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MINIREVIEWS

Minimally invasive surgery for inflammatory bowel disease: Current perspectives

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Abstract

The surgical management of complicated and recurrent inflammatory bowel disease (IBD), has remained a challenge. Minimally invasive surgery (MIS), in the form of laparoscopic resections, single port approach and robotic-assisted dissections in the management of IBD, have been examined in several prospective studies. All of them have shown advantages over open surgery in terms of reduction of physical trauma of surgery, recovery time, better cosmetic outcomes and shorter hospitalization. However, it is important to appreciate that not all patients with IBD are suitable for MIS, so a combination of both open and MIS should be adopted to achieve optimum outcomes. A review on this subject performed by Neumann *et al* in this issue of *World Journal of Gastrointestinal Pharmacology and Therapeutics* have provided evidence in support of the contemporary practice of MIS in the management of IBD and the accompanying commentary further critically evaluates their application in clinical practice.

Key words: Minimally invasive surgery; Ulcerative colitis; Crohn's disease; Laparoscopy; Robotic-assisted surgery

Core tip: The advantages conferred by minimally invasive surgery (MIS) in the management inflammatory bowel disease (IBD) are well established. Currently available evidences support the application of MIS in the management of IBD, although the decision to adopt MIS, open surgery or combination of both, has to be made on case-by-case basis, based upon the understanding of the advantages and disadvantages of individual technique, available resources and local expertise.

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INTRODUCTION

Neumann *et al*[1] have performed a review of the MIS

in the management of inflammatory bowel disease (IBD), which is a rapidly expanding field relevant to the practicing surgeons in the colorectal specialty. Surgical management of both Crohn's disease (CD) and ulcerative colitis (UC), has remained challenging because of associated complications, such as abscesses, fistula and strictures. The complex anatomy resulting from previous open operations, which is particularly present in recurrent CD, and the immunosuppressed state of the patients resulting from medical treatment further compounds the management[2].

ADVANTAGES OF MINIMALLY INVASIVE SURGERY IN IBD

It is a common practice to adopt conservative surgical resection procedures in IBD, which necessitates repeated surgery for recurrent disease, particularly in young group of patients. Repeated open surgery leading to intra-abdominal adhesions, scarred abdominal wall contributes to significant morbidity and risk to future surgery. Better cosmetic outcomes and significant reduction in the length of hospital stay and recovery time have been achieved with the application of minimally invasive surgery (MIS) compared with open approach[3]. Since the beginning of the millennium, MIS has gained popularity and has become the gold standard as a safe surgical strategy in primary and complicated cases of CD as well as proctocolectomies and restorative proctocolectomies for patients with UC, both in paediatric and adult patients, and in elective and emergency settings[4-7].

CURRENT EVIDENCES

There is lack of randomised trials comparing laparoscopic colorectal surgery (LCS) with open surgery for the management of IBD. Majority of the published studies are either case control or cohort studies, which have shown reduced hospital stay, comparable or fewer complications but with an increased operating time associated with LCS. Emergency LCS can be safely undertaken providing there is appropriate patient selection, the surgeon is adequately experienced and there are sufficient resources to allow for potentially more complex operations[8,9].

Although available evidence suggest laparoscopic approach for recurrent IBD is safe with comparable outcomes to open surgery, there are still controversies on the application of laparoscopic approach for recurrent CD due to prolonged operating time and higher incidence of open conversion[10]. Staged procedures combining LCS and open surgery is indicated where reconstructions are required for continence, which does reduce the morbidity significantly. Hand-assisted laparoscopic surgery does reduce the operating time, has reduced conversion rates and reduces the hazards of prolonged anaesthesia, hence should be in the armamentarium of surgeons[11]. Single port laparoscopic surgery (SPLS) is an attractive modification, although more data is required to prove its superiority over other techniques[12].

Limited data is available on the robotic-assisted dissection of rectum for IBD. However, there is a favourable trend in the use of robotic-assisted surgery for treating colorectal IBD, where the operating time and cost are influenced by the learning curve of the surgeon[13]. Technical developments have introduced extraction of the specimen through natural orifices and transanal MIS, which avoid extra incision and scar on the anterior abdominal wall. However, there is no robust data available on their application in the treatment of IBD[14].

CONCLUSION

The conclusions made by Neumann *et al*[1] is pertinent as the application of MIS in the treatment of IBD has expanded significantly and become standard practice due to its advantages over open surgery. However, it is important to appreciate the fact that not all cases of IBD are suitable for LCS, particularly complicated and recurrent CD and UC, where combination of open and LCS should be considered for achieving best outcomes. The efficacy of SPLS and robotic-assisted surgery still remains to be assessed in prospective studies.

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