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Elective appendicectomy for chronic right lower quadrant pain: a clinical study

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ABSTRACT

Background: Chronic right-lower-quadrant abdominal pain is a frequent problem among growing population. The purpose of this study is to implement that persistent or recurrent right lower quadrant pain can be treated successfully by elective appendicectomy in properly selected cases. And to detail the outcome of management of these patients with appendectomy.

Methods: This observational study was done in Mahatma Gandhi Medical College and Research Institute, Pondicherry, India between 2014-16 in patients with clinical diagnosis of chronic RLQ pain and undergoing appendicectomy. Routine laboratory investigations included hemoglobin percentage, serum leukocyte count and differential count, ESR, urine microscopy, random blood sugar, blood urea, serum creatinine, abdominal ultrasound (USG), and histopathological examination (HPE) of removed the appendix. The primary outcome measure was pain scored by the patient at 6th week and 12th week after surgery. Postoperative histopathology report was compared with the clinical improvement. The analysis of primary outcome was performed on an intention-to-treat basis. P<0.050 was considered statistically significant.

Results: Eighty-two cases of chronic RLQ pain, who met the inclusion criteria, were included in the clinical study. Elective appendicectomy was performed in all 82 patients and sample analysed by HPE. Out of 82 (100 %) patients who underwent appendicectomy, 45 (54.90 %) were male and 37 (45.10 %) were female. About 79 cases (96.34%) of the patients were completely pain free, and only 3 (3.66%) patients did not improve after elective appendicectomy. There was no mortality. Out of 82 patients, 52 (63.41%) patients had pathological signs of appendicitis and 30 (36.59 %) patients showed the normal appendix.

Conclusions: Elective laparoscopic appendicectomy in patients with chronic RLQ pain may be an effective therapeutic procedure in properly selected cases. Histopathology of the removed appendix does not contribute to the diagnosis. However, there appears to be definite scope for a much longer duration of follow-up study of the patients with chronic RLQ pains.

Keywords: Appendicitis, Abdominal pain, Pain measurement, Recurrence

INTRODUCTION

Chronic right lower quadrant still remains a significant problem in diagnostic dilemma. In some cases, even after going through many investigations it does not reveal the causes of pain. It needs multi-disciplinary approach to diagnosis and proceed. The most common cause for RLQ pain is acute appendicitis. Appendicitis is the most common intra-abdominal condition requiring emergency surgery, with a lifetime risk of 6%.1 Appendicectomy continues to be one of the commonest procedures in general surgery, accounts for approximately 1% of all surgical operation.²

Recurrent appendicitis is occasionally termed chronic appendicitis, but this probably a misnomer because the appendix is almost certainly uninflamed in the interval between episodes. Often, individuals with chronic appendicitis are undiagnosed until an acute episode of appendicitis occurs, resulting in symptoms that progress in severity.

Left untreated, chronic appendicitis can lead to life-threatening complications such as a ruptured appendix and infection that spreads to other parts of the body. In many patients during appendicectomy procedure intra operatively appendix appears normal but histopathologically and microscopically varies. There is evidence to support that elective appendicectomy for chronic appendicitis/chronic right lower quadrant pain helps in the improvement of pain.

The purpose of current study is to determine the efficacy of appendicectomy on patient with chronic right lower quadrant pain. And aiming to prove that removing clinically normal appendix will help in relieving pain.

METHODS

This was a prospective observational study, conducted at the Mahatma Gandhi Medical College and Research Institute, Pondicherry, India from 2014-16. Patients were briefed about the study. After obtaining their consent study were conducted.

Inclusion criteria

- Age between 15-60 years
- Complaining of chronic or recurrent right lower abdominal quadrant pain or one pain attack for more than three months and
- Continuous pain in a month prior to inclusion.

Exclusion criteria

- Chronic back pain
- Previous abdominal surgery
- Specific gastro intestinal entities (such as Inflammatory bowel disease)
- Any gynecological disease and
- If diagnostic laparoscopy revealed any abnormalities during procedure.

Patients who presented with chronic RIF pain and on examination with tenderness in right iliac fossa were investigated with necessary investigation and were posted for surgery. Other cases presented with appendicitis was also taken into consideration but only cases with chronic RIF pain were included in statistics and results. Before proceeding with appendicectomy cases will be thoroughly investigated for other causes that leading to RIF pain. Only if no probable causes were found cases

will be proceeded for appendicectomy either by laparoscopic or open method. All the cases were followed every day in the postoperative period till they were discharged and then later followed for a period of 6th week and 12th week in the outpatient department. The following parameters were observed during follow up.

Post-operative pain using a three-point pain scale. Presented proforma was used to collect the relevant information, and paired t test and independent t- test, is used for statistical analysis. Three-point pain scale :1= pain unchanged, 2= remarkable relief and 3= complete relief.

All data was entered into a Data Collection Proforma Sheet and were entered into Excel (MS Excel 2011). The Sheet had a visual map for marking and divided into indications for both genders. Other biographical details were also collected including date of birth, weight and height.

Statistical analysis was carried out using SPSS version 19.0 (IBM SPSS, US) software with Regression Modules installed. Descriptive analyses were reported as mean and standard deviation of continuous variables. Paired t test and independent t test were used to analyse the data.

RESULTS

Table 1 showed the baseline parameters of both the groups. Table 2 revealed that 0ut of 212 cases, 22 (16.92) cases from appendicitis group had pathology of normal appendix, 30 (36.59) cases from chronic RIF group had pathology of normal appendix, 108 (83.08) cases from appendicitis group had pathology of appendicitis and 52 (63.41) cases from chronic RIF group had pathology of appendicitis which was statistically significant (p value= 0.0011).

Out of 212 cases, 2 (9.09) cases with normal biopsy had remarkable relief of pain, 13 (12.03) cases with appendicitis in biopsy had remarkable relief of pain, 20 (90.90) cases with normal biopsy had complete relief of pain and 95 (87.96) cases with appendicitis in biopsy had complete relief of pain.

Out of 212 cases, 2 (6.66) cases with normal biopsy had remarkable relief of pain, 1 (1.92) cases with appendicitis in biopsy had remarkable relief of pain, 28 (93.33) cases with normal biopsy had complete relief of pain and 51 (98.07) cases with appendicitis in biopsy had complete relief of pain.

Out of 212 cases, 52 (24.53) cases from appendicitis and chronic RIF group had normal biopsy and out of which 48 (92.30) cases had complete relief of pain and 160 (75.47) cases from appendicitis and chronic RIF group had appendicitis in biopsy and out of which 146 (91.25) cases had complete relief of pain.

Table 1: Comparison between groups.

Parameters	Appendicitis group	Chronic RIF pain group	Total
No. of patients	130 (61.32%)	82 (38.68%)	212
Age distribution			
15-20	29 (65.91)	15 (34.09)	44 (20.75)
21-30	29 (51.79)	27 (48.21)	56 (26.42)
31-40	31 (59.60)	21 (40.40)	52 (24.52)
41-50	29 (69.00)	13 (31.00)	42 (19.81)
51-60	12 (66.70)	6 (33.30)	18 (8.50)
Sex			
Male	86 (66.20%)	45 (54.90%)	131 (61.80%)
female	44 (33.80%)	37 (45.10%)	81 (38.20%)
Procedure			
Lap appendicectomy	41 (45.55)	49 (54.45)	90 (100)
Open appendicectomy	89 (72.95)	33 (27.05)	122 (100)
Clinical Symptoms			
Abdominal pain	130 (100)	82 (100)	212
Nausea / vomiting	123 (94.61)	44 (53.65)	167
Fever	101 (77.69)	28 (34.14)	159

Table 2: Biopsy report.

Biopsy	Appendicitis	Chronic RIF	P-
report	group no. (%)	group no (%)	Value
Normal	22 (16.92)	30 (36.59)	0.0011
Appendicitis	108 (83.08)	52 (63.41)	0.0011
Total	130 (100)	82 (100)	

Table 3: Follow up-appendicitis group.

After follow up	Appendicitis group no. (%)		
Pain score	Normal biopsy	Pain score	
Pain unchanged	-	-	
Remarkable reduction	2 (9.09)	13 (12.03)	
Completely relieved	20 (90.90)	95 (87.96)	
Total	22 (100)	108 (100)	

Table 4: Follow up-chronic RIF group.

After follow up	Chronic RIF group no. (%)		
Pain score	Normal biopsy	Pain score	
Pain unchanged	-	-	
Remarkable reduction	2 (6.66)	1 (1.92)	
Completely relieved	28 (93.33)	51 (98.07)	
Total	30 (100)	52 (100)	

Table 6 showed the comparison of visits and relief of pain in Chronic RIF group which is statistically significant (p value= 0.007).

DISCUSSION

Chronic Right lower quadrant pain remains one of the common clinical problem encountered by many of the patients. The diagnostic part still remains a challenging task. Even though there is advancement in modern inventions diagnosis remains challenge for the surgeons. Among the chronic RIF pain appendicitis was the most common problem encountered. Even with strong clinical scoring and imaging techniques chronic RIF pain becomes a query to the surgeons.

Table 5: Overall biopsy.

Biopsy	Appendicitis group and chronic RIF group no. (%)	Complete relief from pain	Percentage
Normal pathology	52 (24.53)	48	92.30
Appendicitis	160 (75.47)	146	91.25
Total	212 (100%)	194 (91.50%)

The present study has been chosen because recent years there a great increase in interest for chronic RIF pain. Present study was done to show that doing elective appendicectomy for chronic RIF pain help in alleviate the pain than leaving the appendix in situ. Beneficial effects on post-operative patients can be obtained only after a series follow-up.

In the study, abdominal pain was the only universal complaint present in all 212 cases while other complaints such as nausea/vomiting and fever present in 167 cases and 159 cases respectively.

Acute appendicitis which has clinical characteristics in making the diagnosis but in case of chronic RIF there won't be such characteristics that help in diagnosis. Signs

and symptoms also have less obvious role than in acute appendicitis. There were no typical findings or routine

diagnostic modalities to diagnose chronic appendicitis. It has been a diagnosis of exclusion.

Table 6: Comparison of visits and relief of pain in chronic RIF group.

	Visits	Mean	Std. Deviation	t	P
Mean pain score	Visit 1	2.89	±0.316	2.751	0.007
	Visit 2	2.98	± 0.156	2.731	0.007

Even for chronic appendicitis there is no typical feature to make the clear the diagnosis. Imaging modalities should be carried out if needed to rule out the other gastro intestinal causes leading to chronic RIF pain and that patient can be excluded from the study. There is no post-operative complications or mortalities were encountered in present study. In the study, post-operative histopathological examination of appendix revealed features of appendicitis in 160 cases and normal study in 52 cases.

Table 7: Appendicitis versus RLQ pain.

Group	No of cases	Pain relief
Clinically appendicitis	17	15
Recurrent RLQ pain	18	17

Results of present study shows that chronic RIF pain is most common in the age group 21 to 30 years (48.21%). Next common group is 31 to 40 years (40.40%). There were 45 (54.90%) males and 37 (45.10%) females for a ratio of 1.22:1. Their ages ranged from 15 to 60 years with a mean of 31.86 years. The age distribution shown on table.1indicates that 76.82% of patients were younger than 40 years of age. Above results were compared with another study conducted by Mefire AC et al. There were 62 (60.78%) males and 40 (39.21%) females for a ratio of 1.55:1. Their ages ranged from 6 to 49 years with a mean of 33.2 years.³

Siriwardana RC and colleagues reported in their study that out of 35 cases, clinically evaluated appendicitis (17 cases) and cases with pain persisting or recurring in right lower abdomen (18 cases) over a period of 6 weeks or more were assessed.⁴ Severity of CRIF pain was documented using a ten-point visual analogue scale. All patients underwent laparoscopic appendicectomy. Patient's immediate complications, pain score at 8 weeks and histology of appendix were assessed. Seventeen (94.44%) patients from right lower abdomen pain group had pain relief after appendicectomy. Out of 18 cases in RLQ pain group eleven (61.11%) cases had macroscopically normal appendix during laparoscopy.

This study was compared with present study and found that elective appendicectomy will be helpful even in cases with recurrent or chronic right lower quadrant pain. A study was performed in one teaching hospital in the Netherlands between September 1994 and November 2004 by Roumen RM and colleagues. In this study, patients with chronic or recurrent RLQ pain of unknown origin were evaluated. Of 40 patients, 18 patients underwent laparoscopic appendicectomy and only 22 patients' diagnostic laparoscopy. Six months after operation based on pain score, they observed that higher proportion of patients in the appendicectomy group had significant improvement in pain than the inspection only group. Compared with present study it was proven that among 82 cases who underwent laparoscopic and open appendicectomy had higher proportions of complete pain relief in post-operative period.⁵

In the same study by Roumen RM and colleague's postoperative histopathology revealed the following. They have proved that in selected patients with chronic RIF pain elective appendicectomy can be done to help relieving pain.

In this study, there was 82 cases in chronic RLQ pain group and all cases underwent appendicectomy. Among 82 cases biopsy was normal for 30 cases and 52 cases have features suggestive of appendicitis. Out of 30 cases in normal biopsy group 28 cases had completely relieved from pain and 2 cases had remarkable reduction in pain. Out of 52 cases in appendicitis biopsy group 51 cases had complete reduction in pain and 1 case had remarkable reduction.

Table 8: Histopathology results of all removed appendices.

НРЕ	Number of patients	Pain-relieved patients
Normal pathology	18	15
Acute inflammation	10	10
Chronic inflammation	12	11
Total	40	36

Another study by Mussack et al conducted study between November 1995 and February 1998 in which 322 patients underwent appendicectomy due to typical symptoms of appendicitis. The study concluded that three quarters of all patients with pain in the RLQ, without significant signs of inflammation, showed the histological criteria for

chronic appendicitis. 43 Criteria for chronic appendicitis include symptoms lasting longer than 4 weeks, confirmation of chronic signs through histopathological examination, and improvement of symptoms after appendicectomy.

In present study cases were followed post operatively up to 12 weeks. OPD visit was done on 6th and 12th week and pain score entered. Compared to first visit higher proportion of cases had pain relief during second visit. P value for present study is 0.007 which is statistically significant.

CONCLUSION

Based on the results and the methodology employed, we have concluded that: (1) Chronic RIF pain is a common clinical entity and continues to remain a diagnostic and therapeutic problem, (2) Sometimes chronic or recurrent appendicitis may cause persistent or recurrent pain in the RLQ, (3) Such pain cannot be ruled by imaging methods, and (4) based on results from present study it was proved that cases presenting with chronic RLQ pain when no other etiology was found can be relieved by performing elective appendicectomy.

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Ethical approval: The study was approved by the

institutional ethics committee

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