

Conventional vs Laparoscopic Appendectomy in General Surgery Interns

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Abstract

Background: Acute appendicitis (AA) is one of the most frequent conditions for consultation by the on-call service that requires surgical treatment, with an estimated incidence of between 6 and 8%.

Methods: Two groups made up of 25 randomly selected patients were created: G1 - Laparoscopic appendectomy (AL) and G2 - Conventional appendectomy (CA). We analyzed variables such as sex, age, operating time, postoperative pain, hospital stay, and postoperative complications.

Results: 53.2% of the patients were male and the remaining 46.8% were female, with a mean age of 31 years. The series yielded a general complication rate of 28% for G1 and 68% for G2.

Conclusion: What marks the evolution is not only the capacity of the acting resident, but also the condition of the organ and the patient's own factors.

Keywords: Appendectomy; Laparoscopy; Conversion to open surgery

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Introduction

Acute appendicitis (AA) is one of the most frequent conditions for consultation by the on-call service that requires surgical treatment, with an estimated incidence of between 6 and 8% [1]. In recent years, laparoscopic (LA) appendectomy has become the therapeutic approach in many hospitals [2]. However, there is limited information on the conventional versus laparoscopic approach performed by trainee surgeons. The safety of LA has been widely recognized and it has been shown to have advantages in terms of recovery, hospital stay, reduction of postoperative pain, surgical site infection (SSI), with better cosmetic results [1]. But at the same time, it requires skills and abilities that need to be acquired in order to develop safely.

Methodology

This study aims to compare the results of laparoscopic versus conventional appendectomies performed by general surgery residents at a training center. The medical records of patients operated on for AA from February 2021 to February 2022 at the National Hospital of Clinics, Córdoba, Argentina, were retrospectively reviewed.

Inclusion criteria

- Person over 18 (eighteen) years of age who underwent surgery for acute appendicitis, after signing an informed consent.

- Patient who has completed post-surgical control for six months.

Exclusion criteria

- Patient approached by laparoscopic surgery and was converted to conventional approach.
- Patients who did not undergo post-surgical follow-up at the institution.

Two groups made up of 25 randomly selected patients were created: G1 - Laparoscopic appendectomy (AL) and G2 - Conventional appendectomy (CA).

We analyzed variables such as sex, age, operating time, postoperative pain, hospital stay, and postoperative complications. The duration of surgery was the period of time from the skin incision to the last skin suture. Hospital stay was calculated from the end of surgery to the date of hospital discharge. Discharge criteria included tolerance to the oral route, vital signs within normal parameters, absence of fever and abdominal pain. Postoperative pain was assessed using a score based on pain severity: 0 = no pain; 1 = mild pain; 2 = moderate pain; and 3 = intense pain. Clinical pain scores were measured on day one and one month postoperatively.

Complications were classified as major (intra-abdominal abscesses,



cecal fistulas, and surgical site infection) and minor (fever, vomiting, diarrhea, and paralytic ileus). Regarding inferential statistics, for the study of qualitative variables, the Pearson's Chi-square test was used when possible, and when it was not, Fisher's exact statistic was calculated to compare AC and AL parameters in the procedures. made. $p < 0.05$ was considered statistically significant.

Results

53.2% of the patients were male and the remaining 46.8% were female, with a mean age of 31 years. Regarding postoperative pain, there was no statistically significant difference between the groups ($p = 0.17$). The impact of pain on daily activities after the eighth day was lower in the laparoscopic group ($p = 0.01$). No patient presented pain a month after surgery. The mean operating time of the laparoscopic group 82.5 (45' - 120') was significantly longer than the open appendectomy group 55 (20' - 90') ($p = 450.01$).

Regarding the hospital stay, the average hospitalization time was 20 h for the AC group and 16 h for AL. The series yielded a general complication rate of 28% for G1 and 68% for G2. The first group presented 20% of complications classified as minor and 8% as major. While the G2 sample presented 28% minor complications and 40% major ones, SSI being 28% (7 patients) of these. The complications obtained in the series are graphed in figure 1. Return to work was significantly faster in the AL group ($p = 0.01$).

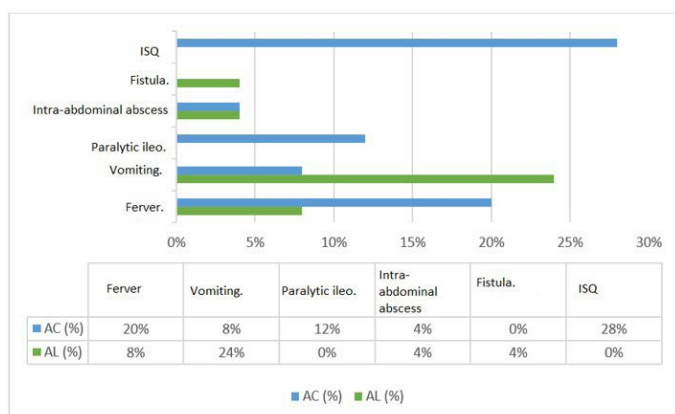


Figure 1: Complications obtained in the series.

Discussion

With the rapid diffusion of minimally invasive surgery after the 1990s, the validity of training as a tool to develop safe laparoscopic surgery has taken on a great dimension in the technical improvement of the resident [1]. Scott-Conner et al. [2] published the first study of AL carried out by surgical residents in 1992. They justified the need for learning through laboratory use courses in animal models. This statement was supported by many institutions [3]. However, training with animal models remains limited due to financial considerations and current animal rights protectionism. Therefore, most surgeons do not have the opportunity to receive practical training in laparoscopic surgery in such conditions [4].

Some reports have indicated that residents will have performed 25 - 50 cases of CA before performing LA [3,4]. Although CA has been

accepted as basic abdominal surgery, it remains controversial whether experience in CA should be a requirement for residents of surgery in the era of laparoscopic surgery. With advances in laparoscopy, it has become difficult for surgical residents to have the opportunity to perform open surgery. At our hospital, where approximately 95% of appendectomies have been performed conventionally in the last 5 years, our surgical residents have only performed fewer than 30 cases of AL per year.

In our cohort, the average operating time was 82.5 minutes in G1 and 55' in G2, lower than that reported by Martin et al. [5] (102 min) and Scott-Conner et al. [2] (96 min). These results are comparable with our series since the surgeons were residents. Our study had the great limitation of being a retrospective evaluation, not allowing for a standardized analysis.

Conclusion

For surgical residents who perform appendectomies, there are concerns about the safety of the procedure. But what marks the evolution is not only the capacity of the acting resident, but also the condition of the organ and the patient's own factors. In this study, the complications obtained are closely related to the approach route and not by whoever performs the procedure, we verified that both approaches are safe to be developed by trainee surgeons. The surgical path of resolution that is decided must be chosen based on granting the greatest safety, lowest morbidity, and mortality, and always be instructed by an experienced surgeon.

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None.

Conflict of Interest

The authors declare that they have no conflicts of interest.

Ethics Statement

The work has been approved by the ethics committee responsible in the workplace.

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References

- Hiramatsu K, Toda S, Tate T, Fukui Y, Tomizawa K, et al. (2018) Can laparoscopic appendectomy be safely performed by surgical residents without prior experience of open appendectomy?. *Asian J Surg* 41: 270-273. <https://doi.org/10.1016/j.asjsur.2016.12.003>
- Scott-Conner CE, Hall TJ, Anglin BL, Muakkassa FF (1992) Laparoscopic appendectomy. Initial experience in a teaching program. *Ann Surg* 215: 660. <https://doi.org/10.1097/0000658-199206000-00013>
- Carrasco-Prats M, Soria Aledo V, Lujan-Mompean JA, Rios-Zambudio A, Perez-Flores D, et al. (2003) Role of appendectomy in training for laparoscopic surgery. *Surg Endosc* 17: 111-114. <https://doi.org/10.1007/s00464-001-9199-y>
- Chiu CC, Wei PL, Wang W, Chen RJ, Chen TC, et al. (2006) Role of appendectomy in laparoscopic training. *J Laparoendosc Adv Surg Techn* 16: 113-118. <https://doi.org/10.1089/lap.2006.16.113>
- Martin LC, Puente I, Sosa JL, Bassin A, Breslaw R, et al. (1995) Open versus laparoscopic appendectomy. A prospective randomized comparison. *Ann Surg* 222: 256. <https://doi.org/10.1097/0000658-199509000-00004>