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POSTOPERATIVE ABDOMINAL ADHESIVE DISEASE IN CHILDREN: CLINICAL EXPERIENCE

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Abstract

To evaluate the clinical effectiveness of diagnostic approaches and treatment strategies for postoperative abdominal adhesive disease in children. The study included 231 pediatric patients aged from 3 months to 18 years with postoperative intra-abdominal adhesive complications treated between 2018 and 2023. All patients underwent comprehensive clinical assessment and abdominal ultrasound examination. Additional instrumental diagnostic methods were applied when ultrasound findings were inconclusive. Conservative treatment was performed in 133 (57.6%) patients. Laparoscopic adhesiolysis was carried out in 29 (12.5%) cases; conversion to open surgery was required in 8 patients (27.6% of laparoscopic procedures) due to extensive adhesive processes and high risk of organ injury. During long-term follow-up, 98 (42.4%) patients developed acute adhesive intestinal obstruction requiring emergency surgical intervention. Treatment strategy for postoperative adhesive disease in children should be based on clinical presentation, medical history, and ultrasound findings. Conservative management may be effective in mild cases; however, laparoscopic adhesiolysis represents the optimal treatment option in severe forms. The high recurrence rate observed during long-term follow-up highlights the need for continuous monitoring of pediatric patients with abdominal adhesive disease.

Keywords

pediatric surgery, abdominal adhesive disease, adhesive intestinal obstruction, laparoscopic adhesiolysis.

Introduction

Abdominal adhesion disease is considered one of the most pressing problems in pediatric surgery. The development of adhesions after abdominal surgical interventions may lead to severe complications such as pain syndrome, digestive disorders, and adhesive intestinal obstruction [2,12]. According to the literature, adhesions form in 60–90% of cases after abdominal surgical procedures, and 10–30% of them are manifested by clinically significant complications [14,15]. In recent years, attention has also been drawn to the role of intrauterine and early postnatal inflammatory processes in the formation of adhesive pathology, including meconium peritonitis and congenital gastrointestinal anomalies [1,3,7,9].

These conditions may predispose children to a more severe and recurrent course of adhesive disease later in life [11]. In children, the clinical course of adhesion disease, its tendency to recur, and treatment tactics differ from those in adults [6]. The effectiveness of conservative treatment methods is limited, while surgical adhesiolysis is associated with a risk of recurrent adhesion formation [4]. Therefore, the development of optimal diagnostic and treatment algorithms, the introduction of laparoscopic technologies, and long-term follow-up of patients remain highly relevant [10,16].

Materials and methods

The study was conducted as a retrospective, single-center clinical cohort study. It included 231 patients treated at the clinic between 2018 and 2023 who developed adhesive complications

after surgical interventions on the abdominal organs [5,11]. Special attention was paid to patients with a history of congenital intestinal anomalies, fixation and elongation disorders, and early surgical interventions [9,11]. All patients with abdominal pain syndrome that developed after surgical interventions underwent general clinical examinations along with abdominal ultrasonography [13]. The diagnostic value of ultrasonography in combination with other imaging techniques has been emphasized in recent publications [8]. In diagnostically challenging cases, additional instrumental and laboratory examinations were performed, including abdominal radiography, gastrointestinal contrast passage, irrigography, FEGDS, urography, and computed tomography [8].

Results

Among the 231 patients under observation, 133 (57.6%) received conservative treatment. Planned laparoscopic adhesiolysis was performed in 29 (12.5%) cases [10]. In 8 (27.6%) patients, conversion was required due to pronounced diffuse adhesive process and a high risk of injury to internal organs [4]. It should be noted that the severity of the adhesive process was often higher in patients with repeated hospitalizations and a history of multiple abdominal surgeries [18]. Concomitant conditions, including anemia and metabolic disorders, were also identified as factors potentially affecting postoperative recovery [17]. According to the results of long-term follow-up, clinical symptoms did not completely regress after conservative treatment in 133 (57.6%) patients. Of these, 98 (42.4%) developed acute adhesive intestinal obstruction at various time points and required emergency surgical intervention [19,20].

Discussion

Abdominal adhesion disease is one of the most common and clinically significant postoperative complications in children [6]. As reported in the literature, adhesions form in 60–90% of cases after surgical interventions; however, not all of them are clinically manifested [2]. Only 10–30% of patients develop pain syndrome, digestive disorders, or adhesive intestinal obstruction [12]. Several authors emphasize that children with congenital intestinal pathology and early surgical correction represent a particularly high-risk group for recurrent adhesive disease [9,11]. Moreover, the cumulative effect of repeated surgical trauma significantly increases the likelihood of diffuse adhesions and intestinal obstruction [19,21,22]. Laparoscopic adhesiolysis, as a minimally invasive method, allows reduction of pain syndrome and shortening of the rehabilitation period [10]. However, in cases of extensive adhesions, open surgery or conversion remains unavoidable [4]. Postoperative rehabilitation and preventive strategies play a key role in reducing recurrence rates [23]. Ultrasonography remains the primary screening method for diagnosing adhesion disease due to its non-invasiveness and feasibility for dynamic monitoring [13]. Nevertheless, imaging findings do not always correlate with clinical symptoms, which necessitates a comprehensive diagnostic approach [8].

Scientific novelty

This study is one of the large retrospective cohort investigations evaluating long-term clinical outcomes of individualized treatment tactics based on ultrasonographic data and comprehensive clinical assessment in postoperative abdominal adhesion disease in children [5,13,22].

Conclusion

In postoperative abdominal adhesion disease in children, treatment tactics should be selected with consideration of clinical manifestations, medical history, ultrasonographic findings, and the presence of congenital or metabolic comorbidities [6,17]. Although conservative treatment is effective in mild to moderate clinical cases, laparoscopic adhesiolysis is considered the optimal method in severe cases [10]. Long-term follow-up data indicate a high risk of recurrence of

abdominal adhesion disease in children, emphasizing the need for continuous monitoring, rehabilitation, and preventive measures [2,14,23].

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