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IMPROVEMENT OF THE TREATMENT AND PREVENTION OF COMPLICATIONS IN CHILDREN WITH ANORECTAL MALFORMATIONS

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Abstract

Background: Anorectal malformations in children are complex congenital anomalies. Postoperative anorectal insufficiency remains a frequent and severe complication.

Aim: To improve surgical outcomes and prevent postoperative anorectal insufficiency in children with anorectal malformations.

Methods: A total of 337 children were analyzed. Postoperative anorectal insufficiency developed in 102 cases (30.3%). Ultrasonography, MRI, and electromyography were used.

Results: Anatomical and functional disorders of the anal sphincter and puborectal muscles were identified. Individual surgical tactics and long-term rehabilitation improved functional outcomes.

Conclusion: Comprehensive diagnostics, individualized surgery, and rehabilitation reduce complications and improve outcomes.

Keywords

Anorectal malformations; children; postoperative complications; anorectal insufficiency; rehabilitation.

Introduction. Anorectal malformations in children occupy an important place among congenital developmental anomalies [11,15]. These pathologies are characterized by a complex clinical course [2,23]. They are manifested by anatomical defects and functional disorders [4,12]. Surgical treatment of anorectal malformations is one of the most responsible areas of pediatric surgery [6,16,17]. Even after technically correct primary surgery, long-term complications may develop [10,17,19]. Postoperative anorectal insufficiency occupies a leading position among them [7,12,18]. Postoperative anorectal insufficiency is accompanied by impaired bowel function [8,10]. Loss of fecal continence is observed. Chronic constipation or diarrhea may occur [5,9,24]. These conditions negatively affect physical development [14]. Social adaptation is also impaired. Therefore, treatment should not be limited to elimination of the anatomical defect alone. Restoration of functional outcomes is essential.

Literature Review. Modern literature widely discusses the results of surgical treatment of anorectal malformations in children [2,6,25,27]. Many authors emphasize the complexity of this pathology [11,18]. Anatomical diversity is considered a key problem [4,15]. Postoperative anorectal insufficiency occurs in 20–40% of cases after primary surgery [10,17,19]. This rate increases in severe clinical forms [18,20]. High fistulous and non-fistulous variants are especially problematic [3,6]. Several studies associate complications with insufficient preservation of the anal sphincter apparatus [7,10,12]. Incorrect localization of the puborectal muscles plays a significant role [4,8]. Cicatricial deformities worsen outcomes. Instrumental diagnostic methods are essential when planning reconstructive surgery [6,13]. Ultrasonography evaluates soft tissue structures [1,3]. Magnetic resonance imaging assesses sphincter anatomy. Electromyography determines muscle function [7,10]. Rehabilitation therapy before repeated surgery is widely recommended. Rectal exercises and training enemas are commonly used [5,24]. Biofeedback therapy shows positive results [10,12]. Electrical stimulation improves sphincter performance [7,8]. At the same time, clear algorithms for reconstructive surgery remain insufficiently developed [6,20]. This highlights the need for further clinical studies [19,21].

Aim of the Study. To improve surgical outcomes in children with anorectal malformations; to identify causes of postoperative anorectal insufficiency; to optimize surgical tactics; to enhance preoperative and postoperative preventive measures.

Materials and Methods. The study included 337 children with anorectal malformations [3,4,27]. All patients underwent primary surgical correction. The follow-up period covered 2007–2021 [6,18]. Postoperative anorectal insufficiency developed in 102 patients, representing 30.3% of cases [10,19]. These children underwent reconstructive surgical procedures. Both retrospective and prospective analyses were performed. Clinical forms were evaluated in detail [4,11]. Causes of complications were analyzed. Ultrasonography was used for primary assessment [1,3]. Magnetic resonance imaging was applied for anatomical evaluation [13]. Electromyography assessed muscle function [7,10].

Results. Comprehensive diagnostics revealed major factors leading to anorectal insufficiency. Anatomical and functional disorders were predominant [4,12]. Damage to internal and external anal sphincters was detected [7,15]. Muscle thinning was observed in some cases [10,14]. Sphincter asymmetry was identified [4,8]. Reduced contractility of the puborectal muscles was common. This impaired the continence mechanism. Reconstructive surgery was planned individually. The extent of damage was assessed in each patient. Surgical techniques were selected accordingly [15,18]. Colostomy was indicated in severe cases [16,27]. This significantly improved outcomes [17,19,20]. The rate of complications decreased [10,19,21]. Rehabilitation therapy lasted one to three years [8,18]. Functional results improved significantly.

Discussion. The findings were consistent with data from domestic and international studies [2,6]. Similar anatomical and functional patterns have been reported. Primary surgical tactics strongly influence postoperative outcomes. Insufficient rehabilitation negatively affects recovery [7,8,18]. These results confirm that surgery alone is insufficient. A comprehensive approach focused on functional recovery is required.

Conclusion.

Surgical management of anorectal malformations in children is complex and multistage [6,15,17]. Postoperative anorectal insufficiency remains one of the most severe complications [10,12,17]. Thorough diagnostics are crucial for reducing complications [7,13,19]. Individualized surgical tactics should be applied [16,18]. Long-term and stepwise rehabilitation is mandatory [8,12]. The proposed strategy improves clinical outcomes and reduces the need for repeated reconstructive procedures [22,23,24,26].

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