



**A RESEARCH STUDY ON APPENDICECTOMIES AND REASON FOR CONVERSION
OF LAPAROSCOPIC TO OPEN APPENDICECTOMIES IN A TERTIARY CARE
HOSPITAL**

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ABSTRACT

Appendicitis is an inflammation of the appendix, Appendicitis causes pain in lower right abdomen. Cause of Appendicitis is a Blockage in the lining of the appendix that results in infection is the likely cause of appendicitis. The bacteria multiply rapidly, causing the appendix to become inflamed, swollen and filled with pus. If not treated promptly, the appendix can rupture. Open appendectomy is the traditional method and the standard treatment for appendicitis. The surgeon makes an incision in the lower right abdomen, pulls the appendix through the incision, ties it off at its base, and removes it. most laparoscopic appendectomies, surgeons operate through 3 small incisions (each ¼ to ½ inch) while watching an enlarged image of the patient's internal organs on a television monitor. In some cases, one of the small openings may be lengthened to complete the procedure. Advantages of laparoscopic appendectomy is Less post operative pain, short hospital stay, Quicker return to normal activity, Better cosmetic results. Our study conducted in subjects admitted with diagnosis of appendicitis, who subsequently underwent appendectomy at Department of General Surgery Rajiv Gandhi Institute of Medical Sciences in study period between Jan 2011 and Dec 2015. This is a prospective descriptive analytical single centre research study and in this all the cases of appendicitis are admitted in surgery department undergoing appendectomy were studied, diagnosed and treated with surgical management (Laparoscopic or Open) during the period of 5 years and 220 cases were studied. The results shown that the high incidence in the age group of 0-25 years have undergone the surgery and predominantly males compared to females. The type of appendectomy performed more is laparoscopic (59.09%) due to few benefits over open-type surgery (28.18%) and with the conversion rate (12.7%) lap to open appendectomy. The conversion of LA to OA is due to the dense adhesions due to inflammation (42.28%) and generalized peritonitis(25%). Last we conclude that Laparoscopic Appendectomy has emerged as the gold standard in the treatment of appendicitis. The overall frequency of conversion of LC to OC was(12.7%) and reason for conversion is dense adhesions due to inflammation (42.28%) and generalizedperitonitis(25%) and uncontrolled bleeding. high incidence of appendicitis in the age group of 0-25 years.

KEYWORDS: appendix, Appendicitis causes.

INTRODUCTION

Appendicitis is an inflammation of the appendix, a finger-shaped pouch that projects from colon on the lower right side of abdomen. The Appendix does not have a specific purpose. Appendicitis causes pain in lower right abdomen. However, in most people, Pain begins around the navel and the moves .As inflammation worsens, appendicitis pain typically increases and eventually becomes severe. Although anyone can develop appendicitis, most often it occurs in people between the ages of 10 and 30. Standard treatment is surgical removal of appendix.^[1]

Symptoms

Signs and symptoms of appendicitis may include

- Sudden pain that begins on the right side of lower abdomen
- Nausea and vomiting.
- Sudden pain that begins around navel and often shifts to lower right abdomen.
- Pain that worsens if you cough, walk or make other jarring movements
- Loss of appetite.
- Low grade fever that worsens as the illness progresses.
- Constipation or diarrhea, Abdominal bloating.

Causes

A Blockage in the lining of the appendix that results in infection is the likely cause of appendicitis. The bacteria multiply rapidly, causing the appendix to become inflamed, swollen and filled with pus. If not treated promptly, the appendix can rupture.

Tests And diagnosis

Bloodtest

High white blood cell count indicate infection

Urine test.

Urine analysis to make sure that a urinary infection or kidney stone is not cause pain.

Imaging tests.

Abdominal X-ray, an abdominal ultrasound or Computerized tomography(CT) Scan help confirm appendicitis.

Surgical interventions to be considered include the.

Open Appendectomy

Open appendectomy is the traditional method and the standard treatment for appendicitis. The surgeon makes an incision in the lower right abdomen, pulls the appendix through the incision, ties it off at its base, and removes it. Care is taken to avoid spilling purulent material (pus) from the appendix while it is being removed. The incision is then sutured.

If the appendix has perforated (ruptured), the surgeon cleans the pus out of the abdomen with a warm saline solution to reduce the risk for infection. A drain may be inserted through the incision to allow the pus to drain from the abdomen. In this case, the skin is not sutured, but left open and packed with sterile gauze. The gauze and drain remain in place until the pus is completely drained and there is no sign of infection.

If the abdomen is so inflamed that the surgeon cannot see the appendix, the infection is drained and treated with antibiotics, and then the appendix is removed.

Laparoscopic appendectomy^[2]

In most laparoscopic appendectomies, surgeons operate through 3 small incisions (each ¼ to ½ inch) while watching an enlarged image of the patient's internal organs on a television monitor. In some cases, one of the small openings may be lengthened to complete the procedure. Advantages of laparoscopic appendectomy is Less post operative pain, short hospital stay, Quicker return to normal activity, Better cosmetic results.

Reasons for conversion of Laparoscopic to open appendectomy

If intra operative complications that cannot be handled with laparoscopy arise during laparoscopic appendectomy, conversion to an open appendectomy is

indicated. It is crucial to understand the circumstances in which such conversion is warranted.

Relative indications for conversion include^[3]

- Dense adhesions due to inflammation or prior surgical procedures,
- Perforated or gangrenous appendicitis
- Gangrenous or necrotic base,
- Generalized peritonitis,
- Retrocecal appendix,
- Inability to visualize the appendix,
- Uncontrolled bleeding,
- Tumour of the appendix extending into base,
- Other pathology, including malrotation, carcinoma, diverticula of cecum, endometriosis, pelvic inflammatory diseases, torsion of tubo-ovarian cyst

MATERIALS AND METHODS

The study subjects were patients, admitted with diagnosis of Appendicitis, who subsequently underwent appendectomy at Department of General Surgery Rajiv Gandhi Institute of Medical Sciences, Kadapa, AP .In study period of 5 years between Jan 2011 and Dec 2015.All the patients were interviewed for detailed clinical history and examined. They were then subjected to routine blood, urine and other investigations as per protocol and an abdominal ultrasound were performed in all cases.

Inclusion criteria

1. Patients have appendicitis confirmed by ultrasound scan , X-ray, CT Scan.
2. Patients were included from 0 to 65 years suffering with appendicitis
3. Patients willing to participate in our study.
4. patients who were fit for appendectomy under general anesthesia.

Exclusion criteria

1. Excluding patients, pregnant women, patients unfit for GA/laparoscopy.
2. Patients not willing to participate in our study.

METHODOLOGY

This is a prospective descriptive analytical single centre research study. In this study all the cases of Appendicitis admitted in surgery department undergoing appendectomy were studied, diagnosed and treated with surgical management (Laparoscopic or Open)during the period of 5 years and 220 cases were studied .A thorough record of patients data was performed ,including the history and clinical examination, laboratory investigations, ultrasound abdomen, x-ray chest and other imaging study , operative details, histopathology report, postoperative course. The variables noted and analyzed included: the demographic data, presenting complaint, previous history of jaundice or abdominal surgery, associated medical disease, abdominal tenderness, WBC count, LFTs, abdominal ultrasound, operative details, complications (preoperative or

postoperative), histopathology report, postoperative course and follow-ups.

**RESULTS AND DISCUSSION
GENDER WISE DISTRIBUTION**

The males are more affected with appendicitis compared to females was observed in our study for a period of 5 years.

Table 1: Gender wise distribution.

Gender	2011	2012	2013	2014	2015
Male	21	23	31	29	24
Female	17	19	16	23	17

AGE WISE DISTRIBUTION

In our study the occurrence of appendicitis were observed in varies of age groups and observed that the high incidence in the age group of 16-25 years.

Table.2: Age wise distribution.

Age Group	2011	2012	2013	2014	2015
Below 15	6	9	7	5	8
16-25	12	17	15	12	18
26-35	8	12	9	8	10
36-45	6	8	7	9	8
46-55	2	5	4	3	3
56-65	2	3	0	3	1
Total	36	54	42	40	48

DISTRIBUTION BASED ON NUMBER AND TYPE OF SURGERIES

According to our study laparoscopic appendectomy was performed more compared to the open-type appendectomy for few reasons like less pain over site of surgery, decrease in hospital stay and shorter recovery

time for patients. In few patients the conversion of Laparoscopic to Open appendectomy occurred due to complications faced during the time of surgery.^[3] (The complications and other reasons are discussed below inTable:5).

Table 3: Distribution Based On Number And Type Of Surgeries.

Type of surgery	2011	2012	2013	2014	2015
Laprosopic Appendictomy	23	27	33	28	19
Open Appendictomy	9	14	12	17	10
Conversion to Lap to open appendictomy	3	6	8	5	6

DISTRIBUTION BASED ON PERCENTAGE OF SURGERIES DONE

Our study we observed that the percentage of LA surgeries (59.09%) performed more compared to

OA(21.18%). The conversion of Laparoscopic to Open Appendectomy is 12.7%.

Table.4: Distribution Based On Percentage Of Surgeries Done.

Type of surgery	No of surgeries done	Percentage
Laprosopic Appendictomy	130	59.09%
Open Appendictomy	62	28.18%
Lap to Open Appendictomy	28	12.7%

REASONS FOR CONVERSION OF LAPAROSCOPIC TO OPEN APPENDICTOMY

The main reasons to conversion of laparoscopic to Open appendectomy Dense adhesions due to inflammation(46.42%), Generalized peritonitis(25%), Uncontrolled Bleeding(14.28%).

Reason for conversion	Number of cases (n=28)	Percentage (%)
Dense adhesions due to inflammation or prior surgical procedures	13	46.42
Generalized Peritonitis	7	25
Uncontrolled Bleeding	4	14.28
Inability to visualize Appendix	3	10.71
Retrocecal Appendix	1	3.5

CONCLUSION

Laparoscopic Appendectomy has emerged as the gold standard in the treatment of appendicitis. Though it is easier to teach and learn the laparoscopic surgery with the help of magnified visual display, specialized training is a must in case of the laparoscopic technique. In our study males are more prone to appendicitis than females. LA has less pain after surgery, and has a shorter hospital stay and a shorter recovery time so it is preferred over OA.

The overall frequency of conversion of LC to OC was 12.7%; the reasons for conversion was Dense adhesions due to inflammation and Generalized peritonitis, Uncontrolled bleeding during the surgery. From our study the occurrence of Appendicitis were observed in varies of age groups and observed that the high incidence in the age group of 0-25 years.

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