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Clinicopathological Correlation of Recurrent Appendicitis as A Cause of Recurrent RIF Pain

KEYWORDS: appendectomy, appendicitis, pain, recurrent appendicitis, right iliac fossa

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ABSTRACT *Recurrent appendicitis is defined when patients with recurring similar right iliac fossa pain had acute appendicitis confirmed at the time of operation and the pain completely subsided after surgery. We conducted a retrospective study on our patients with appendicitis. There were 310 patients with appendicitis over a two-year period and 34 patients (11%) had reported recurring pain prior to the presentation. Majority had one prior episode but 15% had multiple episodes of right iliac fossa pain. Fifty-eight percent of the episode occur within six months of the presentation. We conclude that recurrent appendicitis should be considered as a differential diagnosis in patients with recurrent right iliac fossa pain.*

INTRODUCTION

Appendicitis has always been thought to be a progressive disease, from acute inflammation followed by gangrene and necrosis and finally perforation. In recent years, there are reports to suggest that the disease can either resolve spontaneously or after antibiotic treatment. Eriksson reported that in his series of 20 patients treated conservatively for clinically diagnosed appendicitis, seven of them developed acute appendicitis within one year of conservative treatment and required surgery[1]. Barber et al also published a retrospective study on 1,084 patients with appendicitis and found that 6.5 percent of these had symptoms and signs compatible with appendicitis which resolved spontaneously before their final attendance for a similar complaint when the appendix was removed[2].

This led to the recognition of repeated inflammation of the appendix being a cause of recurrent right iliac fossa pain. The definition of recurrent appendicitis requires a history of similar, recurrent right iliac fossa pain leading to appendectomy, with the histological confirmation of inflammation of the appendix. Subsequently, there should be complete resolution of symptoms after removal of the appendix.

In this retrospective study, we set out to examine the incidence and characteristics of patients with recurrent appendicitis in our institution.

METHODS

We conducted a retrospective study that includes all patients who had appendectomies performed for suspected appendicitis in the period January 2013 to December 2014. Data were collected from the patient's admission records at SKN Medical college and general Hospital. Patients who had previous history of similar, recurrent right iliac fossa pain leading to appendectomy and histological confirmation of appendicular inflammation were defined as recurrent appendicitis. Further information including number of previous episodes, number of previous admissions and subsequent treatment was collected. Follow-up via telephone interview was done to assess if they had persistent symptoms postopertively.

RESULTS

There were 355 patients who underwent appendectomies during the review period. Forty-five patients had normal appendices and were excluded. Among this group of patients with normal appendectomies, two patients had history of recurrent right iliac fossa pain. One patient had right sided diverticulitis while the other had an un-inflamed appendix with a fecolith. Of the 310 patients with appendicitis, there were 247 males and 63 females between six to 90 years old (mean: 32, median: 30).Thirty-four patients (11%) had a history and clinical course that fit the definition of recurrent appendicitis. Twenty-three of the 34 patients (68%) had one previous episode of pain while 6 (17%) had two prior episodes and 5 (15%) had multiple episodes. Only eight patients did not seek medical attention during their previous painful episodes. There were 54 admission episodes among these 34 patients. There were 16 patients with 20 previous admissions for suspected appendicitis without surgery. One patient was offered appendectomy in another hospital seven years ago but declined. Fifty-eight percent of the episodes occur within six months of the current admission when appendectomy was performed.The follow-up period ranged from 38 to 50 months. None of the patients had recurrent right iliac fossa pain. One patient with acute appendicitis had an incidental carcinoid tumour.

Table I. Characteristics of patients with and without recurrent appendicitis

	Recurrent appendicitis (n=34)	Non-Recurrent appendicitis (n=276)	
Male/female ratio	79%	82%	
Mean age	32.2	31.6	
Duration of symptoms	1.6 days	2 days	
Perforation rate	12%	28%	P=0.01

Table I compared some characteristics of the group with recurrent appendicitis with those that had an index episode of clinical acute appendicitis. The two groups were similar in gender distribution. The former group comprised 21% females and the latter 18%. There was no difference

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in the mean age of developing recurrent or acute appendicitis (32 years).

It is interesting to note that although the duration of symptoms before operation between the recurrent group and the acute group is similar, there is a significantly less perforation at time of operation in the recurrent group compared to the acute group; 12% in the former and 28% in the latter.

DISCUSSION

The importance of early diagnosis and treatment of an inflamed appendix was first outlined by Reginald Fitz in 1886[3]. Subsequent to that, there had been increasing reports of appendectomy done for chronic or recurrent abdominal pain, which did not necessarily have the typical features of appendicitis. This led to poor clinical outcome and the term "recurrent appendicitis" or "chronic appendicitis" fell into disrepute. In 1940, Alvarez reviewed a group of 385 patients who had undergone appendectomy. Of these, 255 did not have a history consistent with appendicitis. Sixty patients became worse postoperatively and only 94 patients were cured[4]. Since then, recurrent appendicitis is often not recognised by many clinicians. However, recent reports has been made of appendicitis that resolved and presenting subsequently with recurrent inflammation. In 1985, Lee reviewed 1,869 appendectomies and found 11 patients with recurrent right iliac fossa pain[5]. All exhibited gross abnormality of the appendix such as fecolith, torsion or kinking of the appendices, narrowed lumen and purulent material in lumen. Crabbe reported a series of 21 patients who had appendectomy performed for presumed recurrent appendicitis[6]. Twenty of these had acute appendicitis on exploration. Other authors reported cases where multiple recurrent episodes of pain were experienced before appendectomy brought an end to the ordeal. Seidman reported one such case in a 23-year-old man with 17 episodes in two years[7]; and Hawes reported a patient with five episodes in two years and another with four episodes in one year[8].

Diagnosis of recurrent appendicitis can be a challenge for the unaware. Frequently in the female, a gynaecologic diagnosis was made to account for the repeated symptoms[9]. A previous operation for pain at the right lilac fossa does not necessary rule out the diagnosis of recurrent appendicitis; drainage of an appendiceal abscess without removal of the offending appendix can also lead to recurrent appendicitis[10].

History of recurrent right iliac fossa pain seems to exclude appendicitis. However, with more evidence of recurrent appendicitis, this view needs to be changed. Since there are other causes of the recurring right iliac fossa pain such as ureteric colic, diverticulitis, worm infestation, gynaecological conditions, patients with recurring symptoms should have investigations to exclude these causes.

Some authors suggest that non-filling of the appendix on barium enema as diagnostic of appendicitis[5]. CT appearance of recurrent appendicitis shows similar features with that of acute appendicitis[11]. These include pericecal stranding, dilated appendix, apical thickening, adenopathy, appendolith, abscess, phlegmon and fluid in the pericecal region. Laparoscopy can be used as a diagnostic tool during the acute phase to exclude recurrent appendicitis, which can be followed with laparoscopic appendectomy. A normal appendix found in such patients should be removed so that appendicitis can be ruled out in future episodes of pain.

The pathophysiology of recurrent inflammation of the appendix is unclear. In acute appendicitis, it is believed that obstruction of the appendiceal lumen leads to overgrowth of the bacteria. The resultant distension of the appendix causes inflammation, ischaemia and perforation. Some authors speculate that the possible pathophysiology of recurrent appendicitis is either partial obstruction of the appendiceal lumen or the excessive mucus production in the appendix[5,7].

The incidence of recurrent appendicitis in our series is 11%. The diagnosis is necessarily retrospective, as the patient has to be symptom free after surgical removal of the appendix. Our study showed that the patient usually had previous episode of pain less than six months before appendectomy was performed. Fifteen percent of patients had more than three previous episodes of right iliac fossa pain, which is attributed to recurrent inflammation of appendix. A high index of suspicion is necessary to avoid repeated unnecessary admissions.

CONCLUSION

Recurrent appendicitis accounts for about 11% of acute appendicitis in our institution. History of recurrent episodes of right iliac fossa pain typical of appendicitis should be sought in patient with suspected appendicitis and should alert the clinician to the possibility of recurrent appendicitis. It is important to consider recurrent appendicitis as a differential diagnosis in patient with recurring right iliac fossa pain.

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