

**Original article**

## **A Retrospective Analysis of Patients of Appendiceal Abscess Undergoing Laparoscopic and Open Surgery at a Tertiary Care Hospital**

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### **Abstract**

**Background:** Appendiceal abscesses represent 2.3% of all the cases of acute appendicitis and usually present a mass in the right lower quadrant. Hence; the present study was conducted for evaluating patients undergoing laparoscopic and Open surgery in the treatment of appendiceal abscess.

**Materials & Methods:** A total of 200 patients with presence of appendiceal abscess were enrolled. Complete demographic and clinical details of all the patients was recorded. Two study groups were formed by randomization: Open surgery group, and second was laparoscopic surgery group. A Performa was made and complete operative and postoperative findings were recorded. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis using SPSS software.

**Results:** Mean duration of surgery among the patients of the Laparoscopic surgery group and open surgery group was 131.6 minutes and 105.7 minutes respectively (p-value < 0.05). mean length of hospital stay among the patients of the Laparoscopic surgery group and open surgery group was 7.3 days and 9.9 days respectively (p-value < 0.05). Conversion rate among patients of the laparoscopic group was found to be 4 percent. Complications rate was higher among the patients of the open surgery group.

**Conclusion:** Laparoscopic appendectomy is as safe and efficient as open appendectomy, provided surgical experience and equipment are available.

**Key words:** Laparoscopic, Open, Appendiceal.

### **INTRODUCTION**

Appendiceal abscesses represent 2.3% of all the cases of acute appendicitis<sup>1</sup> and usually present a mass in the right lower quadrant.<sup>2</sup> Occasionally, abscesses develop in the right subhepatic space, right subdiaphragmatic space and right pararenal space or liver.<sup>3</sup> However, an appendiceal abscess located in the epigastric space has never been reported. The management of appendiceal abscess is controversial.<sup>4</sup> Recently, the ultrasonic or CT guided percutaneous puncture technique has offered an alternative to conventional surgical treatment.<sup>3-5</sup> The recurrence of appendicitis after conservative treatment is between 4–80%<sup>2</sup> or 0–20%. Sixty-six percent of the recurrent cases occurred within 2 years of the initial attack. The abscess often spontaneously resolves or drains into the intestine with a low recurrence rate.<sup>6-8</sup> The risk of wound infection is less in laparoscopic appendectomy compared to the

open procedure. A meta-analysis of randomized controlled trials has been reported with outcomes of 2877 patients included in 28 trials. Overall complication rates were comparable, but wound infections were definitely reduced after laparoscopy.<sup>7- 10</sup> Hence; the present study was conducted for evaluating patients undergoing laparoscopic and Open surgery in the treatment of appendiceal abscess.

**MATERIALS & METHODS**

The present study was conducted in the Department of General Surgery, Santosh Medical College & Hospital, Ghaziabad, Uttar Pradesh (India) for evaluating patients undergoing laparoscopic and Open surgery in the treatment of appendiceal abscess. A total of 200 patients with presence of appendiceal abscess were enrolled. Complete demographic and clinical details of all the patients was recorded. Two study groups were formed by randomization: Open surgery group, and second was laparoscopic surgery group. A Performa was made and complete operative and postoperative findings were recorded. All the results were recorded in Microsoft excel sheet and was subjected to statistical analysis using SPSS software.

**RESULTS**

Mean age of the patients of the Laparoscopic surgery group and open surgery group was 43.6 years and 41.9 years respectively. Mean duration of surgery among the patients of the Laparoscopic surgery group and open surgery group was 131.6 minutes and 105.7 minutes respectively (p-value < 0.05). mean length of hospital stay among the patients of the Laparoscopic surgery group and open surgery group was 7.3 days and 9.9 days respectively (p-value < 0.05). Conversion rate among patients of the laparoscopic group was found to be 4 percent. Complications rate was higher among the patients of the open surgery group.

**Table 1: Comparison of demographic and clinical variables**

Variable	Laparoscopic surgery group	Open surgery group	p-value
Males	58	65	0.22
Females	42	35	
Mean age (years)	43.6	41.9	0.42
Mean duration of surgery (mins)	131.6	105.7	0.001 (Significant)
Length of hospital stay (days)	7.3	9.9	0.001 (Significant)
Conversion rate (to open surgery)	4%	-	-
Time to soft meal (days)	2.8	3.8	0.001 (Significant)

**Table 2: Complications**

Complications	Laparoscopic surgery group	open surgery group
Wound infection	2	6
Intraabdominal abscess	0	3
Ileus	1	1

## DISCUSSION

Appendicitis is the most common cause of pain requiring surgery. Fitz et al. described and diagnosed appendicitis in 1886 for the first time, and McBurney performed an appendectomy in 1894 for the first time. Since then, the appendectomy has been established as the standard treatment for appendicitis. Nevertheless, 2-7% of appendicitis patients do not have simple appendicitis, but have appendicitis that manifest itself with complex features such as an abscess in the periappendix, right lower quadrant masses due to acute inflammation in connective tissues, etc. When emergency surgery is performed on such cases, due to inflammation in a wide area within the abdominal cavity, adhesion of the intestines, sepsis after surgery, fluid collection within the abdominal cavity, and re-surgery for adhesion of the intestines, healing of surgical wounds has been shown to be delayed substantially.<sup>9-11</sup> Hence; the present study was conducted for evaluating patients undergoing laparoscopic and Open surgery in the treatment of appendiceal abscess.

Mean age of the patients of the Laparoscopic surgery group and open surgery group was 43.6 years and 41.9 years respectively. Mean duration of surgery among the patients of the Laparoscopic surgery group and open surgery group was 131.6 minutes and 105.7 minutes respectively (p-value < 0.05). Mean length of hospital stay among the patients of the Laparoscopic surgery group and open surgery group was 7.3 days and 9.9 days respectively (p-value < 0.05). Conversion rate among patients of the laparoscopic group was found to be 4 percent. The complications rate was higher among the patients of the open surgery group. Kim JK et al retrospectively analyzed prospectively registered 76 patients with appendicitis presenting with abscess. Patients were divided into three groups (emergency operation group, delayed operation group, and follow-up group), and clinical characteristics and outcomes of treatment were investigated. Twenty-eight patients (36.8%) underwent an emergency operation. Of the remaining 48 patients, 20 (41.7%) were initially treated with conservative management through the use of antibiotics only; 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. Although the recurrence rate was relatively low after conservative management for appendicitis patients presenting with abscess or mass, there was no difference in surgical outcome between the emergent, elective, or recurrent groups.<sup>12</sup>

Paull DL et al analyzed 61 patients with appendiceal abscess. 32 were treated by incision and drainage without appendectomy, with 16% morbidity. Seventeen patients had incision and drainage with appendectomy, with 24% morbidity. One patient, admitted in septic shock, died without operation. Average hospitalization was shortest in the nine patients treated nonoperatively. Many patients with appendiceal mass or abscess do not require immediate operation. In the 42 patients discharged without appendectomy, the recurrence rate of appendicitis was 5% at 9.1 months' average follow-up. Thirty-two elective interval appendectomies were performed at an average interval of 96 days, with 13% morbidity. At interval appendectomy, those patients from whom a free fecalith had been removed at

the time of drainage had the greatest degree of appendiceal destruction. Interval appendectomy is probably not necessary in such patients.<sup>13</sup> Kehagias I et al compared the outcome of laparoscopic versus open appendectomy. Prospectively collected data from 293 consecutive patients with acute appendicitis were studied. These comprised of 165 patients who underwent conventional appendectomy and 128 patients treated laparoscopically. The two groups were compared with respect to operative time, length of hospital stay, postoperative pain, complication rate and cost. There were no statistical differences regarding patient characteristics between the two groups. Conversion to laparotomy was necessary in 2 patients (1.5%). Laparoscopic appendectomy was associated with a shorter hospital stay (2.2 d vs 3.1 d,  $P = 0.04$ ), and lower incidence of wound infection (5.3% vs 12.8%,  $P = 0.03$ ). However, in patients with complicated disease, intra-abdominal abscess formation was more common after laparoscopic appendectomy (5.3% vs 2.1%,  $P = 0.002$ ). The operative time and analgesia requirements were similar in the two groups. The cost of treatment was higher by 370 € in the laparoscopic group.

## CONCLUSION

Laparoscopic appendectomy is as safe and efficient as open appendectomy, provided surgical experience and equipment are available.

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