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Original Research Article

Laparoscopic management of appendicular mass

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ABSTRACT

Background: Appendicitis is inflammation of the appendix. In managing the patients with appendicular mass, many controversies arouse between conservative method of treatment and surgery, antibiotic therapy duration, drain usage, skin closure. This study evaluates the safety and efficacy of laparoscopic appendectomy in patients with complicated appendicitis.
Methods: This is a retrospective study conducted in in Kamineni Institute of Medical Sciences, Narketpally, Nalgonda, April 2017 to August 2017. It included a total of 100 patients who were treated for appendicitis.
Results: The numbers of male patients were 15, number of female patients were 7. The male to female ratio was 2:1. The patients age ranged from 14 to 48 years. The duration of treatment before admission ranged from 5 days to 10 days. Most of the patients had leucocytosis (68%) of greater than 10,000/mm^3. All patients had undergone laparoscopic appendectomies within 24 hours. The average duration of stay in hospital was 5 to 10 days. No intra-operative complications were observed.
Conclusions: This study concludes that laparoscopic appendectomy is more feasible in patients with appendicular mass.

Keywords: Appendicular mass, Laparoscopic appendectomy

INTRODUCTION

Appendicitis is inflammation of the appendix. Symptoms commonly include right lower abdominal pain, nausea, vomiting, and decreased appetite. However, approximately 40% of people do not have these typical symptoms.[1] Severe complications of a ruptured appendix include widespread, painful inflammation of the inner lining of the abdominal wall and sepsis. Appendicitis is caused by a blockage of the hollow portion of the appendix. This is most commonly due to a calcified "stone" made of feces.[2] Inflamed lymphoid tissue from a viral infection, parasites, gallstone, or tumors may also cause the blockage. This blockage leads to increased pressures in the appendix, decreased blood flow to the tissues of the appendix, and bacterial growth inside the appendix causing inflammation. The combination of inflammation, reduced blood flow to the appendix and distention of the appendix causes tissue injury and tissue death. If this process is left untreated, the appendix may burst, releasing bacteria into the abdominal cavity, leading to increased complications.[3] The diagnosis of appendicitis is largely based on the person's signs and symptoms. In cases where the diagnosis is unclear, close observation, medical imaging, and laboratory tests can be helpful. The two most common imaging tests used are an ultrasound and computed tomography (CT) scan. CT scan has been shown to be more accurate than ultrasound in detecting acute appendicitis.[4] However, ultrasound may

be preferred as the first imaging test in children and pregnant women because of the risks associated with radiation exposure from CT scans. The standard treatment for acute appendicitis is surgical removal of the appendix. This may be done by an open incision in the abdomen (laparotomy) or through a few smaller incisions with the help of cameras (laparoscopy). Surgery decreases the risk of side effects or death associated with rupture of the appendix. Antibiotics may be equally effective in certain cases of non-ruptured appendicitis. It is one of the most common and significant causes of severe abdominal pain that comes on quickly. In 2015 about 11.6 million cases of appendicitis occurred which resulted in about 50,100 deaths.[5] In the United States, appendicitis is the most common cause of sudden abdominal pain requiring surgery. Each year in the United States, more than 300,000 people with appendicitis have their appendix surgically removed. For simple appendicitis, laparoscopic appendectomy has gained acceptance in the last few decades. But, its role in treatment of complicated appendicitis is controversial. Hence, this study evaluates the safety and efficacy of laparoscopic appendectomy in patients with complicated appendicitis.

METHODS

This is a retrospective study conducted in Kamineni Institute of Medical Sciences, Narketpally, Nalgonda, April 2017 to August 2017. It included a total of 100 patients who were treated for appendicitis.

Inclusion criteria

Patients who were undergoing conservative treatment initially which was followed by interval surgery.

Exclusion criteria

Patients who were suspected or diagnosed to have pseudo tumor or tumor masses.

Complete history of all the patients were collected like age, sex, duration of symptoms, operative time, operative findings, complications, hospital stay duration and pathological results.

Routine radiological evaluation included a scout film of the abdomen and ultrasound examination with a 10 MHz transducer in all the patients. All the operations were performed using the three-trocar technique.

An optical port (5mm, 30°) was placed at the umbilicus by open technique, along with two 5 or 3mm working ports according to the size of the patient, in the suprapubic and right paraumbilical regions. The appendiceal stump was left unburied after transfixation by intracorporeal endosuturing with 3-0 polyglactin 910 suture. In patients who were found to have evidence of pus, the areas of intra-abdominal collection were sucked out and rinsed with normal saline along with tube drainage. Data pertaining to sex, age, duration of symptoms, operative time, operative findings, gross appendiceal finding, difficulties encountered during surgery, complications, length of hospital stay, and pathological results were reviewed.

Appendicular complication was defined as laparoscopic gross identification of gangrenous, perforated or sloughed-out appendix, and appendicular abscess.

RESULTS

In this study, 22 laparoscopic appendectomies were treated for appendicular mass.

Table 1: Demographic distribution in the study.

Sex distribution	Males	Females
No. of patients	15	7
Male to female ratio	2	1
Age distribution	14 to 48 years	
Average operative time	90 minutes (40-145 min)	

Table 1 shows that the numbers of male patients were 15, number of female patients were 7. The male to female ratio was 2:1. The patients age ranged from 14 to 48 years. The duration of treatment before admission ranged from 5 days to 10 days. Most of the patients had leukocytosis (68%) of greater than 10,000/mm^3. All patients had undergone laparoscopic appendectomies within 24 hours. The average duration of stay in hospital was 5 to 10 days. No intra-operative complications were observed.

Table 2: Pre-operative findings.

Operative findings	No. of patients
Appendicular abscess	8
Perforated appendix	9
Loculated pus collection	1
Gangrenous appendix	4

Table 2 shows pre-operative findings, appendicular abscess was seen in 8 patients, perforated appendix was seen in 9 patients, loculated pus collection in 1 patient and gangrenous appendix in 4 patients.

Table 3: Intra-operative findings.

Operative findings	No. of patients
Difficulty in localisation of appendix	15
Difficulty in adhenolysis	5
Bleeding	2

Table 3 shows that 15 patients found difficulty in localization of appendix, 5 patients found difficulty in adhenolysis and bleeding was seen in 2 patients.

DISCUSSION

In managing the patients with appendicular mass, many controversies arouse between conservative method of treatment and surgery, antibiotic therapy duration, drain usage, skin closure. It is difficult to distinguish between an appendicular mass and an appendicular abscess before the operation. In a study done found average operative time was observed to be 95 minutes (range 45-140 minutes). In all the patients, pathological evidence of appendicitis was present. The average length of hospital stay was six days (rang 6-9 days). Three patients (15.7%) had post- operative complications.[6] Wound infections were observed in two patients and one patient was re-admitted with pain and a lump below the umbilical port, whereas in the present study, the duration of treatment before admission ranged from 5 days to 10 days. Most of the patients had leucocytosis (68%) of greater than 10,000 per mm^3. All patients had undergone laparoscopic appendectomies within 24 hours. The average duration of stay in hospital was 5 to 10 days.

One author reported that during operation the appendix was identified and removed in 46 patients. Peri-appendiceal abscesses was seen in 25% (11 of 46). In 10% (4) of patients, there was difficulty with adhesolysis and localization of the appendix. In 8(17%), superficial wound infection had occurred while in 9%(4) patients, deep wound infection had occurred. The mean hospital stay was 3±0.25 day.[7] No major complications had occurred, whereas in the present study, the preoperative complications were appendicular abscess was seen in 8 patients, perforated appendix was seen in 9 patients, loculated pus collection in 1 patient and gangrenous appendix in 4 patients. Indian study conducted in a total of 45 patients and they were treated for appendicitis from September 2015 to October 2016. This was a retrospective study which demonstrated that 14 patients had appendicular mass in which 11 cases were managed laproscopically and 3 were converted to open. The age ranged between 12-67 years.

Nine patients were male, and 5 patients were female. The average operative time was 1 h 40 min. The length of hospital stay was in the range of 6-8 days. No morbidities were noted.[8] A retrospective study conducted on twenty-eight patients (36.8%) underwent an emergency operation. Through the use of antibiotics only, the remaining 48 patients, 20 (41.7%) were initially treated with conservative management; the other 28 (58.3%) with and additional ultrasound-guided percutaneous drainage of the abscess.

Twenty-six (54.2%) patients underwent planned operations after conservative management, and 22 (45.8%) were followed without surgery (median duration, 37.8 month), of which 3 (13%) underwent an appendectomy due to recurrent appendicitis (mean of 56.7 days after initial attack). There were no statistical differences in types of operation performed (appendectomy or ileocecectomy), postoperative complications, and postoperative hospital stay among the patients who underwent emergency operations, delayed operations and operations for recurrence during follow-up.[9] Author reported a prospective and retrospective study in which 274 patients were diagnosed with acute appendicitis, out of which 94 developed AM (34.3%). Age range was 13-65 years. Forty-seven percentage of the patients were under 20 years of age. The male to female ratio was 2.9:1. Before the diagnosis of AM, 56.4% of patients received treatment for their present illness.

Clinically, the AM was diagnosed in more than 55% of the patients. About ¾ of the patients were treated conservatively, 16% were treated by immediate appendicectomy and 6.4% underwent appendicectomy after failure of the conservative treatment. Only 33% of the patients underwent interval appendicectomy. The incidence of AM in BTH is high compared to the 10% worldwide, possibly due to the late presentation, miss- diagnosis and the inappropriate treatments, on analysis of the intraoperative findings in the present study were that 15 patients found difficulty in localisation of appendix, 5 patients found difficulty in adhenolysis and bleeding was seen in 2 patients.[10]

CONCLUSION

This study concludes that laparoscopic appendectomy is more feasible in patients with appendicular mass.

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