



A COMPARATIVE STUDY BETWEEN SPINAL VS GENERAL ANESTHESIA FOR LAPAROSCOPIC APPENDECTOMY A RANDOMIZED CONTROLLED TRIAL

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ABSTRACT

Appendectomy is one of the most commonly performed surgery in modern day surgical practice. While laparoscopic appendectomy has been well established as a widespread and standard method for appendectomy surgery, there is ambiguity about the best method of anesthesia for laparoscopic appendectomy surgery. While General anesthesia is the preferred and accepted method for laparoscopic appendectomy surgery, spinal anesthesia with supplemental sedation is being very widely tried and found to be at least as satisfactory if not better than General Anesthesia. Plus the added advantages of cost effectiveness and better postoperative analgesia makes spinal anesthesia a very acceptable alternative to GA for lap appendectomy. We designed a study to compare spinal vs. General anesthesia in a controlled study and found spinal anesthesia to be better than GA for lap appendectomy.

Objectives of study: To compare spinal anesthesia with the currently accepted gold standard technique i.e. general anesthesia for elective laparoscopic appendectomy.

Setting: Medical College Hospital

Design: Controlled randomized trial.

Settings and Study design: One hundred patients with symptomatic gallstone disease and American Society of Anesthesiologists status I or II were randomized to have laparoscopic appendectomy under spinal (n=50) or general (n=50) anesthesia.

Materials and Methods: Patients meeting inclusion criteria were randomized into two groups. Group A and Group B received general and spinal anaesthesia by standardised techniques. Both groups underwent standard four port laparoscopic appendectomy. Mean anaesthesia time and surgery time defined primary outcome measures. Intraoperative events and post operative pain score were secondary outcome measure. Intraoperative parameters, postoperative pain, complications, recovery, and patient satisfaction at follow up were compared between the 2 groups.

Statistical Analysis Used: Student t test and chi square test

Results: All the procedures were completed by the allocated method of anesthesia, as there were no conversions from spinal to general anesthesia. Pain was significantly less at 4 hours (P<.001), 8 hours (P<.001), 12 hours (P<.001), and 24 hours (P=.02) after the procedure for the spinal anesthesia group compared with those who received general anesthesia. There was no difference between the 2 groups regarding complications, hospital stay, recovery, or degree of satisfaction at follow-up.

Conclusions: Spinal anesthesia is adequate and safe for laparoscopic appendectomy in otherwise healthy patients and offers better postoperative pain control than general anesthesia with similar recovery times and better patient satisfaction to some extent. Also, all the complications associated with general anesthesia can be avoided and conduct of anesthesia becomes safer.

KEYWORDS

INTRODUCTION

With recent technical advances, appendectomy is more commonly performed under laparoscopy than by open laparotomy. Laparoscopic appendectomy (LA) has shown to have considerable advantages over open appendectomy. Such advantages include less postoperative pain, better cosmetic results, a shorter hospital stay, and a lower complication rate [1]. However, LA has been routinely performed under general anesthesia with endotracheal intubation despite the several disadvantages of general anesthesia compared to regional anesthesia, including hemodynamic instability, postoperative nausea and vomiting (PONV), increase in the requirement for postoperative analgesia, complications related to intubation or extubation, and a sore throat postoperatively [2,3]. Although many reports of laparoscopic inguinal hernia repair and cholecystectomy under regional anesthesia have been published [4-7], few studies have involved regional anesthesia for LA [8].

Regional anesthesia has been used for laparoscopy in healthy patients in the past almost exclusively in combination with general anesthesia to extend the analgesic effect during the early postoperative period. In a randomized trial, epidurals combined with general anesthesia have been found to be more effective in lessening postoperative pain in healthy patients compared with general anesthesia alone.

Over the last few years, in the era of minimally invasive medicine, regional anesthesia is gaining popularity and is gaining more utility as a sole method of anesthesia in laparoscopic procedures.

Johnson⁴ noted that "all laparoscopic procedures are merely a change in access and still require general anesthetic; hence the difference from conventional surgery is likely to be small." This statement is predominantly based on the assumption that laparoscopy necessitates endotracheal intubation to prevent aspiration and respiratory compromise secondary to the induction of carbon dioxide pneumoperitoneum,² which is not well tolerated in a patient who is awake during the procedure.^{5,6} However, it is surprising that regional anesthesia has been successfully used for laparoscopic appendectomy in patients unfit to have the procedure under general anesthesia but has not been tested in healthy patients in whom any presumed risk would be theoretically much lower.

Hamad and Ibrahim El-Khattary⁷ used spinal anesthesia for laparoscopic appendectomy for the first time in a small series of healthy patients. In their study, however, nitrous oxide pneumoperitoneum was applied instead of the standard carbon dioxide.

Many studies have recently shown the feasibility of successfully and safely performing laparoscopic appendectomy with low-pressure carbon dioxide pneumoperitoneum under spinal anesthesia alone in healthy patients with symptomatic gallstone disease.⁸ We have also noticed that spinal anesthesia results in less postoperative pain. As such a controlled randomized trial was designed to compare spinal anesthesia with the currently accepted gold standard i.e. general anesthesia for elective laparoscopic appendectomy in