Surgical Management of Appendicitis and its Complications - A Retrospective study

Dr Amit Kumar C Jain[1], Dr Viswanath[2]

Abstract

Introduction- Appendicitis is the most common abdominal emergency managed by the general surgeons. In spite of it being common, complications due to delayed presentations or due to severity of this condition make management difficult many a times. The aim of this study was to show the current experience in managing appendicitis and its complications at a tertiary care premiere medical college hospital which is a referral centre with patients from 3 surrounding neighboring states. **Materials and method** – A retrospective study was carried in our unit between January 2012 to December 2012. **Results**- Acute appendicitis was the commonest presentation and open appendicectomy, even today, is the commonest surgery done in our unit and department. Around 47.83% of patient with appendicitis have some form of complications and 86.96% of the total patients required surgical intervention. Though there was no mortality, around 8.7 % of the patients developed complications following surgery. 85.37% of the patients had undergone emergency surgeries. **Conclusion** – Appendicular mass is the most common complication of appendicitis. Open appendicectomy was performed more frequently compared to laparoscopic appendicectomy.

Keywords - Appendicitis, Appendicular mass, Appendicectomy, laparoscopic appendicectomy

[1] MBBS, DNB - Assistant Professor, [2] Associate Professor, Department of surgery, St Johns Medical College, Bangalore

Corresponding author mail address: dramitkumarcj@yahoo.in

Conflict of interest – None Declared

Introduction: Appendicitis is the most common cause of acute abdomen requiring emergency intervention. Infact, appendicectomy is regarded as one of the 'bread and butter' surgery of general surgeons although recently different surgeons like pediatric surgeon, colorectal surgeons, etc are also performing this procedure. Around 250,000 appendectomies are performed every year in united states[1].

In-spite of it being a common condition, even today controversies continue regarding its diagnosis, investigation and management.

With better healthcare facility, there has been a significant decline in morbidity and mortality due to appendicitis in the 20th century[2]. The mortality due to appendicitis has now reduced to less than 1%[3].

Usage ot the CT scans for aiding in the diagnosis and employment of the laparoscopy has changed the concepts of management of appendicitis[2].

This study aims at providing our surgical experience in managing appendicitis and its complications.

Materials and methods

A retrospective study over a period of one year was carried from January 2012 to December 2012 in a single unit of department of surgery at St Johns medical college, Karnataka, which is a premiere medical college of the state. All patients who underwent management of appendicitis and its complication in our surgical unit were studied during this period. Age sex, diagnosis, management, time of surgery and complications were recorded from our register. Patients who underwent treatment in other units were excluded.

Results

A total of 46 patients with diagnosis of appendicitis and its complication were managed in our unit over this period. Around 31 patients(67.39%) were males and 15 patients(32.61%) were females. The average age for a male was 34.65 years with range of 17 -74 years whereas the average age in females was 37.6 years with a range of 17-75 years.

24 patients (52.17%) had only acute appendicitis whereas 47.83% of patients had

some form of complications of appendicitis. Appendicular mass (13.04%) was the most common complication in our study (Table 1) followed by gangrenous appendicitis (Figure1).

Table 1: Distribution of Appendicitis and its complications

S. NO	DIAGNOSIS	NUMBER	PERCENTAGE (%)
1	ACUTE APPENDICITIS-NONGANGRENOUS	24	52.17
2	ACUTE GANGRENOUS APPENDICITIS	05	10.87
3	PERFORATION	03	6.52
4	APPENDICULAR MASS	06	13.04
5	APPENDICULAR ABSCESS	04	8.7
6	RECURRENT APPENDICITIS	02	4.35
7	INTESTINAL OBSTRUCTION	01	2.17
8	PERFORATION+GANGRENE+ABSCESS	01	2.17
	TOTAL	46	100

Figure 1: Gangrenous Appendicitis

A total 40 patients (86.96%) required operative surgical intervention whereas 6 patients(13.04%) who had appendicular mass were managed conservatively. 35 patients (85.37%) underwent emergency surgeries whereas 5 patient had undergone elective procedure. Open Appendicectomy (34.78%) was the most common surgery

done followed by laparoscopic appendicectomy (28.26%). 4.35 % of patients required conversion from laparoscopic surgery to open appendicectomy(Table2).

Table 2 Surgical management of appendicitis and its complications

S. NO	SURGICAL MANAGEMENT	NUMBER	PERCENTAGE (%)
1	CONSERVATIVE [NON-OPERATIVE]	06	13.04
2	OPEN APPENDICECTOMY	16	34.78
3	LAPAROSCOPIC APPENDICECTOMY	13	28.26
4	LAPAROSCOPIC CONVERTED TO OPEN	02	4.35
5	EXPLORATORY LAPAROTOMY	05	10.87
6	EXTRAPERITONEAL DRAINAGE	03	6.52
7	RIGHT HEMICOLECTOMY	01	2.17
	TOTAL	46	100

One patient had undergone right hemicolectomy due to a large perforation at the junction of appendix and caecum. The ascending colon was very short, unhealthy and edematous and thus we preferred to this procedure instead of limited resection.

In 04 (Four) patients (8.7%) had complications. 3 patients had surgical site infections and one patient had an iatrogenic bladder perforation during the laparotomy of a patient with extensive intra-abdominal abscess due to appendicular perforation. There was no mortality.

Discussion

Appendix is a worm like narrow tube structure originating from the posteromedial wall of caecum, approximately 2cm inferior to the opening of the ileum[4]. Historically, appendix was first described in 1521 by Berengario Da Carpi, a physician-anatomist[4]. In 1889, Charles Mc Burney, an US surgeon, described a point of maximum tenderness (Mc Burney point) in acute appendicitis. In 1908, Otto Lanz, a surgeon in Amsterdam, described the cosmetic incision, known as lanz incision. The first laparoscopic

appendicectomy was performed in 1980's by kurt semm[4, 5].

Traditionally, the diagnosis of acute appendicitis shouls be made clinically and appendicectomy was the preferred treatment of choice. Recently, these concepts are changing. Alvarado score and ultrasound examination which is operator dependent are often used in diagnosing appendicitis[4]. In doubtful cases, there is widespread utilization of CT scan abdomen and the usage of laparoscopy has reduced the morbidity associated with this disease[2]. Interval appendicectomy is no more recommended after conservative management of appendicular mass[4].

In-spite of this, the optimal surgical approach for appendicectomy is still debatable[6] and it differs geographically.

Complications of appendicitis include perforation, gangrene, appendicular mass, etc. The rate of the perforation ranges from 12-35%[3, 4].

In our study, appendicular mass was the commonest complication.

Recently, laparoscopic appendicectomy has become the procedure of choice, though open appendicectomy is still performed commonly for various reasons like availability of expertise and laparoscopic instruments. At our hospital, which is a high volume referral centre, open appendicectomy is performed more commonly due to various reasons like expertise of the different operating surgeon, availability of assistant nurse trained in laparoscopy at emergency, patients from low income group, etc.

Wound infection, paralytic ileus and intra-abdominal abscess are the common postoperative complication. The rate of wound infection varies from 5% to 20%[7]. In our series, the complication following appendicectomy was 8.7% with wound infection being the commonest. The mortality rate in appendicitis ranges from 0.17% to 7.5%[8]. We had no mortality in this series.

Conclusion

Acute appendicitis is the most common cause of an acute abdomen. Open appendicectomy is the most commonly done procedure in our unit. Appendicular mass is the commonest complication. Around 8.7% of the patient will develop complications following surgeries for appendicitis.

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