



A PROSPECTIVE STUDY OF APPENDICITIS AT KAPV GOVERNMENT MEDICAL COLLEGE, TRICHY

General Surgery

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ABSTRACT

INTRODUCTION: Acute appendicitis is a common gastrointestinal disease affecting 5.7/per 100000 individuals each year with the highest incidence in children and adolescents. The medical profession has gained much experience in managing patients with acute appendicitis ever since Fitz's first report in 1886. Large heterogeneity exists, however, between existing intercontinental, European and national guidelines regarding diagnosing and managing acute appendicitis. The variation of incidence is due to variations in ethnicity, sex, age, obesity and season of the year. Based upon the entrenched idea that appendicitis is an irreversible progressive disease eventually leading to perforation, removal of the appendix is the gold standard of treatment. For instance, in the Netherlands, pre-operative imaging studies are promoted and considered mandatory in order to prevent negative appendectomies according to national guidelines, whereas in guidelines of other countries, it is not promoted nor considered mandatory. Another example is the inconsistency regarding the management of an unexpected "normal appendix" during diagnostic laparoscopy. Approximately one-third of patients with appendicitis will experience a perforation of their appendix before their appendectomy. We conducted the study in patients who come with right iliac fossa pain and the datas concluded with appendicitis in this study at KAPV government medical college trichy, to concern about to reduce the rate of normal appendectomy.

MATERIALS AND METHODS: It was a prospective comparative study involving 100 adult patients undergoing surgery for appendectomy at KAPV government medical college trichy.

CONCLUSION: The surgical removal of normal appendix should be reduced based on clinical findings and laboratory results ,according to our statistics at kapv medical college.

KEYWORDS

Appendix , Appendectomy

INTRODUCTION

Abdominal pain is a major cause of hospital visits, accounting for about 10 % of 62 million visits per year by adults who present at an emergency department (ED) for non-injury causes. Acute appendicitis is one of the most common causes of abdominal pain and results in nearly 750,000 ED visits with approximately 250,000 appendectomies performed annually. Appendicitis was first described in 1886, with prompt surgical management recommended as definitive treatment. Until the late 20th century, diagnosis was purely based on history and physical examination, with an acceptable negative appendectomy rate of 20%-25%. Globally, a small but significant portion of the operations are "negative appendectomies", resulting in the removal of a non-inflamed appendix due to misdiagnosis, reported as high as 17-28 % outside the United States (US) and Western Europe. the accurate diagnosis of appendicitis could be challenging, and in places where CT is still not available, the Alvarado score of clinical characteristics is a widely used diagnostic tool.

The estimated lifetime prevalence is 7%. Despite its high prevalence, the diagnosis of appendicitis remains challenging. The diagnosis of appendicitis embodies Sir William Osler's spirit when he stated, "Medicine is a science of uncertainty and an art of probability." The clinical presentation is often atypical and the diagnosis is especially difficult because symptoms often overlap with other conditions. The fundamental clinical decision in the diagnosis of a patient with suspected appendicitis is whether to operate or not. Ideally, the goal is to expeditiously treat all cases of appendicitis without unnecessary surgical interventions. A 2001 study reported negative appendectomy rates between 15% and 34% with approximately 15% being commonly accepted as appropriate to reduce the incidence of perforation.

The meaningful evaluation of acute appendicitis balances early operative intervention in hopes of preventing perforation against a more restricted approach with the hope of reducing the risk of unnecessary surgery, because appendix contains the normal flora

METHODOLOGY

It was a prospective comparative study involving 100 adult patients

underwent appendectomy at KAPV government medical college trichy. We considered datas of patients' gender, duration of pain, Alvarado scoring system, blood count, intraoperative findings, position of appendix and postoperative HPE report.

In this study in kapv trichy government medical college based on the pathology report we concluded the parameters which are significant for appendicitis to avoid the surgical removal of normal appendix.

INCLUSION CRITERIA:

1. Patients presenting to emergency department with abdominal pain in RIF & tenderness
2. final diagnosis of appendicitis,
3. The patients referred to surgical unit with appendicitis

EXCLUSION CRITERIA:

1. Previous appendectomy.
2. The Abdominal surgery in last 6 weeks.
3. Ureteric colic
4. Pregnancy

STUDY PROTOCOL:

All the relevant clinical details of history, clinical examination findings and provisional clinical diagnosis were followed.

STATISTICAL ANALYSIS AND RESULTS

SEX	APPENDICITIS	NORMAL	TOTAL
MALE	44	20	64
FEMALE	17	19	36
TOTAL	61	39	100

The chi-square statistic is 4.4883. The p-value is .034127. This result is significant for sex ratio ,presentation of appendicitis is more common in males

AGE GROUP

AGE	NO.OF PATIENTS
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<10	0
11-20	34
21-30	10
31-40	9
41-50	3
51-60	2
61-70	2
>70	1
TOTAL	61

THE commonest age at presentation in proved appendicitis patients were under second decade in trichy.there is thirty four no.of patients were presented with appendicitis in this age group.

DURATION

DURATION	NO.OF PATIENTS
LESS THAN 24 HOURS	73
MORE THAN 24 HOURS	27

Most of the presentations of appendicitis were within 3 days of commencement of abdominal pain in our study

CLINICAL MANIFESTATIONS

VOMITING	APPENDICITIS	NORMAL	TOTAL
YES	34	25	59
NO	27	14	41
TOTAL	61	39	100

The chi-square statistic is 0.6881. The p-value is .406798. This result is not significant at p < .05.

FEVER	APPENDICITIS	NORMAL	TOTAL
YES	28	29	57
NO	33	10	43
	61	39	100

The chi-square statistic is 7.8603. The p-value is .005053. This result is significant at p < .05.

NAUSEA	APPENDICITIS	NORMAL	TOTAL
YES	49	27	76
NO	12	12	24
	61	39	100

THE presentation of nausea is very much significant,The chi-square statistic is 24.5606. The p-value is .000001. This result is significant at p < .05.

ANOREXIA

ANOREXIA	APPENDICITIS	NORMAL	TOTAL
YES	34	25	59
NO	27	14	41
	61	39	100

The chi-square statistic is 0.6881. The p-value is .406798. This result is not significant at p < .05.

LEUCOCYTE COUNT

LEUCOCYTE COUNT	APPENDICITIS	NORMAL	TOTAL
YES	53	25	78
NO	8	14	22
	61	39	100

The presentation of leucocytosis is comparatively high in appendicitis patients ,53 no of patients had presented with increased neutrophil count. The chi-square statistic is 7.1959. The p-value is .007307. This result is significant at p < .05.

PAST HISTORY

PREVIOUS EPISODES	APPENDICITIS	NORMAL	TOTAL
YES	53	37	90
NO	8	2	10
	61	39	100

There is a minimal number of previous episodes in both the patients. The chi-square statistic is 1.686. The p-value is .194123. This result is not significant at p < .05.

POSITION

POSITION OF APPENDIX	NO.OF PATIENTS
Retrocecal	51
Paracecal	2
Pelvic	1
Preileal	2
Subcecal	4
Not made out	1
	61

In our study the commonest position of appendix is retrocecal position in pathologically proved appendicitis patients. The value of p is .001533. The result is significant at p < .05.

DISCUSSION:

Abdominal pain is a major cause of hospital visits, accounting for about 10 % of 62 million visits per year by adults who present at an emergency department (ED) for non-injury causes. Acute appendicitis is one of the most common causes of abdominal pain and results in nearly 750,000 ED visits with approximately 250,000 appendectomies performed annually . The variation of incidence is due to variations in ethnicity, sex, age, obesity and season of the year. Based upon the entrenched idea that appendicitis is an irreversible progressive disease eventually leading to perforation, removal of the appendix is the gold standard of treatment. The diagnosis of appendicitis can be elusive, and a high index of suspicion is important in preventing serious complications from this disease. The appendix, ileum, and ascending colon are all derived from the midgut. The appendix first appears at the eighth week of gestation as an outpouching of the cecum and gradually rotates to a more medial location as the gut rotates and the cecum becomes fixed in the right lower quadrant. Histologic examination of the appendix indicates that goblet cells, which produce mucus, are scattered throughout the mucosa. The submucosa contains lymphoid follicles, leading to speculation that the appendix might have an important, as yet undefined, immune function early in development. McBurney described a right lower quadrant muscle-splitting incision for removal of the appendix in 1894. The mortality rate from appendicitis improved with the widespread use of broad-spectrum antibiotics in the 1940s.

Advances have included improved preoperative diagnostic studies, interventional radiologic procedures to drain established periappendiceal abscesses, and the use of laparoscopy to confirm the diagnosis and exclude other causes of abdominal pain. Laparoscopic appendectomy was first reported by the gynecologist Kurt Semm in 1982 but has only gained widespread acceptance during the past decade. Other minimally invasive approaches to appendectomy have been reported, including transvaginal³ and single-incision laparoscopic surgery (SILS)⁴; however, these have not as yet been widely adopted.

Obstruction of the lumen is believed to be the major cause of acute appendicitis, Obstruction of the appendiceal lumen contributes to bacterial overgrowth and continued secretion of mucus leads to intraluminal distention and increased wall pressure. Luminal distention produces the visceral pain sensation experienced by the patient as periumbilical pain. Subsequent impairment of lymphatic and venous drainage leads to mucosal ischemia. These findings in combination promote a localized inflammatory process that may progress to gangrene and perforation. Inflammation of the adjacent peritoneum gives rise to localized pain in the right lower quadrant. Although there is considerable variability, perforation typically occurs after at least 48 hours from the onset of symptoms and is accompanied by an abscess cavity walled off by the small intestine and omentum. Rarely, free perforation of the appendix into the peritoneal cavity occurs, which may be accompanied by peritonitis and septic shock and can be complicated by the subsequent formation of multiple intraperitoneal abscesses. The diagnostic accuracy varies depending on the clinical experience of the surgeon and is reported to range from 71.0% to 97.0%.¹ Adjunctive laboratory tests and scoring systems, like the Alvarado score, have been of some benefit, but are not superior to an experienced surgeon's clinical judgment. Unfortunately, most of the studies prospectively assessing these scoring systems showed sensitivity & specificity of around 80.0%, which was similar to that of an experienced clinician. **Russell WS et al** and **Santillanes G et al** in their respective studies used the similar tools to analyze the appendicitis. The above mentioned tools were used as the gold standard for evaluating the appendicitis. Given the prospective cohort

study nature of this study, with specific follow-up protocol defined for surveillance of patients with appendicitis in 100 patients who underwent the screening in the department of radiology.

To minimize bias in the cases of discrepancy, pathology report diagnosis was used as final diagnosis, because primary outcome measures of the rates of missed appendicitis (false negatives), the negative appendectomy (false positives), CT use, and the rates of appendicitis in each. Most of the patients presented by Nausea Greater than 13 hours of abdominal pain 80.8% in majority of patients while abdominal tenderness and rebound were observed in majority of patients in physical examination. Factors associated with an increased likelihood of appendicitis included decreased bowel sounds; rebound tenderness. Low risk (0-4) Alvarado score was in 53.3% Intermediate risk (5-6) 19.2% and High risk (7-10) 27.5% Final Diagnosis shows that appendicitis was in 61 patients out of 100 enrolled patients. Computed tomography (CT) is more precise than ultrasonography and has a diagnostic accuracy rate of 93 to 98 percent for acute appendicitis but radiation is the main factor that effect the use of CT over USG.

Pathologists were not aware of study and didn't have results of any imaging done preoperatively. Patients those who were not diagnosed with appendicitis were either seen in follow up clinic or called to ensure that no cases of the appendicitis were missed. The performance of clinical practice guideline was assessed using the primary outcome measures of the rates of the missed appendicitis (false negatives), negative appendectomy (false positives), CT use, and the rates of appendicitis in each risk group. Significance was considered at $P < .05$. Sensitivity, specificity, negative predictive values and positive predictive values of each imaging the pathway for diagnosis of appendicitis were determined by using the contingency tables, and 95.0% confidence intervals were calculated.

In our study the clinical history in the majority of patients presented with right lower abdominal pain were positive for nausea ,vomiting , fever.males have predominant in the age group of second decade with appendicitis . some of the patients has increased neutrophils count , presence of clinical symptoms in pathologically proved normal appendix, which is not significant.

LIMITATIONS OF THE STUDY

The small sample size in both our pre-implementation and postimplmentation groups makes generalizability of our findings challenging and made subset analysis of sensitivity/specificity of US and clinical variables used to diagnose appendicitis difficult.

STRENGTHS OF THE STUDY

The results were in accordance with protocol of the study. Tools and procedures used were precise and very much effective .

CONCLUSION:

Hence in this study conducted in kapv medical college ,trichy the significance of clinical presentations ,laboratory values were much significant than radiological parameters proved to be appendicitis intraoperatively.this has to be useful while taking the patient to surgery and to decrease the rate of normal appendectomy.

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