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Evaluation of Intraoperative Operative Parameters and Postoperative Complications in Laparoscopic Management of Complicated Appendicitis

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Abstract: ***Introduction: Appendicitis is the most common acute surgical condition of the abdomen. Approximately 7% of population will have appendicitis in their lifetime, with the peak incidence lying between the ages of 10 and 30 years. Laparoscopic appendectomy has been widely practiced for uncomplicated appendicitis. The goal of the study was to know the association of different combinations of intraoperative findings and rates of adverse events in patients of complicated appendicitis. The aim and objective of the study was to document the duration of the surgery and correlation of intraoperative finding with clinical presentation and post operative complication of patient. Method: The study was a retrospective Observational study. Data of 30 cases of patients who underwent laparoscopic appendicectomy for complicated appendicitis were evaluated for intraoperative findings and post operative complications, were collected from the medical record of civil hospital surat. Data analysis was done in SPSS Software version 26. Result: Among the study participants, in 22 patients adhesions was present, in 8 patients Empyema, among 3 cases Fecolith, in 13 patients perforation, in 20 patients presence of abscess and in 3 patients gangrene was present in intraoperative findings. Among the study patients two patient had develop post operative collection in right iliac fossa, Otherwise one patient was presented with features of intestinal obstruction due to paralytic ileus. All complications were managed conservatively and there was no mortality. One patient of post operative intraabdominal collection presented with RIF lump with fever & pain which managed conservatively with antibiotic subsequently this RIF collection was spontaneously ruptured & pus drained & patient recovered. Conclusion: Laparoscopic appendectomy for complicated appendicitis is feasible and safe.***

Keywords: Complicated appendicitis, Laprascopic appendicectomy

1. Introduction

Laparoscopic appendectomy has been widely practiced for uncomplicated appendicitis. The role of laparoscopy in management of complicated appendicitis remains undefined. We undertook this study to evaluate the efficacy of laparoscopic appendectomy in patients with complicated appendicitis. Appendicitis is the most common acute surgical condition of the abdomen. Approximately 7% of population will have appendicitis in their lifetime, with the peak incidence lying between the ages of 10 and 30 years 1

The clinical diagnosis of acute appendicitis is unreliable in spite of numerous attempts to improve diagnostic accuracy. The rate of negative exploration of young females is still in the range of 25−30%. Although open appendectomy is considered a minor operation, it is associated with postoperative pain and affects daily activities.2

The use of laparoscopy in the differential diagnosis of acute abdominal pain syndrome is well established. Laparoscopic appendectomy (LA) has been recommended to overcome the many cases of difficult diagnosis. Laparoscopy has long been a standard form of investigation for gynecologic disease but has only recently been introduced in general surgery.3 Moreover, recent literature studies have demonstrated that diagnostic laparoscopy can lower the number of negative laparotomies for suspected acute appendicitis. The influence of disease severity on outcome and use of healthcare resources in patients with complicated appendicitis is poorly characterized. The goal of the study was to know the association of different combinations of intraoperative findings nd rates of adverse events in patients of complicated appendicitis.

Aims and Objective

- To document the duration of the surgery
- Correlation of intraoperative finding with clinical presentation of patient
- To study postoperative complications.

2. Materials and Methodology

The present study was a Retrospective Observational study. the sample consisited of 30 patients operated for laparoscopic appendectomy for complicated appendicitis admitted in ward of General Surgery of tertiary care Hospital during study period wastaken. The sampling technique followed was purposive sampling. This study was approved by Institutional Ethical Committee of this institute. Written informed consent was taken prior to the study of each participants The sample size was 30 participants. Patients underwent laparoscopic appendectomy for complicated appendicitis which are Perforation, Empyema, Mucocele and Gangrene Patients undergoing laprascopic appendicectomy for complicated appendicitis whose age below 10 years or more than 65 years were excluded from the study. Patients were excluded if they carried a diagnosis of immunodeficiency disorder. Data of 30 cases of patients who underwent laparoscopic appendicectomy for

complicated appendicitis were evaluated for intraoperative findings and post operative complications, were collected from the medical record of civil hospital Surat. Sociodemographic details like age, gender, full history, clinical examination, laboratory blood tests, as well as radiological investigations and, management was done for all these patients. Data was collected by case record form and entered into MS excel 2016 and Data analysis was done in SPSS Software version 26.

3. Results

Intraoperative Finding			Among the study patients two patient had develop post operative collection in right iliac fossa, Otherwise one patient was presented with features of intestinal obstruction due to paralytic ileus. All complications were managed conservatively and there was no mortality. One patient of post operative intraabdominal collection presented with RIF lump with fever & pain which managed conservatively with antibiotic subsequently this RIF collection was spontaneously ruptured & pus drained & patient recovered. Among the patients, No patient had surgical site infection
Adhetions with	2	73.30%	
ileum, caecum	2		
abdominal wall			
Mucocele0	0	0%	
Empyema	8	26.70%	
Fecolith	3	10%	
Perforation	1	43.30%	
	3		
Abscess	2	66.70%	
	0		
Gangrene	3	10%	
Postoperative Complications			
Port sit infaction	0	0%	or fecal fistula or stump leakage or seroma\hematoma or intestinal obstruction or respiratory completion.
Fecal fistula	0	0%	
Post operative Intra abdominal collection	2	6.7%	
Paralytic ileus	1	3.3%	
Age	<25	>25	Among the study participants, in 22 patients adhesions was present, in 8 patients Empyema, among 3 cases Fecolith, in 13 patients perforation, in 20 patients presence of abscess and in 3 patients gangrene was present in intraoperative findings.
	(20)	(10)	
Sex	M (23)	F (7)	
Duration of Surgery	<1 hr	>1 hr	

4. Discussion

Acute gangrenous and perforating appendicitis are associated with an increased risk of postoperative complications and have been considered a relative contraindication for laparoscopic appendectomy. Nevertheless, some studies have challenged this concept, comparing surgical outcomes of laparoscopic appendicectomy for complicated appendicitis. Itis precisely in complicated appendicitis that the well - known advantages of LA can benefit a patient thorough inspection of the entire peritoneal cavity, debridement, irrigation and lavage under direct visualization, avoidance of large abdominal incisions, less immunologic compromise and fewer pulmonary complications. Novitsky et al. emphasized that patients undergoing laparoscopic surgery may benefit most from a net immunologic advantage when compared with laparotomy.4 In this study group had less postoperative wound infections (port site infection). This may be due to removal of the perforated appendix through a lumen of 10 mm port thus avoiding direct contact with the trocar wounds. The infected fluid was aspirated thoroughly in the laparoscopic approach. While, in open appendicectomy, it was difficult to prevent the abdominal incision from being in contact with both the perforated appendix and infected fluid. Gupta et al. have pointed out some technical issues to prevent wound complications in laparoscopic appendectomy in perforated appendicitis. The infected appendix should be handled with atraumatic grasping forceps (preferably by the mesoappendix), and every attempt should be made to avoid disruption of the appendix and peritoneal contamination. Aggressive manipulation of the infected appendix may produce greater bacterial contamination of the peritoneal cavity.5 We performed a thorough saline lavage of peritoneal cavity with betadine wash after removal of specimen in all cases.

This was associated with less analgesic use, earlier start of oral intake and lower rate of wound infections and intra - abdominal abscess collectively leading to reduction in postoperative in patient days. Though duration of surgery may vary in laparoscopy arm it may be due to time taken for peritoneal lavage an. Yau et al. reported significantly less operating time in laprascopic appendicectomy group compared to open appendicectomy group. Ultimately, the benefit of laparoscopic surgery is unlikely to be the length of the operation, but the quicker healing of smaller operative wounds and earlier recovery.6

Another undisputed advantage of laprascopic appendicectomy is the ability to perform diagnostic laparoscopy prior to performing the procedure in doubtful cases.

Ball et al. strongly emphasized that appendectomies frequently are performed as an emergency procedure during the night, and if the resident staff does not have the experience, skills, and guidance to perform such surgery, then residual sepsis will follow. Sometimes, whentechnical difficulties appear, an inexperienced surgeon will opt for an “early conversion, ” andthen infection of the wounds may complicate the postoperative period, with direct bearing on the expenses. A surgeon's experience has been shown to correlate with the rate of conversion to open procedure 7. Advanced laparoscopic tools viz. flexible laparoscope or powerful suction/irrigation system and improved skills of the surgeons may contribute to the better surgical outcomes.

5. Conclusion

Laparoscopic appendectomy for complicated appendicitis is feasible and safe. It is associated with small incision, less postoperative pain, early mobilisation, early start of oral intake, lower incidence of infectious complications, fecal fistula and reduced length of hospital stay. Laparoscopic appendectomy may potentially have more prominent clinical and cosmetic advantages over conventional surgery, when compared with the impact of laprascopic appendicectomy on complicated appendicitis.

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