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Original Research Article

UTILITY OF MINIMALLY INVASIVE SINGLE STITCH APPENDECTOMY

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Abstract

Background: Since a long time ago, patients with noncomplicated appendicitis and those with a healthy body mass index have benefited most from our clinic's mini-incision appendectomy procedures. Even while laparoscopy has clear advantages, particularly for obese patients and young women, mini-incision appendectomy appears to be an option for some patient groups, according to the findings of our study. The study's goal is to assess the viability, usefulness, and benefits of performing a minimally invasive single-stitched, non-laparoscopic appendectomy on patients with acute appendicitis in a Teaching hospital.

Methods: The study was conducted in the Department of General Surgery, RIMS, Adilabad, and a single surgeon conducted the surgery and follow-up in all cases. Establishing certain standards for the situations that will be chosen using this method (Single Stitch Non-Laparoscopic Technique-SSNLT). To contrast this method's benefits with those of traditional laparoscopy. A total of n= 100 cases with an acute appendicitis diagnosis that were hospitalized at RIMS Hospital, Adilabad were chosen for this study. Spinal anesthesia was used throughout every procedure in these instances.

Results: One stitch was all that was required in each of the n=100 instances to close the abdomen. Considering that the inclusion criteria were completely adhered to, no incision extension was necessary. Other than two occurrences of wound infection, there were no severe postoperative problems. Early ambulation, shorter hospital stays, fewer painkillers, and a wound with aesthetic results comparable to a laparoscopic appendectomy. 9.3 out of 10 (O = low satisfaction, 10 = exceptional satisfaction) was an almost perfect patient satisfaction score. Other than wound infection in two cases out of 100 and a two-day post-operative stay, there were no problems or post-operative death.

Conclusion: There was no appreciable difference between the method and regard to post-operative discomfort, perioperative complications, or patient satisfaction. Hence in hospitals where there is typically a shortage of advanced technology, one-stitch non-laparoscopic appendectomy is a safe and beneficial procedure for conducting appendectomy.

Keywords: Acute Appendicitis, Single Stitch Technique, Advantages, complications

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Introduction

The most frequent reason for an urgent surgical abdomen, appendicitis still has a considerable morbidity (10%) and death (1-5%), despite recent breakthroughs in diagnosis and treatment. [1] The accuracy of the diagnosis, the patient's age and co-morbidities, the surgeon's core medical beliefs, the anticipated natural course of non-operative treatment, and the priority considerations for the use of scarce resources all play a role in the decision to perform surgical exploration in suspected appendicitis. [2] Open appendectomy is regarded as the acknowledged standard of care. The open appendectomy, which McBurney initially described in 1894, has long been considered the ideal method [3]. Laparoscopic appendectomy has been around since Semm invented it in 1983, and it is increasingly gaining popularity. [4] Laparoscopic appendectomy has several benefits, including reduced postoperative discomfort and postoperative infections. With the widespread use of laparoscopy, more practical hand instruments were created, and with time and growing clinical expertise, it became possible to conduct all gastrointestinal surgical operations laparoscopically. Despite these benefits, there is disagreement regarding the most effective appendectomy procedure model in the research. [5] Despite the information provided, open appendectomy remains the most often performed technique in instances of appendicitis, particularly in rural regions. [6]

Material and Methods

This cross-sectional study was conducted in the Department of General Surgery, Rajiv Gandhi Institute of Medical Sciences (RIMS), Adilabad. Institutional Ethical approval was obtained for the study. Written consent was obtained from all the participants of the study after explaining the nature of the study in vernacular language.

Establishing criteria for the cases to be chosen for this technique's application (Single Stitch Non-Laparoscopic Technique-SSNLT). To contrast this method's benefits with those of traditional laparoscopy. The instances for this approach were chosen based on the following inclusion criteria. [7-9]

Inclusion criteria

1. People who ASA I and II category
2. Appendicitis, lasting 24 hours.
3. Prominent guarding and compassion at Mc Burney's point.
4. The appendix can be felt once the abdomen has relaxed while under anesthesia.
5. The appendix is apparent on an ultrasonogram. Diameter > 6 mm and Edematous and Thickened Wall and the existence of faecolith

Exclusion criteria

1. Poor window.
2. Early mass formation.
3. Retrocaecal Appendix
4. Perforated Appendicitis with fluidcollection in the Right iliac fossa

Out of 5 formulated criteria, if any 3 criteria were met, then the case was selected for this surgery. By these criteria, n=100 cases were selected for this study. At McBurney's point, parallel to the spine-umbilical line, a half-an-inch inch incision is made while the patient is under spinal anesthesia. Cuts are made in the skin and subcutaneous tissues, and the external oblique aponeurosis is the recipient. After that, the transverse abdominal muscle is separated. The peri-peritoneal region is sufficiently spaced after the introduction of the index finger and the separation of the muscles. By using the non-toothed forceps' opposite end to retract the

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muscles, the peritoneum is opened. When the caecum is located, Babcock's forceps are used to remove the Taenia Coli. Then it is removed using the Pull and Push method. Appendectomy is performed after locating the appendix's base and delivering it via the incision. Layers are used to seal the wound. Almost always, a single stitch was sufficient to close the wound After six hours, liquids were allowed orally. On the third day following surgery, the patients were released. Cefixime and Metronidazole, two antibiotics, were administered together. Only on the day of surgery were analgesics such as diclofenac sodium and tramadol administered.

Results

One stitch was all that was required in each of the 100 instances to close the abdomen.
Considering that the inclusion criteria were completely adhered to, no incision extension was necessary. Other than two occurrences of wound infection, there were no severe postoperative problems. Early ambulation, shorter hospital stays, fewer painkillers, and a wound with aesthetic results comparable to a laparoscopic appendectomy. 9.3 out of 10 (O = low satisfaction, 10 = exceptional satisfaction) was an almost perfect patient satisfaction score the complications have been depicted in figure 1.

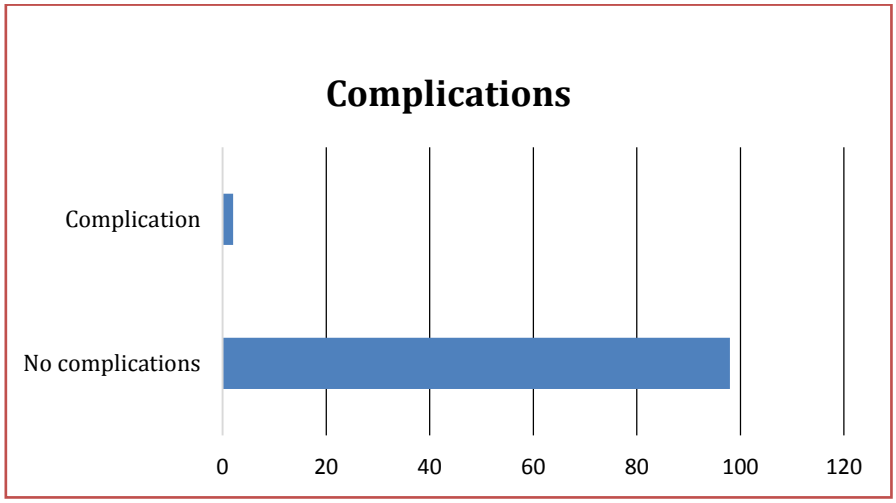

Figure 1: showing the Percentage of complications.

The most common age group involved in the study was 16 – 30 years with 35% of cases followed by 11 – 15 years with 32% of cases and the least cases were above 45 years age group with 13% of cases depicted in figure 2.

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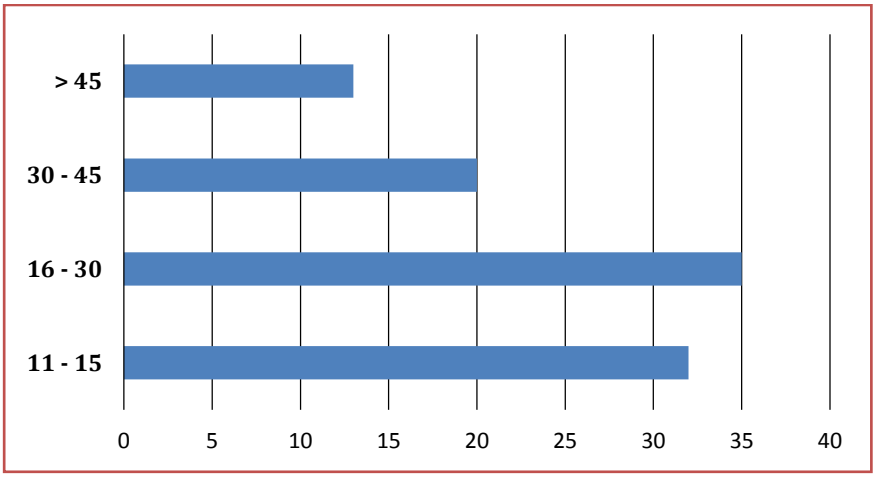

Figure 2: showing the age-wise distribution of the patients.

Table 1: Post-operative complications indifferent age groups

Complications	Age group in years			
	11 – 15	16 – 30	30 – 45	> 45
Wound infections	0	0	0	2
Intra-abdominal abscess	0	0		
Mortality	0	0	0	0

Except for two cases of suture abscess, which were cautiously treated with antibiotics and successfully resolved completely, (table 1) of post-operative complications shows how many were experienced after the surgical procedure. There were no significant postoperative complications reported.

Table 2: Success rate in different age groups

Success	Age group in years				Total
	11 – 15	16 – 30	30 – 45	> 45	
Excellent	20	40	10	07	77
Good	04	10	04	01	19
Fair	01	00	01	01	04

Table 2 shows the patient satisfaction sheet which was given to an individual patient to complete in their language during the time of their discharge. It shows that about 77% of patients have given excellent grades to the surgical procedure and 19% have given good and 4% have reported it as fair. This clearly shows better outcomes and complete patient satisfaction with this procedure. The study found that there were no follow-up complications reported by any patient after 15 days and one month follow up after the surgical procedure. This denotes an excellent outcome of the procedure.

Discussion

In general, laparoscopic appendectomies are becoming more popular due to their benefits. The Single Stitch Non-Laparoscopic Approach (SSNLT), however, can achieve exceptional results on par with Laparoscopic Technique with careful selection and execution. This technique is particularly useful in tribal communities where there are few resources and equipment options, such as a laparoscope. We discovered the following benefits of this approach over LAP through the aforementioned study. Based on age, sex, and other factors, 100 acute appendicitis patients were chosen for this study.

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These 100 individuals received SSTNL surgery on an elective basis. We gathered data on the patient's detailed medical history, physical examination, surgical procedure, post-operative problems, length of hospital stay, pain scores, analgesic needs, and patient satisfaction ratings. In the research, there were 60 men and 40 women of various ages: 32 were under 15 years old, 35 were between 15 and 30 years old, 20 were between 20 and 30 years old, and 13 were above 45 years old. They had surgery, and no postoperative issues exist. A scale from 0 to 10 was used to calculate the postoperative pain score (0 being no pain and 10 being severe pain). Patients' hospital stays were tracked. Average patient satisfaction was 9.31 out of 10 (O=Poor, 10=Satisfied). On the third post-operative day, there was only one wound infection in 2 of 100 patients; all other patients made a full recovery without any issues. On day 3, the patients were released, and they were monitored for a year. Before 12 months, no issues were discovered. The goal of this study was to determine the benefits of SSTNL vs LAP appendectomy in tribal areas, where infrastructure and training resources are typically limited. In related research, AC Moberg et al. evaluated the recovery times following laparoscopic vs open appendectomy on 133 patients and discovered no differences in the patients' mean hospital stays, recovery times, or complication rates. [10] It supports our findings, according to which a 2-day hospital stay was average. This demonstrates that when this surgical approach is carried out by skilled surgeons, the outcomes are frequently equivalent to those of laparoscopic surgeries. In a different study, Raphael SC et al. discovered that although laparoscopic appendectomy takes 31% longer to perform, there is less postoperative discomfort and wound infection. [11] In tribal communities like ours without advanced laparoscopic equipment, we developed this modified open appendectomy technique SSTNL surgery. The outcomes obtained in this study were like Laparoscopic appendectomy in many ways. Another intriguing discovery by Kristen Hall and colleagues; discovered that while undergoing a laparoscopic appendectomy relates to statistically significant but doubtful benefit compared to open appendectomy. This demonstrates that though. The benefit of laparoscopic appendectomy over the standard appendectomy [12] It suggests that a skillfully executed and meticulously done open Appendectomy is frequently compared to laparoscopic techniques however Generally speaking, our method is not a widely used one. open technique has been used, however a modified version during the open operation, a little an incision like a small hole is adopted. We must present the fact that our surgeons were so skilled, and we adhered to the selection criteria completely and which are crucial in this sort of procedure. In locations lacking advanced technology and facilities like ours, it may very well be taken into consideration as a substitute for laparoscopic treatments. In comparison to laparoscopic appendectomy, this SSTNL approach seems to be more advantageous in terms of cost, training, postoperative complications, and hospital stay.

Conclusion

The outcomes of a single stitch appendectomy were comparable to those of an LAP appendectomy in terms of training, cost, length of hospital stay, and complications following the operation. In terms of perioperative complications, postoperative discomfort, and patient satisfaction, the approach did not significantly vary. Hence, it is an effective and safe method for conducting appendicectomies in hospitals without complex technology is the one stitch non-laparoscopic method.

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