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Mini-invasive Surgery

Content

Mini-invasive Surgery

Colorectal surgery

1. Review

Conventional and robotic transanal minimally invasive surgery for rectal neoplasia

HTML PDF

Cite this article: Jahansouz C, Arsoniadis EG, Sands DR. Conventional and robotic transanal minimally invasive surgery for rectal neoplasia. *Mini-invasive Surg* 2021;5:1. http://dx.doi.org/10.20517/2574-1225.2020.82

Abstract

The treatment of rectal cancer is evolving at a rapid pace in parallel with advancements in surgical technique. One such advancement is the application of the laparoscopic platform to the transanal approach, coined transanal minimally invasive surgery (TAMIS). TAMIS overcomes many of the shortcomings of the traditional transanal approach to the local resection of rectal neoplasia, offering greater visualization and access to the middle and upper rectum with improved oncologic outcomes. Following the introduction of conventional TAMIS, the robotic platform was introduced and applied in analogous fashion. Over the past decade, data have accumulated enabling the comparison of the two approaches most notably with regard to patient morbidity, mortality, and oncologic outcomes. This review discusses the most recently available outcomes regarding conventional and robotic TAMIS and provides a comparison of the two platforms in the treatment of rectal neoplasia. While randomized controlled trials comparing the two platforms are lacking, important differences have been identified. Conventional TAMIS is the more cost-effective approach while advancements in the robotic platform allow the surgeon to be seated and ergonomically optimized, allowing greater visualization and ease of suturing. Differences in oncologic outcomes between the two platforms have not been identified. Head-to-head randomized controlled trials are required to determine if any differences in functional or oncologic outcomes exist.

2. Review

Robotic or laparoscopic surgery for rectal cancer - which is the best answer? a comprehensive review of non-oncological outcomes and learning curve

Full-Text PDF

Copy here to cite this article: Kavalukas SL, Ghuman A, Sharp SP, Wexner SD. Robotic or laparoscopic surgery for rectal cancer - which is the best answer? a comprehensive review of non-oncological outcomes and learning curve. Mini-invasive Surg 2020;4:61. http://dx.doi.org/10.20517/2574-1225.2020.71

Abstract

Much effort has been spent evaluating the difference between robotic and laparoscopic surgery platforms for rectal cancer. There is a plethora of literature comparing outcomes for intraoperative events, postoperative complications, long term outcomes, cost, and learning curve. The data are conclusive regarding the higher cost of robotic surgery compared to laparoscopic surgery. This article is a comprehensive review of the available literature regarding intraoperative and postoperative outcomes. For practically all parameters evaluated, there are no significant differences between the two platforms. The ultimate decision on whether to perform robotic vs. laparoscopic surgery should be based on surgeon preference and familiarity with equipment, as well as local resources.

3. Meta-analysis

A systematic review and meta-analysis comparing intracorporeal anastomosis and extracorporeal anastomosis in minimally invasive colectomies

HTML PDF

Cite this article: Park SSW, Feng D, Smith S. A systematic review and meta-analysis comparing intracorporeal anastomosis and extracorporeal anastomosis in minimally

invasive colectomies. *Mini-invasive Surg* 2020;4:87.
http://dx.doi.org/10.20517/2574-1225.2020.87

Abstract

Aim: This systemic review aims to determine if intracorporeal anastomosis (IA) adds value to patient outcomes without compromising operative and oncological safety when compared to extracorporeal anastomosis (EA) in laparoscopic colectomies. This is the first systematic review with meta-analysis to evaluate the outcomes in a combined fashion including both laparoscopic right and left colectomies.

Methods: A systematic review of Medline, EMBASE, Cochrane Library, and PubMed was performed on studies analysing direct comparison between IA and EA. The primary outcome was anastomotic leakage. Quality assessment was carried out using a modified Institute of Health Economics appraisal tool. Meta-analysis was performed using a random-effects model.

Results: A total of 24 papers with 2,674 patients were included in the analysis. No significant difference was found in anastomotic leakage (OR = 0.84; 95%CI: 0.54-1.31; P = 0.44) and short-term mortality (OR = 0.56; 95%CI: 0.20-1.58; P = 0.27) between the IA and EA cohorts. The IA cohort was associated with faster return of bowel function [MD = -0.53 days; 95%CI: -0.67-(-0.39); P < 0.00001] and lower incidence of surgical site infection (OR = 0.52; 95%CI: 0.31-0.85; P = 0.009). The number of lymph nodes harvested was higher in IA (MD = 1.05; 95%CI: 0.19-1.91; P = 0.02; I2 = 83%) with considerable heterogeneity.

Conclusion: Intracorporeal anastomosis can be considered a safe alternative technique in laparoscopic colectomies, with potential benefits in patient outcomes. A lack of randomised studies and heterogeneity need to be addressed by additional high-quality trials.

4. Review

Robotic or laparoscopic surgery for rectal cancer - which is the best answer? A comprehensive review of oncological outcomes

HTML PDF

Cite this article: Ghuman A, Kavalukas S, Wexner SD. Robotic or laparoscopic surgery for rectal cancer - which is the best answer? A comprehensive review of oncological outcomes. *Mini-invasive Surg* 2020;4:84.
http://dx.doi.org/10.20517/2574-1225.2020.88

Abstract

Treatment of rectal cancer is ever evolving with the introduction of newer surgical technologies and multimodal treatment approach. The literature evaluating the various surgical treatment options with regards to operative and nonoperative outcomes is abundant. This is a comprehensive review focused on oncological outcomes of rectal cancer resection performed robotically or laparoscopically. Based on the current literature available, there is no significant difference in total mesorectal excision completeness, lymph node harvest, positive circumferential resection margin, or proximal resection margin between robotic and laparoscopic approaches for rectal resection. Selection of surgical approach should not be based on pathological outcomes as they are equivalent.

5. Original Article

Robotic-assisted abdominoperineal resection: technique, feasibility, and short-term outcomes

Full-Text PDF

Copy here to cite this article: Abdalla S, Valverde A, Fléjou JF, Goasguen N, Oberlin O, Lupinacci RM. Robotic-assisted abdominoperineal resection: technique, feasibility, and short-term outcomes. Mini-invasive Surg 2019;3:39.

http://dx.doi.org/10.20517/2574-1225.2019.38

Abstract

Aim: The use of robotic-assisted laparoscopy seems fully adapted to pelvic surgery. However, few studies focus on robotic-assisted abdominoperineal resection (RAAPR). The aim of this study was to assess the feasibility, short-term postoperative outcomes, and pathological results of RAAPR. In addition, we provide a detailed description of the operative procedure and a brief review of the current literature.

Methods: Between January 2013 and April 2018, we performed a total of 428 robotic surgeries, including 294 colorectal resections (68.7%). Data were prospectively collected and included demographics, intraoperative findings, postoperative outcomes, and pathological data. For this study, we included the first 20 consecutive RAAPRs performed with the four-arm da Vinci Si surgical system (Intuitive Surgical Inc., Sunnyvale, CA, USA).

Results: Twenty patients (nine men) with a mean age of 68 years and a mean BMI of 24.5 ± 5.0 kg/m2 underwent RAAPR for low rectal adenocarcinoma (80%) or squamous cell carcinoma of the anal canal. Sixteen (80%) patients underwent preoperative pelvic radiotherapy and eight (40%) had a history of previous abdominal surgery. Mean operative duration was 218 ± 52 min. There was no conversion to open surgery. Mortality, reoperation, and morbidity rate were 5%, 25%, and 60%, respectively. Three (15%) patients presented perineal complications. Mean length of hospital stay was 20 days. Three (15%) patients had pT4 tumor. Mesorectal excision was considered complete in 90%. On average, 16.5 ± 7.2 lymph nodes were retrieved.

Conclusion: RAAPR is feasible, with acceptable pathologic and short-term outcomes. The current literature does not demonstrate significant differences between robotic and laparoscopic APR. Indeed, we cannot justify its use in routine on the basis on the available evidence.

6. Review

Minimally invasive right colectomy - from conventional laparoscopic resection to robotic-assisted surgery: a narrative review

Full-Text PDF

Copy here to cite this article: Moroni P, Payá-Llorente C, Lauka L, Reitano E, Memeo R, Gavriilidis P, Brunetti F, Martínez-Pérez A. Minimally invasive right colectomy - from conventional laparoscopic resection to robotic-assisted surgery: a narrative review. Mini-invasive Surg 2019;3:36.
http://dx.doi.org/10.20517/2574-1225.2019.34

Abstract

Robotic-assisted abdominal surgery was introduced with the aim of overcoming the drawbacks of the conventional laparoscopic approach. The present narrative review focuses on the comparison between laparoscopic and robotic-assisted approaches for right colectomy (RC) regarding short- and long-term outcomes, costs, and learning curve. The main technical aspects related to the use of robotic assistance for this specific procedure are further discussed. Minimally invasive RC is considered technically challenging due to the particularities of the right and middle colic vascular anatomy. Robotic RC is not yet widespread due to its high cost and longer operating time. However, its use may result in advantages regarding short-term clinical outcomes, and it facilitates the acquisition of basic surgical skills by speeding up the learning curve of minimally invasive colorectal surgery.

7. Original Article

Management of the main postoperative surgical complications after transanal endoscopic microsurgery: an observational study

Full-Text PDF

Copy here to cite this article: Serra-Aracil X, Mora-López L, Pallisera-Lloveras A, Serra-Pla S, Garcia-Nalda A, Gil-Barrionuevo E, Navarro-Soto S. Management of the main postoperative surgical complications after transanal endoscopic microsurgery: an observational study. Mini-invasive Surg 2019;3:37. http://dx.doi.org/10.20517/2574-1225.2019.36

Abstract

Aim: Rates of clinically relevant postoperative morbidity after transanal endoscopic microsurgery (TEM) are low. For this reason, there are few descriptions in the literature on the management of these complications. Because of this lack of information, their importance may be either underestimated or overestimated (in the latter case, leading to overtreatment). The present article reports the frequency of the occurrence of postoperative surgical complications after TEM and describes various approaches to their management.

Methods: An observational study was carried out with prospective data collection and retrospective analysis from June 2004 to June 2019, including all patients undergoing TEM for rectal tumors. All postoperative complications were recorded using the Clavien-Dindo classification (Cl-D), as well as preoperative, surgical, postoperative, and pathological variables.

Results: During the study period, 778 patients underwent TEM, of whom 716 met the inclusion criteria. Postoperative morbidity was 22.1% (158/716). Clinically relevant morbidity (Cl-D > II) was 5% (36/716). The most frequent complication was rectal bleeding, occurring in 115/716 (16.1%) patients; 85 of these 115 (73.9%) patients were grade I Cl-D. Urinary complications were rare (30/716, 4.2%). Similarly, infectious complications of perianal and pelvic abscesses appeared in 7/716 (1%) patients, two of whom required colostomy.

Conclusion: Clinically relevant complications after TEM are rare. For this reason, experience of these complications is limited. Here, we propose a management

protocol to ensure that these complications are neither underestimated nor subjected to excessively aggressive or unnecessary treatment.

8. Editorial

Transanal minimally invasive surgery: from transanal minimally invasive surgery to pure natural orifice transluminal endoscopic surgery

Full-Text PDF

Copy here to cite this article: Jeong WJ, Choi BJ, Lee SC. Transanal minimally invasive surgery: from transanal minimally invasive surgery to pure natural orifice transluminal endoscopic surgery. Mini-invasive Surg 2019;3:38. http://dx.doi.org/10.20517/2574-1225.2019.42

9. Opinion

Limits of transanal total mesorectal excision for low and middle rectal cancer

Full-Text PDF

Copy here to cite this article: Aubert M, Mege D, Panis Y. Limits of transanal total mesorectal excision for low and middle rectal cancer. Mini-invasive Surg 2019;3:34. http://dx.doi.org/10.20517/2574-1225.2019.46

10. Review

Transanal total mesorectal excision: current East Asian perspectives for the future

Full-Text PDF

Copy here to cite this article: Kim HS, Kim NK. Transanal total mesorectal excision: current East Asian perspectives for the future. Mini-invasive Surg 2019;3:33. http://dx.doi.org/10.20517/2574-1225.2019.23

Abstract

Transanal total mesorectal excision (TaTME) is widely performed for the resection of rectal cancer around the world. However, due to lower body mass index and a lack of necessity, TaTMEs have not been accepted in East Asia as generally as in Western countries. In East Asia, conventional laparoscopic surgeries have been performed with lower rates of open conversions and robotic surgery has been considered as an acceptable option for patients with narrow pelvis. This review article discusses TaTMEs from an East Asian perspective.

11. Systematic Review

Robotic synchronous treatment of colorectal cancer and liver metastasis: state of the art

Full-Text PDF

Copy here to cite this article: Sammarco A, de'Angelis N, Testini M, Memeo R. Robotic synchronous treatment of colorectal cancer and liver metastasis: state of the art. Mini-invasive Surg 2019;3:31. http://dx.doi.org/10.20517/2574-1225.2019.33

Abstract

Aim: To analyze the series in literature of pure robotic surgery.

Methods: A complete review of the literature was performed to identify papers with data concerning robotic synchronous treatment of colorectal liver metastases.

Results: Three papers demonstrate the feasibility of this kind of synchronous treatment.

Conclusion: Robotic synchronous treatment of primary tumor and colorectal liver metastasis is feasible and safe.

12. Review

Robotic total mesorectal excision: state of the art

Full-Text PDF

Copy here to cite this article: Sebastián-Tomás JC, Santarrufina-Martínez S, Navarro-Martínez S, Gonzálvez-Guardiola P, MartínezLópez E, Payá-Llorente C, García-Granero E, Martínez-Pérez A. Robotic total mesorectal excision: state of the art. Mini-invasive Surg 2019;3:30. http://dx.doi.org/10.20517/2574-1225.2019.29

Abstract

Minimally-invasive conventional up-to-down laparoscopic approach is a widespread alternative for rectal cancer resection. Its potential benefits towards open surgery have been shown to rely, however, at secondary clinical outcomes, and its oncological non-inferiority compared with the traditional open approach has not been demonstrated yet. In this scenario, robotic-assisted minimally-invasive rectal resection has gained increasing popularity and promising expectancies. This narrative review aims to assemble the most updated evidence available and to discuss the future perspectives and challenges for this emergent surgical tool. The main benefit over conventional laparoscopy appears to be a reduction of conversion rates to open surgery, whereas the oncologic and functional outcomes seem similar than the other alternatives. Increased costs are the main limitation of the widespread of robotic technology. Low quality of the current evidence is remarkable.

13. Editorial

Preface of the special issue on "A bespoke approach to rectal cancer resection and management"

Full-Text PDF

Copy here to cite this article: Buchanan GN. Preface of the special issue on "A bespoke approach to rectal cancer resection and management". Mini-invasive Surg 2019;3:8. http://dx.doi.org/10.20517/2574-1225.2019.24

14. Review

Transanal total mesorectal excision: current updates

Full-Text PDF

Copy here to cite this article: Yap R, Monson J. Transanal total mesorectal excision: current updates. Mini-invasive Surg 2019;3:3.
http://dx.doi.org/10.20517/2574-1225.2018.57

Abstract

Transanal total mesorectal excision (TaTME) is the latest in a long list of developments in the surgical treatment of low rectal cancer. This article describes the evolution of the technique, a brief summation of the technical procedure, the current literature into its results, and the possible future direction that it might take. It is the authors' opinion that TaTME will form another technique within the modern colorectal surgeon's armament.