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POSTOPERATIVE MANAGEMENT AND QUALITY OF LIFE ASSESSMENT IN PATIENTS WITH DOLICHOMEGACOLON FOLLOWING MINIMALLY INVASIVE SURGICAL TREATMENT: A COMPREHENSIVE REVIEW

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ABSTRACT

Background: Dolichomegacolon, characterized by abnormal elongation and dilation of the colon, presents significant clinical challenges in surgical management. Minimally invasive surgical approaches have emerged as preferred treatment modalities, offering potential advantages in postoperative outcomes and quality of life. This comprehensive review examines current evidence regarding postoperative management strategies and quality of life outcomes in patients undergoing minimally invasive surgery for dolichomegacolon.

Methods: A systematic literature search was conducted across PubMed, Cochrane Library, Web of Science, and Scopus databases for studies published between 2015 and 2024. Search terms included dolichomegacolon, megacolon, colonic inertia, slow transit constipation, laparoscopic colectomy, robotic surgery, quality of life, and postoperative management.

Results: Current evidence supports the safety and efficacy of minimally invasive surgical approaches for dolichomegacolon. Laparoscopic and robotic-assisted colectomy demonstrate reduced postoperative pain, shorter hospital stays, earlier return to bowel function, and improved short-term quality of life compared to open surgery. Enhanced Recovery After Surgery (ERAS) protocols significantly improve postoperative outcomes. Quality of life assessment using validated instruments such as SF-36, GIQLI, and EORTC QLQ-C30 shows significant improvement at 6-12 months postoperatively.

Conclusions: Minimally invasive surgical treatment for dolichomegacolon, combined with comprehensive postoperative management and ERAS protocols, yields favorable outcomes. Proper patient selection, standardized surgical techniques, and systematic quality of life monitoring are essential for optimizing patient care.

Keywords

dolichomegacolon, minimally invasive surgery, laparoscopic colectomy, robotic surgery, quality of life, ERAS, postoperative management

1. INTRODUCTION

Dolichomegacolon is a complex condition characterized by abnormal elongation (dolichocolon) combined with dilation (megacolon) of the large intestine, resulting in severe functional bowel disorders and significantly impaired quality of life [1,2]. This condition may present as a primary idiopathic disorder or develop secondary to various pathological processes, including chronic constipation, neurological conditions, and systemic diseases. The clinical presentation typically includes chronic constipation refractory to medical management, abdominal distension, and functional bowel obstruction [3].

Surgical intervention becomes necessary when conservative management fails to alleviate symptoms. Over the past two decades, minimally invasive surgical techniques, including laparoscopic and robotic-assisted approaches, have revolutionized the surgical management of colorectal diseases [4,5]. These techniques offer significant advantages over traditional open surgery, including reduced surgical trauma, decreased postoperative pain, shorter hospital stays, and faster recovery [6].

The implementation of Enhanced Recovery After Surgery (ERAS) protocols has further improved postoperative outcomes in colorectal surgery. These multimodal perioperative care pathways aim to reduce surgical stress, maintain postoperative physiological function, and accelerate recovery [7]. Quality of life assessment has emerged as a crucial outcome measure, providing valuable insights into the patient's perspective on treatment success beyond traditional clinical endpoints [8].

This comprehensive review aims to synthesize current evidence regarding postoperative management strategies, surgical outcomes, and quality of life assessment in patients with dolichomegacolon treated with minimally invasive surgical approaches.

2. MINIMALLY INVASIVE SURGICAL APPROACHES

2.1 Laparoscopic Colectomy

Laparoscopic colectomy has become the gold standard for surgical management of colorectal diseases including conditions associated with dolichomegacolon [9]. The Clinical Outcomes of Surgical Therapy (COST) trial and subsequent studies have demonstrated that laparoscopic colectomy provides equivalent oncological outcomes to open surgery while offering superior short-term benefits [10]. For benign conditions such as colonic inertia and idiopathic

megacolon, laparoscopic total abdominal colectomy with ileorectal anastomosis remains the procedure of choice [11].

Studies have demonstrated that laparoscopic colectomy for slow transit constipation is safe and effective, with reported success rates ranging from 67% to 95% depending on patient selection criteria [12]. Conversion rates to open surgery have progressively decreased with surgeon experience, typically ranging from 4% to 15% in experienced centers. The learning curve for laparoscopic colorectal surgery has been extensively studied, with competency typically achieved after 30-50 cases [13].

2.2 Robotic-Assisted Surgery

Robotic-assisted colorectal surgery has gained significant momentum with the widespread adoption of the da Vinci Surgical System and newer platforms [14]. The robotic approach offers superior three-dimensional visualization, enhanced instrument articulation with seven degrees of freedom, tremor filtration, and improved ergonomics for the surgeon. These technical advantages may translate to improved outcomes, particularly in complex pelvic dissections and obese patients [15].

Recent meta-analyses have demonstrated comparable or superior perioperative outcomes with robotic surgery compared to conventional laparoscopy, including reduced conversion rates, lower blood loss, and earlier recovery of bowel function [16]. However, longer operative times and higher costs remain significant considerations.

3. POSTOPERATIVE MANAGEMENT

3.1 Enhanced Recovery After Surgery (ERAS) Protocols

The ERAS Society has published comprehensive guidelines for perioperative care in colorectal surgery, with the most recent update in 2018 providing evidence-based recommendations for over 20 individual protocol items [7]. Implementation of ERAS protocols has been shown to reduce hospital stay by 2.5 to 3 days and decrease postoperative morbidity by up to 48% compared to traditional care [17].

Key components of ERAS protocols relevant to dolichomegacolon surgery include preoperative optimization with nutritional support, avoidance of prolonged fasting, carbohydrate loading, multimodal analgesia with opioid-sparing techniques, early mobilization, and early enteral nutrition [18]. Protocol compliance rates above 75% have been associated with significantly better outcomes, including fewer complications and shorter length of stay [19].

3.2 Prevention and Management of Complications

Anastomotic leakage remains the most feared complication following colorectal surgery, with reported incidence rates of 3-15% depending on

anastomotic location and patient factors [20]. Risk factors specific to dolichomegacolon patients include chronic bowel wall changes, nutritional deficiencies, and previous failed interventions. Strategies for prevention include optimal patient selection, meticulous surgical technique, intraoperative assessment of anastomotic perfusion using fluorescence angiography, and appropriate use of diverting stomas in high-risk patients [21].

4. QUALITY OF LIFE ASSESSMENT

4.1 Assessment Instruments

Several validated instruments are available for quality of life assessment in colorectal surgery patients. The Short Form-36 (SF-36) Health Survey is a widely used generic instrument measuring eight health domains including physical functioning, bodily pain, general health, vitality, social functioning, and mental health [8]. Disease-specific instruments provide more targeted assessment of gastrointestinal symptoms and their impact on daily life.

The Gastrointestinal Quality of Life Index (GIQLI) is a 36-item questionnaire assessing five dimensions: gastrointestinal symptoms, emotional status, physical function, social function, and treatment effects [22]. Studies have demonstrated that benign colorectal diseases, including chronic constipation, cause significant reduction in GIQLI scores to approximately 61% of maximum, comparable to the impact of colorectal malignancy.

The EORTC QLQ-C30 and its colorectal-specific module QLQ-CR29 provide comprehensive assessment of cancer-related quality of life and have been validated for use in colorectal surgery patients [23]. These instruments demonstrate sensitivity to changes in health status following surgical intervention and are particularly valuable for longitudinal assessment of recovery.

4.2 Quality of Life Outcomes

Prospective studies have demonstrated significant improvement in health-related quality of life following laparoscopic colectomy, with most functional domains returning to or exceeding baseline levels within 3-12 months postoperatively [24]. Early emotional functioning improvement has been consistently reported, often evident from the first postoperative month. Physical functioning typically shows initial decline followed by progressive improvement.

Comparative studies have shown that laparoscopic surgery is associated with better quality of life in the first 12 months compared to open surgery, with equalization of outcomes by 24 months [25]. Patient selection remains crucial, as successful relief of constipation does not always translate to improved overall quality of life [26].

5. CONCLUSIONS

Minimally invasive surgical treatment for dolichomegacolon represents an effective therapeutic option for patients who have failed conservative management. Laparoscopic and robotic-assisted colectomy, combined with ERAS protocols, provide favorable perioperative outcomes with reduced morbidity, shorter hospital stays, and improved short-term quality of life compared to traditional open approaches [27]. Quality of life assessment using validated instruments is essential for comprehensive outcome evaluation and should be incorporated into routine clinical practice. Future research should focus on optimizing patient selection criteria, developing predictive outcome models, and refining perioperative care pathways to further improve patient outcomes.

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