



IMPORTANCE OF FECOLITHS IN THE ETIOLOGY OF ACUTE APPENDICITIS

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Abstract:

Among all the causes for the acute appendicitis, the predominant predisposing factor is the change in the diet of the individual. With the modernization and industrialization, more and more people have been adopting a way of life mimicking the western population. The change in the way of life, the effect of the western culture on the eastern population has led to a lot of changes in their diet and is the leading cause behind predisposition to appendicitis. Patient diagnosed with acute appendicitis which includes clinical and radiological were chosen. The patients were briefed regarding the study methodology and the purpose of the study. Those willing underwent a detailed evaluation after taking a written consent. The following routine pre-operative investigations were noted-Hemoglobin (g/dL), Total counts, Differential counts, ESR, S. albumin. we noted that the 1.30% had an engorged appendix, 7.30% had an appendix with an inflamed base , 10.70% had an engorged appendix inflamed tip , in 74.70% the appendix was inflamed in its whole length, 0.70% had an appendix with an inflamed whole length, perforation , 1.30% had an appendix with an inflamed in its whole length with free fluid , 1.30% had an appendix with a minimal inflammation and 1.30% had an perforated appendix.

Keywords: Fecoliths , Acute Appendicitis, Engorged Appendix

Introduction:

Acute appendicitis is a main concern in cases of acute abdomen that need urgent surgical intervention, both globally and in our country. The diagnosis of acute appendicitis is made through the patient's medical history and physical examination, as well as a few other tests such as the total leukocyte count (TLC).¹

Appendicitis can manifest as either obstructive or non-obstructive. Approximately 23.5% of acutely inflamed appendices are obstructed by a fecolith in cases of obstructive appendicitis. The user's text is a reference to a source or citation.²

A fecolith is a solid mass of hardened fecal material that develops around a foreign object in

the appendix. It grows gradually as layers of fecal material accumulate, and in some cases, it may become calcified. The main factors identified are lymphoid hyperplasia, fecaliths, intraluminal parasites, undigested plant residuals, and foreign materials, as well as tumors. Not all solid concretions in the inner cavity of the appendix can lead to inflammation of the appendix, and conversely, not every case of appendicitis is expected to involve solid concretions. Fecaliths are highly indicative of appendicitis and its associated complications.^{3,4}

Acute appendicitis has a higher prevalence in males, occurring 1.3 to 1.6 times more frequently than in females.

The lifetime likelihood of an individual developing acute appendicitis is 7- 10%. It is predominantly observed in individuals aged 20 to 40. Although there are debates and little understanding about the function of this organ, surgical techniques have been extensively explored. There is a wealth of literature and theories on the

etiology of appendicitis, and several experimental research have been conducted to elucidate the pathophysiological mechanisms behind this condition.⁵

Currently, the removal of obstructions in the luminal substance is widely recognized as the prevailing mechanism. Continued secretion in spite of a blocked outlet results in higher pressure inside the appendix and reduces blood flow to the appendix wall. Prolonged persistence of this pathological situation leads to subsequent inflammation processes that result in tissue destruction to the appendix wall, often culminating in perforation, a condition frequently encountered by surgeons.

The main factors identified are lymphoid hyperplasia, fecaliths, intraluminal parasites, undigested plant residuals, and foreign bodies, as well as tumors. • It should be noted that not all fecaliths present in the appendix lumen can lead to appendicitis, and conversely, not all cases of appendicitis are expected to involve fecaliths. Research indicates that consuming low-fiber diets might decrease the occurrence of fecaliths and thus lessen the likelihood of developing acute appendicitis.⁶

Methodology:

Source of data

Radiological findings of fecaliths.

Intra op findings of fecaliths.

Histopathological evidence of fecaliths.

Case Performa.

Study Design: Observational study

Sampling technique: Purposive sampling method Sample Size: 150

Patient diagnosed with acute appendicitis which includes clinical and radiological were chosen.

The patients were briefed regarding the study methodology and the purpose of the study.

Those willing underwent a detailed evaluation after taking a written consent.

The following routine pre-operative investigations were noted-Hemoglobin (g/dL), Total counts, Differential counts, ESR, S. albumin.

Intra-operatively following the exposure of appendix, an evaluation of the appendix were done were done where the base of appendix is felt/look for any presence of fecaliths.

Following removal of the appendix, the lumen of the appendix is looked for any presence of the fecaliths

The excised appendix is then sent histopathology to visualise the fecaliths.

Inclusion Criteria

All Age groups diagnosed with acute appendicitis.

All consenting patients undergoing laparoscopic/open appendicectomy

Exclusion criteria

Intraoperative and histopathological findings of normal appendix.

Results:**Table 1. USG**

USG	CASE NUMBER	PERCENT
ENGORGED	2	1.30%
INFLAMMED BASE	11	7.30%
INFLAMMED TIP	16	10.70%
INFLAMMED WHOLE LENGTH	112	74.70%
INFLAMMED WHOLE LENGTH, PERF	1	0.70%
INFLAMMED WHOLE LENGTH/ FF	2	1.30%
MIN INFLAMMED WHOLE LENGTH	2	1.30%
PERFORATED	4	1.30%

Based on the table we noted that the 1.30% had an engorged appendix 7.30% had an appendix with an inflamed base , 10.70% had an engorged appendix inflamed tip , in 74.70% the appendix was inflamed in its whole length, 0.70% had an appendix with an inflamed whole length, perforation , 1.30% had an appendix with an inflammation in its whole length with free fluid , 1.30% had an appendix with a minimal inflammation and 1.30% had an perforated appendix

Table 2. FREE FLUID AROUND APPENDIX ON USG

FREE FLUID AROUND APPENDIX ON USG	N	%
NO	135	90.00%
YES	15	10.00%

Based on the table we noted that the 10.00% had free fluid around appendix on USG .

Table 3 LOCATION OF APPENDIX

LOCATION OF APPENDIX	N	%
POSTILEAL	18	12.00%
PREILEAL	3	2.00%
RETROCECAL	129	86.00%

Based on the table on evaluation location of appendix 18 (12.00%) were post ileal, 3 (2.00%) were preileal and 129 (86.00%) retrocecal appendices .

Table 4. HISTOLOGY

HISTOLOGY	CASE NUMBER	PERCENT
HISTOLOGY	N	%
ACUTE APPENDICITIS	8	5.30%
ACUTE APPENDICITIS WITH PERIAPPENDICITIS	40	25.30%
ACUTE APPENDICITIS WITH PERIAPPENDICITIS AND PERFORATION	3	1.30%
ACUTE APPENDICITIS WITH PERIAPPENDICITIS WITH PERFORATION	1	0.70%
ACUTE APPENDICITIS WITH PERITONITIS	10	6.70%
ACUTE SUPPURATIVE APPENDICITIS	1	0.70%
ACUTE ULCERATIVE APPENDICITIS WITH PERIAPPENDICITIS	8	5.30%
APPENDIX WITH LYMPHOID HYPERPLASIA	14	9.30%
GANGRENOUS APPENDICITIS	4	2.70%
GANGRENOUS APPENDICITIS WITH APPENDICULAR MASS	2	1.30%
LYMPHOID HYPERPLASIA OF APPENDIX	10	6.70%
RESOLVING APPENDICITIS	45	30.70%

RESOLVING APPENDICITIS WITH PERIAPPENDICITIS	2	1.30%
RESOLVING APPENDICITIS WITH LYMPHOID HYPERPLASIA	2	1.30%

Table 5. FECOLITHS

Fecoliths	CASE NUMBER	PERCENT
YES	49	32.67%
NO	101	67.33%

Based on the table, in the present study 32.67% had fecoliths .

Table 6 Statistic

Statistic	Value	95% CI
Sensitivity	100.00%	96.48% to 100.00%
Specificity	100.00%	2.50% to 100.00%
Disease prevalence (*)	99.04%	94.76% to 99.98%
Accuracy (*)	100.00%	96.52% to 100.00%

Discussion:

USG also has more of a role in ruling out normal appendix when some other pathology is involved with a specificity of 100%.

Chenna krishna reddy chada⁷ et al in their study of 160 cases had an overall sensitivity and specificity of use in the study was (97.18%) and (55.56%) Chenna Krishna Reddy Chada et al⁷ in their study of 160 cases histopathologically confirmed cases of acute appendicitis were 142 (88.75%) and 18 normal cases without histopathological diagnosis were operated with a negative appendectomy rate of (11.25%).

Studies have shown varying rates of fecolith presence among patients with acute appendicitis:⁸

Engin et al. in Turkey found fecoliths in 37.2% (269 out of 723) of patients with acute appendicitis.

Ramdas et al. in Trinidad found fecoliths in 13.7% (186 out of 1357) of appendectomy cases.

Imam et al. in Pakistan found fecoliths in 25% (20 out of 80) of patients undergoing appendectomy.

Nguyen Tran et al. reviewed various studies and reported fecoliths in 15.6% of patients with acute appendicitis and 24.9% in those with perforated appendicitis.

Conclusion:

we noted that the 1.30% had an engorged appendix 7.30% had an appendix with an inflamed base , 10.70% had an engorged appendix inflamed tip , in 74.70% the appendix was inflamed in its whole length, 0.70% had an appendix with an inflamed whole length, perforation , 1.30% had an appendix with an inflammation in its whole length with free fluid , 1.30% had an appendix with a minimal inflammation and 1.30% had an perforated appendix

In the present study 32.67% had fecoliths

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