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An Audit of Appendectomies with Histopathological Correlations in A Single Centre

Authors

Sapna M[1], Navya N O[2], Magdalene K F[3], Sumangala B[4]

[1]Assistant Professor Pathology, Sree Narayana Institute of Medical Sciences Chalaka, Ernakulam Kerala.683594.India

Email: *drsapnablore@yahoo.com Ph: 9633420919*

[2]Assistant Professor Pathology, Sree Narayana Institute of Medical Sciences Chalaka, Ernakulam Kerala.683594.India

Email: *navyanarayano@gmail.com Ph: 8137985515*

[3]Professor Pathology, Sree Narayana Institute of Medical Sciences, Chalaka Ernakulam Kerala.683594

Email: *magdalenekf@gmail.com Ph: 94963731923*

[4]Professor and Head Pathology, Sree Narayana Institute of Medical Sciences Chalaka, Ernakulam Kerala.683594

Email: *bsumangala2002@gmail.com Ph: 9495315759*

Corresponding Author

Sapna M

Assistant Professor Pathology, Sree Narayana Institute of Medical Sciences Chalaka, Ernakulam Kerala.683594 India

Email: *drsapnablore@yahoo.com. 9633420919*

Abstract

Appendicitis is one of the most common acute surgical conditions of the abdomen and an appendectomy is one of the most frequently performed operations worldwide. This is a retrospective analytical study during the period of October 2013 to October 2015. Overall 260 appendectomies were performed during the study period. 211 (81.1%) had histopathological findings consistent with appendicitis, which was variously reported as acute suppurative appendicitis, transmural inflammation of the appendix with or without fecolith and gangrenous perforated appendix. Nine cases of fibrous obliteration of the lumen without evidence of inflammation were reported. Two cases showed parasite infection of Enterobius Vermicularis, one Chron s disease, one with tuberculosis and one with metastatic deposit of adenocarcinoma from stomach. The negative appendectomy rate was 9.6%, the female sex accounted for 60% of the negative appendectomies

Key words: *appendicitis, negative appendectomy rate*

Introduction

Appendicitis is one of the most common acute surgical conditions of the abdomen and an appendectomy is one of the most frequently performed operations worldwide [1,2]. Delayed diagnosis of appendicitis could lead to complication like perforation of appendix, peritonitis, sepsis, increased morbidity and mortality [3,4]. Clinical studies may determine best practice in the management of acute appendicitis. The knowledge about the clinical profile of appendicitis is an important mile stone in public health [5,6]. The lifetime risk of appendicitis has been estimated at 7% with peak incidence occurring between 10 and 30 years of age. The incidence of appendicitis varies in different population in different regions over time. The changing incidence has been attributed to a variety of environmental and behavioral factors that include general hygiene, parasite infection, enteric infection resulting in gastrointestinal lymphoid hyperplasia and variation in consumption of dietary fiber, but the definitive causes of appendicitis remain poorly understood [7]. Appendectomies are routinely performed in our institution and hence an audit to study, histopathological and clinical correlation was performed.

Methods

This is a retrospective analytical study during the period of October 2013 to October 2015.we used routine abstracts of hospital inpatient records to study the demographic and temporal profiles of emergency appendectomy for acute appendicitis and appendectomy in other circumstances. The study populations with histological reports of appendicitis were retrieved from the computer records. Negative appendectomy was defined as a post operative appendix specimen for suspected appendicitis that was however microscopically normal on histopathological examination without evidence of inflammation, tumor and parasite infestation 8-11. Analysis of the data was carried out by IBM SPSS version 20.

Results

Overall 260 appendectomies were performed during the study period. The mean age of the patients was 35 years (5-75 years). Adults (>16 years) represent 77% and children 23% of the study population. The female sex accounted (66.5%) and males (33.5%)

Histopathological findings:

Of the 260 resected appendix, 211 (81.1%) had histopathological findings consistent with appendicitis, which was variously reported as acute suppurative appendicitis, transmural inflammation of the appendix (figure 1) with or without fecolith and gangrenous perforated appendix (figure 2). Nine cases of fibrous obliteration of the lumen without evidence of inflammation were reported. Two cases showed parasite infection of Enterobius Vermicularis, one Chron s disease, one with tuberculosis and one with metastatic deposit of adenocarcinoma from stomach. The histology findings are depicted in table 1. The negative appendectomy rate was 9.6%, the female sex accounted for 60% of the negative appendectomies.

Table 1: Histopathological diagnosis

Histopathological diagnosis	No of cases %
Acute appendicitis	156 (60%)
Suppurative appendicitis with serosities	33(12.6%)
Gangrenous appendicitis	18(6.9%)
Lymphoid hyperplasia	10(3.8%)
Fibrous obliteration	9(3.4%)
Eosinophilic appendicitis	4(1.5%)
Parasitic infestation	2(0.7%)
Chrons disease	1(0.3%)
Tubercular granuloma	1(0.3%)
Adenocarcinoma metastatic deposit	1(0.3%)
Normal histology	25(9.6%)
Total	260

Figure 1: gross picture of appendix showing congested blood vessels

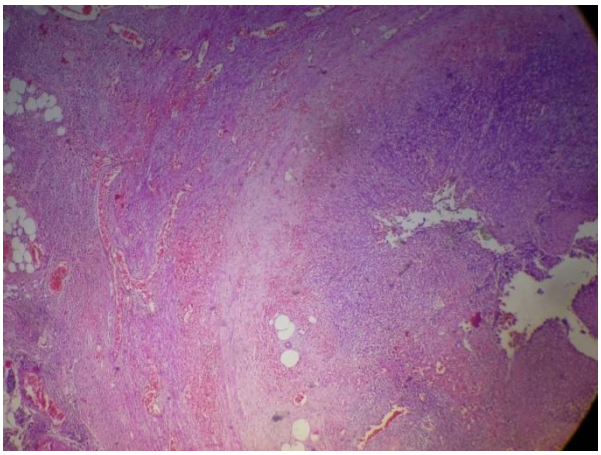

Figure 2: microscopy findings showing necrosis, hemorrhage of gangrenous appendicitis

Discussion

Appendectomy is a common surgical procedure for the management of acute appendicitis. The incidence of appendicitis varies substantially by country, geographical region, race, socioeconomic status, diet habits, hygiene, sex, age and season[8]. Study at south Korea done by Lee et al [9] showed an overall incidence of appendicitis and appendectomy of 22.7 and 13.6 per 10,00 population per year, respectively which was found to be higher than that of western countries i.e 7.5 to 12 per 10,00 population per year. There is also significant morbidity and mortality associated with appendectomy. A diagnosis of appendicitis was most likely in patient with presence of pain, vomiting and fever. There is growing trend toward the sole use of antibiotics and avoidance of surgery altogether. Laporoscopic appendectomy has been ahead in the increasing consensus over the traditional open surgery. Abdominal ultrasonography is widely used for diagnosis of abdominal pathologies. It is also helpful in the evaluation of treatment. Obstruction of lumen is the dominant factor for appendicitis and fecoliths the usual cause of obstruction. Other causes of obstruction could be lymphoid hyperplasia, intestinal worms, tumors or other conditions [10].

In this study, age of the patient ranged from 5 to 75 years, similar to other studies. In our study clinical diagnosis of acute appendicitis correlated with histopathology in 60% of cases. Gangrenous appendicitis was seen in 6.9% cases in our study which was similar to other studies[3,11]. Lymphoid hyperplasia was seen in 3.8% cases. In contrast, 16.1% cases of lymphoid hyperplasia was seen in a study done by Malloy et al [12] has shown that lymphoid hyperplasia is frequently the precursor of acute appendicitis. Several studies have found luminal parasites in the appendix associated with or without appendicitis in the range of 0.3 to 3.1 % [13]. Commonly found parasites are Enterobious Vermicularis and Schistosoma species. In our study , 2 cases of Enterobius Vermicularis parasitic infection were found. The frequency of eosinophilic appendicitis was 1.5% in our study which was closer to the incidence of other studies [2, 14] . The negative rate of appendectomy varies from 15 to 30% [15].

Negative appendectomy rate was 9.6% which was within acceptable range of 10 to 20%. Various studies have shown a wide range of rate that falls between 6.1 to 34.2% with higher values in females[2]. The studies that evaluated the mortality and morbidity of incidental appendectomy associated with appendicitis were found to be insignificant [16, 17].

Wang wt al [17] demonstrated that TNF alpha and interleukin 2 expression are sensitive markers of inflammation in appendicitis.

Conclusion

Histopathological examination of appendectomy specimens helps to confirm the diagnosis of appendicitis and also unravels incidental pathologies. We can also know surgeons negative appendectomy rate.

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