



Review Article

LAPAROSCOPIC VERSUS OPEN APPENDICECTOMY FOR TREATMENT OF ACUTE APPENDICITIS

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Abstract

Laparoscopic appendicectomy is not yet considered the “gold standard” in the treatment of acute appendicitis because of its higher operative time, intra-abdominal abscess risk, and costs compared to open appendicectomy. On the other hand laparoscopic appendicectomy is associated with fewer post operative complications, shorter hospital stay, and nearly similar operative time, intra-abdominal abscess rate, and total costs, compared with open appendicectomy. With increase in the experience of the surgeon in laparoscopic skills pit falls will be much lower. Therefore, laparoscopic appendectomy can be recommended as preferred approach in acute appendicitis.

Keywords

Laparoscopic appendicectomy, Open appendicectomy, Intra-abdominal abscess.

Introduction

Appendicectomy is the most common emergency abdominal surgery. Since its introduction into clinical practice by Semm in 1983, laparoscopic appendicectomy (LA) proved to be a feasible and safe procedure and has gained worldwide acceptance¹. The clinical advantages of LA, such as reduced hospital stay, lower incidence of wound infection, faster return to normal activities, shorter postoperative ileus, less postoperative pain and better cosmetic results have been demonstrated over the years by several studies^{2,3}. However, the application of LA as “gold standard” in the treatment of acute appendicitis is still debated because of longer operative time, higher risk for postoperative intra-abdominal abscesses, and higher costs⁴.

Discussion

LA is becoming the approach of choice by many surgeons in the treatment of both simple and complicated cases of acute appendicitis. The rate of LA

between 1998 and 2008 increased from 20.6% to 70.8%, becoming the prevalent approach to treat acute appendicitis in many countries since 2005⁵. In addition to the clinical benefits described in several studies, the laparoscopic approach allows a full exploration of the peritoneal cavity, thus representing an important diagnostic tool in case there is any suspicion of the diagnosis. Several diseases such as pelvic inflammatory disease, endometriosis, ovarian cysts, ectopic pregnancy, cholecystitis and colonic perforation may mimic appendicitis. In young fertile women 50% of the surgical procedures performed for suspected acute appendicitis turn out not to be acute appendicitis⁶. A definite diagnosis is obtained in 96% of patients undergoing LA compared with 72% of those undergoing open procedures.

The LA has been proposed as the preferred technique in obese patients with suspected acute appendicitis, including the elderly patients⁷. In these patients the laparoscopic approach is associated with reduced hospital stay, less postoperative morbidity, and lower cost compared to open approach.

Despite the obvious advantages LA still remains a matter of debate because of concerns about possible longer operative time, higher rate of postoperative intra-abdominal abscesses, and higher costs compared to open appendicectomy (OA). For these reasons the open approach appears to be still widely used in clinical practice.

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Studies found that, the mean operative time was similar for the two different procedures, with a difference of less than 5 min in favor of OA group that was not found to be statistically significant⁸. This finding is related to the experience of the surgeon who performs the laparoscopic procedure, especially in the case of complicated appendicitis, in which the laparoscopic dissection can be technically more complex and therefore time-consuming. Training in laparoscopic techniques will lead to a significant reduction in difference of operative time compared to open procedures⁹. Studies confirmed a significant lower incidence of postoperative complications in patients treated by laparoscopic approach. Infection of the surgical wound worsens the quality of life in the early postoperative period and prolongs the recovery time. The reduction of wound infection rate is a significant advantage of LA⁹. The extraction of specimen with a bag and through a trocar port rather than directly through the surgical wound as in open procedures, can explain this reduction in incidence.

The occurrence of an intra-abdominal abscess after appendectomy represents a potentially life-threatening event. It has been suggested that this complication may be related mainly to an improper laparoscopic technique, such as an aggressive handling of infected appendix or an excessive use of irrigation fluids, which could lead to significant contamination of the peritoneal cavity^{4,11}.

Recovery of the bowel function is faster in the LA group. Factors such as reduced manipulation of the ileum and the cecum in the hands of a skilled surgeon, as well as a minor abdominal trauma and less pain due to the smaller extension of the incision of the trocars, and an early postoperative mobilization of the patient may explain the cause¹².

The length of the hospital stay is shorter in the LA group than in the OA group so patients can return earlier to work and to normal daily activities. The reduction in length of hospital stay seen in the LA group has a direct impact on costs. Although the cost of the laparoscopic approach can be higher than cost of open approach, the difference in total costs between the two procedures is decreased by the shorter length of stay experienced by patients who underwent LA¹³. The cases of conversion were associated with a higher postoperative morbidity and higher costs. The costs of laparoscopy remain still higher because of the increased operative time and the higher cost of laparoscopic instruments.

Conclusions

Laparoscopic appendectomy is associated with fewer postoperative complications, mainly due to a lower incidence of wound infections, with a rate of intra-abdominal abscess similar to open appendectomy.

The operative time of laparoscopic treatment is comparable with that of open treatment, but length of hospital stay is shorter after laparoscopy. These findings have a direct impact on total costs. Therefore, laparoscopic appendectomy can be recommended as preferred approach for treatment of acute appendicitis.

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