

Role of Peritoneal Irrigation in Laparoscopic Appendectomy Reduce Postoperative Intra-Abdominal Abscess Rates

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1. Case Presentation

We present a 19 year old female with 5 days of right-sided abdominal pain. A CT scan was obtained which demonstrated perforated appendicitis. The patient was taken to the operating theatre for diagnostic laparoscopy. Inspection revealed diffuse pus in all four quadrants of the abdomen. About 500 ml of pus was evacuated. A necrotic, perforated appendix was visualized and removed in the normal fashion. Irrigation with 3 liters of warm saline was performed, and a drain was left in place. Postoperatively, the patient was continued on intravenous antibiotics. However, laboratory studies demonstrated an uprising leukocytosis to 13.0 K/uL on postoperative day 5. Further imaging demonstrated multiple intra-abdominal abscesses. Consultation with Interventional radiology led to placement of a pigtail catheter for transgluteal drainage. The patient was discharged home on oral antibiotics, with the catheter.

2. Discussion

Postoperative intra-abdominal abscess (IAA) formation after laparoscopic appendectomy (LA) remains a debated topic amongst surgeons worldwide. IAA can be defined as a unilocular or complex localized collection of infected fluid. It is commonly found in the peri-appendicular, paracecal, or pelvic region. Studies have shown as high as a 20% abscess formation rate status post appendectomy for perforated appendicitis.

Despite advancements in laparoscopic technique, IAA still remains a source of concern postoperatively. There are two practices when dealing with perforated appendicitis - irrigation versus suction alone. The theory behind irrigation is dilution of bacterial concentration. Others believe that irrigation actually spreads contamination, and dilutes immune system mediators.

In 2008, Hussain et al. described a prospective study which included 283 patients with acute appendicitis, with 22 (7.77%) patients having perforated appendicitis. Their described technique to reduce postoperative IAA included irrigating all four quadrants of the peritoneal cavity with 3liters of normal saline. In the study, no patients developed postoperative IAA, and they concluded that copious irrigation and drainage significantly decreased the rate of postoperative IAA formation.

On the other hand, in 2015 Cho et al. performed a retrospective cohort study to examine potential risk factors for postoperative IAA after LA, and concluded the exact opposite. They compared surgical outcomes after 1,817 LA and the only difference was that “peritoneal irrigation was performed significantly more often in the IAA group than in the non-IAA group ($p < 0.001$).” They concluded that peritoneal irrigation increased the incidence of postoperative IAA.

More recently, in 2016 Snow et al. published the first prospective, randomized controlled trial (RCT) in adults comparing irrigation versus suction alone during LA. In 81 patients, they found “the rate of IAA was equivalent between groups treated with peritoneal irrigation and suction alone.” [1] This conclusion coincides with the only other prospectively conducted RCT on this topic, which was conducted in children.

3. Conclusion

In conclusion, there remains to be limited high-quality prospective studies to compare peritoneal irrigation to suction alone for preventing IAA after LA. This case study is used to state the continued dilemma in post appendectomy IAA formation, and review the updated literature and current management strategies.

References

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