

Laparoscopic assisted vs Open Surgery for Colon Cancer

Hana Alhomoud, Oscar Manuel Torres Falcon

ABSTRACT

Purpose: A review article to evaluate and compare the short- and long-term results of laparoscopic-assisted colectomy (LAC) and open colectomy (OC) for colon cancer.

Materials and methods: Relevant papers were searched using MEDLINE, Science Citation Index and Cochrane Controlled Trial Register, by using the search terms 'laparoscopy', 'surgery', 'colectomy' and 'colon cancer'.

Conclusion: LAC has the benefits of reducing intraoperative blood loss, earlier resumption of oral intake and shorter duration of hospital stay.

Keywords: Laparoscopy-assisted colorectal surgery, Colorectal cancer, Open colorectal surgery, Randomized controlled trials.

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INTRODUCTION

Colorectal cancer (CRC) is the fourth leading cause of cancer-specific mortality worldwide, with 610,000 related deaths each year.¹ CRC is the fourth most common form of cancer in the United States² and the third leading cause of cancer-related death in Western world.³ Because surgery remains the primary treatment modality in colorectal cancer, the introduction of rapidly evolving laparoscopic techniques in the treatment of patients with colon and rectal cancer has been met with appropriate concern and resistance. Laparoscopic resection for CRC was first described in 1991,⁴ and the enthusiasm for laparoscopic colectomy grew when recovery benefits for patients became more apparent. Numerous randomized controlled trials (RCT) comparing laparoscopic to open surgery for colon cancer were published, clearly demonstrating that in experienced hands, appropriate oncologic resection can be performed and produce results equivalent to the open techniques.⁵⁻⁸ The aim of this paper is to review the published literature regarding the evolution of laparoscopic surgery for colorectal cancer.

MATERIALS AND METHODS

Searched through the major medical database done, such as MEDLINE, EMBASE, Science Citation Index and Cochrane Controlled Trial the following search terms were

used: 'Laparoscopy', 'laparoscopy-assisted', 'surgery', 'colorectal cancer'.

RESULTS

Twelve RCT that compared LAC and OC for colon cancer were identified.⁹⁻²⁸ The results of the outcomes over short- and long-term periods are reported below.

Short-term Outcomes

Of the 12 RCTs, five reported the operative duration, in all five reports, the operative duration was significantly longer for LAC than OC. Blood loss in patients who underwent LAC was significantly lower than that in patients who underwent OC, by an average volume of 103.9 ml. There was no significant difference in the number of transfused patients. The duration of hospital stay and the time of oral diet were significantly shorter with LAC than with OC. The incision length was significantly shorter by 11.77 cm in LAC than in OC. The rate of the overall postoperative complication was significantly lower in LAC than OC. The rate of ileus was significantly lower in LAC than OC. The rate of anastomosis leakage between the two groups was insignificant. There were no significant differences in perioperative mortality between the two groups.

Long-term Outcomes

With respect to overall recurrence, local recurrence, distal metastasis and peritoneal dissemination, the differences between the two groups were insignificant. The analysis of the wound site recurrence between LAC and OC groups indicated no significant difference. There was also no significant difference in the overall and cancer-related mortality between the two groups.

DISCUSSION

In short-term periods, laparoscopic surgery for colon cancer is associated with significantly longer operation times but significantly less intraoperative blood loss compared with conventional open surgery. Patients who underwent LAC resumed oral intake significantly earlier and had significantly shorter hospital stays than did patients who underwent OC; this finding suggests that LAC leads to faster recovery. The rate of postoperative complications was significantly lower in LAC than in OC. The rate of ileus is

significantly lower in LAC than in OC. Gutt et al describe that laparoscopic surgery reduces adhesion formation compared with open surgery, because laparoscopic procedures reduce the overall degree of trauma to the abdominal wall, intra-abdominal operative site and distant intra-abdominal organs, they potentially have an advantage in reducing the formation of postoperative adhesions.²⁹ In the long-term period, there is no significant difference in overall recurrence, local recurrence, distant metastasis and peritoneal dissemination between the two surgery groups. There was also no significant difference in wound site recurrence between the two groups.

CONCLUSION

Minimally access surgery for colorectal cancer has been subjected to rigorous scientific evaluation, and due to positive outcomes when done by experienced surgeons, this approach has become the standard worldwide. Laparoscopic surgery for colon cancer is associated with a reduction in intraoperative blood loss, earlier resumption of oral intake and shorter duration of hospital stay. General and colorectal surgeons must remain fully engaged in the development and application of new technologies and procedures so that surgeons can lead the way into the future while maintaining the patient's interest first.

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ABOUT THE AUTHORS

Hana Alhomoud (Corresponding Author)

Senior Resident, Department of Colorectal Surgery, Al-Sabah Hospital Kuwait, e-mail: hana-alhomoud@hotmail.com

Oscar Manuel Torres Falcon

Senior Resident, Department of Laparoscopic Surgery, Juan I Menchaca Hospital, Jalisco, Mexico