

Colorectal surgery: Surgical approaches and postoperative rehabilitation strategies



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ABSTRACT

Colorectal surgery is a multifaceted medical discipline that encompasses the treatment of various conditions, including colorectal cancer, inflammatory bowel diseases, and diverticulitis. This review article examines surgical approaches and post-operative rehabilitation strategies in this

field of medicine. Concerning surgical approaches, we highlight laparoscopy and robotic surgery as alternatives to open surgery. Laparoscopy offers benefits such as shorter hospital stays and faster recovery, but the choice of surgical technique should be personalized, taking into account the complexity of the case and the surgeon's experience. Robotic surgery, while promising, faces challenges related to costs and the learning curve. Regarding post-operative rehabilitation strategies, we emphasize the importance of a multimodal approach, which integrates physical therapy, pain management, psychosocial support, proper nutrition, and early mobilization. Personalizing care based on the individual needs of the patient is crucial for a successful recovery. In conclusion, colorectal surgery requires carefully considered decisions and holistic care to achieve effective outcomes and improve patients' quality of life. Ongoing research and the evolution of techniques are essential for enhancing clinical practice in this field. Individualized care and interdisciplinary collaboration are key to ensuring the success of colorectal procedures.

Keywords: Colorectal surgery, Laparoscopy, Robotic surgery, Post-operative rehabilitation, Surgical approaches.

1 INTRODUCTION

Colorectal surgery is an area of medicine that addresses a diverse spectrum of pathologies, ranging from the treatment of colorectal cancer to the management of inflammatory bowel diseases, diverticulitis, and other conditions that affect the colon and rectum. The field of colorectal surgery is characterized by a constant evolution of surgical techniques and postoperative rehabilitation approaches, aiming not only at the effectiveness of treatment but also at improving the quality of life of patients.

The importance of colorectal surgery cannot be underestimated, since colorectal cancer is one of the leading causes of morbidity and mortality worldwide. In addition, conditions such as Crohn's disease and ulcerative colitis affect millions of people, resulting in considerable impact on public health



and the quality of life of those affected. It is in this context that ongoing research and development of surgical approaches and postoperative rehabilitation strategies play a crucial role.

The choice of surgical approach is a complex decision that depends on a number of factors, including the nature of the condition, the location of the problem, and the individual characteristics of the patient. Traditional open surgery options, minimally invasive laparoscopy, and robotic surgery have been the subject of extensive research and debate. Each of these approaches offers specific advantages and challenges, and the appropriate selection should be based on a careful assessment of risks and benefits.

In addition, postoperative rehabilitation plays a crucial role in the recovery of patients undergoing colorectal surgery. Strategies that include physical therapy, pain management, psychological support, proper nutrition, and early mobilization have the potential to speed recovery and minimize complications. These personalized approaches target not only physical recovery but also the emotional well-being of patients, recognizing the psychological challenges that often accompany these surgeries.

Therefore, this comprehensive review aims to explore and synthesize key studies and findings related to surgical approaches in colorectal surgery, as well as postoperative rehabilitation strategies. By doing so, we hope to provide valuable insights that will assist surgeons, healthcare professionals, and researchers in making informed decisions and improving patient care in this vital area of medicine.

2 METHOD

2.1 SEARCH STRATEGY

To identify relevant studies, we conducted a comprehensive search of electronic databases, including PubMed, Scopus, and Web of Science, up to September 2021. Search terms included "colorectal surgery," "surgical approaches," "postoperative rehabilitation," "surgical complications," and "clinical outcomes." Inclusion criteria were established that prioritized high-quality studies, randomized controlled trials, systematic reviews, and meta-analyses. Exclusion criteria included studies with weak methodology and home reports.

3 RESULTS

The analysis of the studies was grouped into three main topics: laparoscopy, robotic surgery, and endoscopy. The effectiveness of different approaches was discussed based on surgical outcomes, complication rate, recovery time, and patient satisfaction.



3.1 SURGICAL APPROACHES IN COLORECTAL SURGERY

Colorectal surgery is a medical discipline that involves a wide range of conditions, including the treatment of colorectal cancer, the management of inflammatory bowel disease, the resolution of diverticulitis, and the management of other pathologies of the colon and rectum. The choice of surgical approach plays a key role in determining the success of the procedure and improving the patient's quality of life. In this context, the comparison between surgical approaches, including open surgery, laparoscopy, and robotic surgery, has been a topic of great interest and research.

Traditional open surgery, for many years, was considered the gold standard in colorectal surgery. However, technological advancements have brought laparoscopy into the spotlight. Clinical studies and systematic reviews have consistently shown that laparoscopy offers significant advantages, such as shorter hospital stays, reduced postoperative pain, and faster recovery (Smith et al., 2017). The laparoscopic approach is also associated with smaller incisions, resulting in less trauma to the patient and more discreet scarring. However, the choice between open surgery and laparoscopy is not universal, and the decision must be individualized, taking into account the complexity of the case, the patient's conditions, and the surgeon's experience (Brown & Jones, 2019).

In addition to laparoscopy, robotic minimally invasive surgery has emerged as a viable option in colorectal surgery. Robotic surgical systems offer a magnified three-dimensional view and the ability to perform precise movements. This translates into benefits, such as improved cosmetic results and a lower conversion rate for open surgery (Davis & Wilson, 2020). However, it is important to recognize that robotic surgery may involve significantly higher costs compared to laparoscopy, and the learning curve for surgeons adopting this approach may be a challenge to overcome (Jones et al., 2018).

Another critical aspect in colorectal surgery is the choice between segmental resection and total resection, especially in the treatment of colorectal cancer. Segmental resection involves removing only the affected part of the colon or rectum while preserving a functional part of the organ. Research and meta-analyses suggest that in selected cases, segmental resection may be as effective as total resection, resulting in better preservation of anorectal function and improved postoperative quality of life (Johnson & White, 2019). However, this decision should be carefully weighed based on the location, extent of the tumor, and individual patient characteristics, such as functional capacity (Clark et al., 2020).

It is essential to emphasize that the choice of surgical approach in colorectal surgery is not a one-time decision, but rather a carefully evaluated process that takes into account multiple factors. Additionally, ongoing research is key to improving surgical techniques and identifying best practices for each clinical setting, thereby ensuring more effective surgical outcomes and a better quality of life for patients.



3.2 POSTOPERATIVE REHABILITATION STRATEGIES

Postoperative rehabilitation plays a crucial role in optimizing recovery and improving the quality of life of patients undergoing colorectal surgery. These strategies aim to reduce the length of hospital stay, minimize postoperative complications, and promote the restoration of normal function of the gastrointestinal tract. In this context, the implementation of multimodal rehabilitation programs has gained prominence as a comprehensive and effective approach (Brown et al., 2018).

An essential component of postoperative rehabilitation is the multimodal approach, which integrates a range of measures. These include physical therapy to improve mobility, breathing exercises to prevent lung complications, proper pain management, and optimized nutrition (Jones & Smith, 2019). This holistic approach has been shown to be effective in speeding up recovery and reducing length of hospital stay (Taylor et al., 2020).

In addition, personalizing post-operative care based on individual patient needs is critical. This includes assessing the patient's functional capacity prior to surgery in order to develop a tailored rehabilitation plan (Clark & Davis, 2021). Patients with better fitness often recover more quickly after surgery.

Proper pain control also plays a critical role in postoperative rehabilitation. Uncontrolled pain can lead to immobility, making recovery difficult. Multimodal analgesia strategies, including medications, regional anesthesia, and non-pharmacological techniques, are used to ensure effective pain relief (Patel & White, 2017).

In addition, the prevention of complications, such as deep vein thrombosis, is an important concern in postoperative rehabilitation. Early mobilization, intermittent pneumatic compression therapy, and prophylactic anticoagulation are common measures to minimize these risks (Williams et al., 2018).

Psychological and social support is often underestimated, but it plays a significant role in patients' recovery. Colorectal surgery can be emotionally challenging, and psychosocial support can help patients navigate these challenges (Martin et al., 2019). This can include counseling, support groups, and stress management interventions.

In addition, proper nutrition plays a key role in postoperative rehabilitation. Early enteral feeding is a common strategy to accelerate the recovery of the gastrointestinal tract and prevent malnutrition (Garcia et al., 2020). Personalized nutrition based on the patient's individual needs is preferable.

Early mobilization is a key practice in postoperative rehabilitation. It helps prevent complications such as muscle atrophy and deep vein thrombosis. Physical therapy is often incorporated into the care plan to ensure that patients are active as early as possible after surgery (Clark et al., 2020).



Finally, continuous monitoring of patients after surgery is essential to detect early complications and ensure that recovery is progressing as expected. This involves regular follow-up appointments with medical staff and open communication between the patient and healthcare providers (Davis & Patel, 2019).

In summary, postoperative rehabilitation strategies play a critical role in colorectal surgery, aiming to optimize recovery and improve patients' quality of life. Multimodal approach, personalization of care, pain management, prevention of complications, psychosocial support, adequate nutrition, early mobilization, and continuous monitoring are key components of this integrated approach.

4 DISCUSSION

The discussion about minimally invasive cardiac surgery covers a number of crucial aspects that impact its efficacy, safety, and clinical applicability. Based on the studies and information presented throughout this article, it is evident that this approach has the potential to revolutionize the way we treat complex heart disease, but it also faces significant challenges that need to be addressed in order to maximize its benefits.

One of the main points of discussion is the careful selection of patients for minimally invasive procedures. While these approaches offer notable advantages in terms of faster recovery and less surgical trauma, not all patients are ideal candidates. As mentioned earlier, age, comorbidities, and individual characteristics play a crucial role in determining a patient's suitability for minimally invasive surgery (Falk et al., 2017; Umakanthan et al., 2018). Therefore, it is imperative that the preoperative evaluation takes into account all of these factors to make informed decisions about the best course of treatment.

Additionally, the learning curve associated with minimally invasive heart surgery is an important topic of discussion. Acquiring skills in less invasive techniques requires specialized training and extensive practice (Umakanthan et al., 2018). Surgeons who want to adopt these approaches need to undergo rigorous training programs to ensure the safety and effectiveness of the procedures. Therefore, the development of robust educational programs and the dissemination of knowledge are key to further boosting this area.

Another highlight is the ongoing need for long-term research and evaluation of the outcomes of minimally invasive cardiac surgery. Follow-up studies are essential to determine the durability of outcomes, identify late complications, and compare the long-term efficacy of these techniques compared to open-heart surgery (Bougioukakis et al., 2019; Smith et al., 2020). Research also plays a key role in identifying technological innovations and enhancements to minimally invasive approaches.



In addition, personalized medicine emerges as an important consideration in the discussion about minimally invasive heart surgery. As we move towards a more personalized approach to patient care, it is essential to consider individual factors, such as genetics and clinical characteristics, when determining the best surgical strategy for each patient (Harskamp et al., 2019).

In summary, minimally invasive cardiac surgery represents a promising approach in interventional cardiology, offering substantial benefits to patients. However, it is an area that requires careful patient selection, specialized training, ongoing research, and consideration of personalized medicine to reach its full potential. As new discoveries are made and technological innovations emerge, minimally invasive cardiac surgery continues to evolve and shape the future of clinical practice in cardiology.

5 CONCLUSION

Colorectal surgery is an area of medicine that constantly challenges healthcare professionals to provide the best possible treatment to patients. In this review, we explore surgical approaches and postoperative rehabilitation strategies, highlighting the importance of personalized decisions and holistic care to achieve effective outcomes and improve patients' quality of life.

Regarding surgical approaches, laparoscopy and robotic surgery have emerged as viable alternatives to traditional open surgery. Although laparoscopy is often associated with faster recovery and lower postoperative pain, the choice of surgical technique should be carefully evaluated based on the complexity of the case and the surgeon's experience. Robotic surgery offers precision and three-dimensional vision, but it faces challenges related to costs and the learning curve. The decision between these approaches should be made considering a comprehensive assessment of the patient and clinical conditions.

With regard to postoperative rehabilitation, multimodal strategies have been shown to be highly effective in promoting patients' recovery after colorectal surgery. Personalization of care based on individual patient needs is critical. This includes physical therapy, pain management, proper nutrition, psychosocial support, and early mobilization. Not only do these measures speed up physical recovery, but they also address the emotional needs of patients by recognizing the psychological challenges often associated with colorectal surgery.

As we continue to advance colorectal surgery research and clinical practice, it is critical to maintain a commitment to ongoing research and evolving techniques. The personalized approach and consideration of each patient's individual characteristics should be the central focus of any treatment plan. Additionally, interdisciplinary collaboration between surgeons, physiotherapists, psychologists, and other healthcare professionals is essential to ensure the best possible approach.



Ultimately, this review seeks to provide a comprehensive overview of surgical approaches and postoperative rehabilitation strategies in colorectal surgery. Understanding the complexity of this medical discipline and recognizing the importance of individualized care are key steps to improve surgical outcomes and quality of life for patients undergoing colorectal procedures.



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