to To assess the association between clinical, radiological, operative and histopathological finding and thus evaluate clinical diagnostic accuracy and radiological diagnostic accuracy, To assess the effectiveness of radiological investigation in diagnosing acute appendicitis, To assess the importance and accuracy of clinical examination in acute appendicitis, In the present study, majority of cases were in the age group of 20-40 years, The ratio of male to female was 28:22. Abdominal pain was present in 90 % of cases. Fever was present in 92 % of cases while nausea and vomiting were present in 82 % of cases. Tenderness in right iliac fossa was present in 98% of cases. 98 % of patients showed Alvarado's score of >7(s/o clinically positive). In majority of cases position of appendix was retrocaecal (62%), while pelvic position was present in 14 % of cases, and pre ileal in 10 % of cases. USG abdomen diagnosed 82 % cases of acute appendicitis and it showed negative results in 18% of cases which were clinically positive. Per operatively, in 96 % of cases appendix was diseased (either inflamed or perforated), while only in 4 % of cases it was normal (non diseased). Histopathological examination revealed that in 96 % of cases, appendix was diseased, while in 4 % of cases it was completely normal. 96 % of cases were discharged from the hospital uneventfully. In almost all cases (98%) diagnosis is accurately made only on the basis of clinical examination, while in a significant number of cases (18 %), radiological investigation used for diagnosis, failed to diagnose the positive cases. Acute appendicitis is a clinical diagnosis , although the radiological, biochemical and pathological evaluation in acute appendicitis is important. The history and clinical examination and Alvarado's score is more significant to treat and manage the cases of acute appendicitis which has been proved from our study and the literature. The diagnostic accuracy of clinical features is far more better than radiological investigations in the diagnosis of acute appendicitis. Therefore it is concluded that acute appendicitis is more a clinical diagnosis rather than radiological and it is better to use radiological investigation only to confirm the diagnosis of acute appendicitis rather to diagnose it.

INTRODUCTION :-

Acute appendicitis is the most common surgically correctable cause of abdominal pain, the diagnosis of which remains difficult in many instances. Some of the signs and symptoms can be subtle to both the clinical and the patient and may not be present in all instances. Arriving at the correct diagnosis is essential; however, a delay may allow progression to perforation and significantly increased morbidity and mortality. Incorrectly diagnosing a patient with appendicitis although not catastrophic often subjects the patients to an unnecessary operation. The diagnosis of acute appendicitis is essentially clinical; however a decision to operate based on clinical suspicion alone can lead to removal of a normal appendix in 15-30% cases. A number of clinical and laboratory based scoring system have been devised to assist diagnosis. The most commonly used is the Alvarado score and equally its modification, ultrasound abdomen, intraoperative and histopathological confirmation. Modified Alvarado score: This consists of three symptoms, three signs and two laboratory findings as described by Alvarado et al, later modified by Kalan et al.

Score:

1-4 Appendicitis unlikely 5-6 Appendicitis possible 7-9 Appendicitis probable 9- Appendicitis definitive. All patients(100%), which were positive for acute appendicitis intra-operatively and histopathologically were also positive for the same by clinical examination, while 18% of cases were negative for the same by radiological investigations (ultrasonography).

AIMS & OBJECTIVES :-

1. To assess the association between clinical, radiological, operative and histopathological finding and thus evaluate clinical diagnostic accuracy and radiological diagnostic accuracy.

2. To assess the effectiveness of radiological investigation in diagnosing acute appendicitis.
3. To assess the importance and accuracy of clinical examination in acute appendicitis.

MATERIALS AND METHODS :-

The study was conducted at Department of Surgery, Katihar Medical College & Hospital, Katihar. Fifty patients admitted to the surgery wards at , Katihar Medical College & Hospital, Katihar, with signs and symptoms of appendicitis were taken for study. This is a time bound prospective study in which patients presenting with clinical suspicion of acute appendicitis were taken into study.

- The period of study was from November 2017 to October 2018.
- 50 cases were taken up for study.

Inclusion criteria

- Only patients undergoing surgery were included.
- All age groups and of both sex.

Exclusion criteria

Patients admitted for interval appendicectomy following recurrent appendicitis, appendicular abscess, appendicular mass previously treated conservatively. Patients were subjected to detailed history and thorough physical examination.

- Alvarado's scoring.
- Patients underwent necessary investigations.
- Blood counts, biochemical analysis and urine analysis, USG abdomen / pelvis, CT abdomen(as and when required.),all diagnosed patients will be subjected to surgery.
- In all cases, operative findings and post operative diagnosis by histopathological examination were recorded.

- Final outcome was evaluated on the basis of clinical, operative radiological and histopathological findings.

RESULTS :-

Out of total patients, majority of the patients (54 %) are male while, 44 % patients are female.

Sex	No. of cases	Percentage
Male	28	56.00 %
Female	22	44.00 %
Total	50	100%

Among 50 patients, 84 % cases have Alvarado's score of more than 8/10, while 14 % of patients have Alvarado's score between 7 & 8. Only 2 % of patients have Alvarado's score between 5 & 6 as shown .

Alvarado;s score	No. of cases	Percentage
<5	Nil	Nil
5-6	1	2.00%
7-8	7	14 %
>8	42	84%
Total	50	100%

On USG abdomen, in majority of cases (80%), appendix was found to be congested and edematous, while in 2 % of cases, appendix was found to be perforated. In 18 % of cases no abnormality was detected in appendix, as shown in table.

USG features of appendix	No. of cases
Thickened, fibrotic	Nil
Congested, edematous	40(80%)
Gangrenous	Nil
Perforated	1(2%)
Normal appendix	9(18%)

In 98 % cases of acute appendicitis, we are able to diagnose it clinically by considering the radiological diagnosis, a significant number of cases (18%) were missed by radiological investigations. During operation and histopathological examination, 96% of cases were diagnosed having disease and 4% of cases were normal, as shown in table.

DISCUSSION :-

Acute appendicitis is the most common cause of acute abdomen in young adults and thus appendectomy is the most frequently performed urgent abdominal operation.

Comparison of male female ratio in different studies :-

In the present study number of male patients is more than female patients. Fiske (1964) reported the incidence of acute appendicitis more in male than female. Shepherd (1960) and Dhawan (1962) observed that the incidence of acute appendicitis in male was slightly more than in females. In the present study, number of male patients were more (56 %) as compared to female patients (44%). Various diagnostic modalities (clinical, radiological ,operative, histopathological) are used for the diagnosis of acute appendicitis. Initially the diagnosis of acute appendicitis was solely based on clinical and operative features but after the advent of radiological investigations in acute appendicitis, the preoperative diagnosis of acute appendicitis has been improve but overall clinical diagnosis of acute appendicitis is always appreciated.

Clinical examination

In present study, pain was the most predominant (90 %) symptom presented by all cases of acute appendicitis. Vomiting was present in 82 % of total cases in the present study. 46 cases (92 %) out of 50 cases in the present study had fever at the time of admission. Hyperesthesia and tenderness in right iliac fossa in 98% of all cases was reported and rebound tenderness was observed in 41 out of 50 cases (82 %). There was leucocytosis in 41 (82 %) cases along with increase in neutrophils in 44 (88%) cases in present study.

Radiological examination

Plane X ray of abdomen is not helpful in the diagnosis of acute

appendicitis , but by this investigation we can rule out the possibility of ureteric stones on the right side. In present study USG of abdomen showed positive results in 41 cases (82 %) out of 50 cases. In majority of cases (80%) appendix was found to be congested and edematous, while in 2 % of cases, appendix was found to be perforated. In 18 % of cases no abnormality was detected in appendix.

Operative findings

On operation by muscle splitting, transverse skin incision, the appendix was seen in different positions. In the present series most of appendix (62 %) , were retrocaecal in position and in 14 % of cases it was pelvic in position on gross examination of the appendix it was congested and edematous in 92 % of cases. In 4 % of cases it was perforated and in 2 cases (4%) appendix was normal. No case of gangrene was reported in the present study.

Histopathological findings

On removing the appendix it was inflamed in 86 % of cases on histopathological examination. In 4 % of cases it was normal.

Clinically diagnosed		Radiological		preoperative		Histopathologic al diagnosis	
Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative
49 (98%)	1(2%)	41 (82%)	9(18%)	48 (96%)	2(4%)	48 (96%)	2(4%)

SUMMARY & CONCLUSION :-

In the present study, majority of cases were in the age group of 20-40 years. The ratio of male to female was 28:22. Abdominal pain was present in 90 % of cases. Fever was present in 92 % of cases while nausea and vomiting were present in 82 % of cases. Tenderness in right iliac fossa was present in 98% of cases. 98 % of patients showed Alvarado's score of >7(s/o clinically positive). In majority of cases position of appendix was retrocaecal (62%), while pelvic position was present in 14 % of cases, and pre ileal in 10 % of cases. USG abdomen diagnosed 82 % cases of acute appendicitis and it showed negative results in 18% of cases which were clinically positive. Per operatively, in 96 % of cases appendix was diseased (either inflamed or perforated), while only in 4 % of cases it was normal (non diseased). Histopathological examination revealed that in 96 % of cases, appendix was diseased, while in 4 % of cases it was completely normal. 96 % of cases were discharged from the hospital uneventfully. In almost all cases (98%) diagnosis is accurately made only on the basis of clinical examination, while in a significant number of cases (18 %) , radiological investigation used for diagnosis, failed to diagnose the positive cases. Acute appendicitis is a clinical diagnosis , although the radiological, biochemical and pathological evaluation in acute appendicitis is important. The history and clinical examination and Alvarado's score is more significant to treat and manage the cases of acute appendicitis which has been proved from our study and the literature. The diagnostic accuracy of clinical features is far more better than radiological investigations in the diagnosis of acute appendicitis. Therefore it is concluded that acute appendicitis is more a clinical diagnosis rather than radiological and it is better to use radiological investigation only to confirm the diagnosis of acute appendicitis rather to diagnose it.

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