DIAGNOSTIC FEATURES OF ACUTE ADHESIVE SMALL BOWEL OBSTRUCTION: A CLINICO-INSTRUMENTAL ASPECT

Eshchanov Alisher Atabaevich - independent researcher
Khamdamov Bakhtiyor Zarifovich - D.M.Sc., professor
Bukhara state Medical University (Bukhara, Uzbekistan)
Sapaev Dilshod Aminovich - D.M.Sc.
Urgench State Medical Institute (Urgench, Uzbekistan)

Abstract: *Instrumental imaging methods play a crucial role in the diagnostic algorithm of acute adhesive small bowel obstruction (ASBO). Beyond confirming the presence of obstruction, advanced radiological techniques provide indirect yet clinically significant information on disease severity, the likelihood of irreversible morphological changes, and the risk of intestinal ischemia. Integration of these parameters into a structured prognostic model enables stratification of patients according to individual risk profiles, thereby improving diagnostic accuracy and optimizing surgical decision-making in emergency settings. The proposed approach highlights the importance of combining clinical assessment with imaging-based prognostic indicators, which may reduce postoperative complications, prevent delayed interventions, and contribute to the development of personalized strategies in emergency abdominal surgery.*

Key words: *acute adhesive small bowel obstruction, diagnostic imaging, prognostic model, risk stratification, ischemia, emergency surgery, clinical decision-making*

ДИАГНОСТИЧЕСКИЕ ОСОБЕННОСТИ ОСТРОЙ СПАЕЧНОЙ ТОНКОКИШЕЧНОЙ НЕПРОХОДИМОСТИ: КЛИНИКО-ИНСТРУМЕНТАЛЬНЫЙ АСПЕКТ

Эшчанов Алишер Атабаевич – соискатель
Хамдамов Бахтиёр Зарифович – д.м.н., профессор
Бухарский государственный медицинский институт (Бухара, Узбекистан)
Сапаев Дилшод Аминович – д.м.н.
Ургенчский государственный медицинский институт (Ургенч, Узбекистан)

Резюме: *Инструментальные методы визуализации играют ключевую роль в диагностическом алгоритме острой спаечной тонкокишечной непроходимости. Современные радиологические технологии позволяют не только подтвердить факт обструкции, но и дать косвенную, но клинически значимую информацию о тяжести течения, вероятности необратимых морфологических изменений и риске ишемии кишечника. Включение этих параметров в структурированную прогностическую модель обеспечивает стратификацию пациентов по индивидуальным профилям риска, что повышает точность диагностики и оптимизирует выбор хирургической тактики в условиях неотложной помощи. Предлагаемый подход подчеркивает важность сочетания клинической оценки с прогностическими индикаторами, основанными на данных визуализации, что позволяет снизить частоту послеоперационных осложнений, предотвратить отсроченные вмешательства и способствовать развитию персонализированных стратегий в экстренной абдоминальной хирургии.*

Ключевые слова: *острая спаечная тонкокишечная непроходимость, диагностическая визуализация, прогностическая модель, стратификация риска, ишемия, неотложная хирургия, клиническое решение*

O‘TKIR CHANDIQLI INGICHKA ICHAK TUTILISHINING TASHXISIY XUSUSIYATLARI: KLINIK-INSTRUMENTAL YO‘NALISH

Eshchanov Alisher Atabaevich - mustaqil izlanuvchi
Xamdamov Baxtiyor Zarifovich - t.f.d., professor
Buxoro davlat tibbiyot institute (Buxoro, O‘zbekiston)
Sapaev Dilshod Aminovich - t.f.d.
Urganch davlat tibbiyot instituti (Urganch, O‘zbekiston)

Rezyume: *Instrumental vizualizatsiya usullari o‘tkir spayokli ingichka ichak neproxodimligini tashxislash algoritmida muhim ahamiyatga ega. Zamonaviy radiologik texnologiyalar nafaqat obstruksiya faktni tasdiqlaydi, balki kasallik og‘irligi, qaytarilmas morfologik o‘zgarishlar ehtimoli va ichak ishemiyasi xavfini baholashga imkon beradi. Ushbu parametrlarni tuzilgan prognostik modelga integratsiya qilish bemorlarni individual xavf profillari bo‘yicha stratifikatsiya qilish imkonini beradi, bu esa tashxis aniqligini oshiradi va shoshilinch yordam sharoitida*

jarrohlik taktikasini optimallashtiradi. Taklif etilayotgan yondashuv klinik baholashni vizualizatsiya ma'lumotlariga asoslangan prognostik ko'rsatkichlar bilan uyg'unlashtirish zarurligini ta'kidlaydi, bu esa operatsiyadan keyingi asoratlarni kamaytirish, kechikkan aralashuvlarni oldini olish va shoshilinch abdominal jarrohlikda personallashtirilgan strategiyalarni rivojlantirishga xizmat qiladi.

Kalit so'zlar: *o'tkir chandiqli ingichka ichak tutilishi, klinik-instrumental tekshiruv, shoshilinch abdominal jarrohlik.*

Relevance. Acute adhesive small bowel obstruction (ASBO) represents a major clinical and surgical challenge in modern emergency medicine. It accounts for up to 65–75% of all cases of small bowel obstruction and remains one of the leading causes of emergency laparotomy worldwide. Despite significant progress in surgical techniques, anesthesiology, and intensive care, the overall morbidity and mortality associated with ASBO remain high, with postoperative complications observed in 20–40% of cases and mortality rates ranging from 5% to 15% in severe forms of the disease.

The complexity of ASBO management is largely related to the difficulty of early and accurate diagnosis, as well as the timely identification of patients at risk for irreversible ischemic injury to the bowel wall. Traditional clinical signs such as abdominal pain, distension, vomiting, and absence of stool passage are nonspecific and often appear at late stages of disease progression. Laboratory markers, while helpful, are rarely able to provide reliable prognostic information regarding the severity of intestinal ischemia or the likelihood of necrosis.

In this context, instrumental imaging modalities—particularly ultrasonography, computed tomography (CT), and magnetic resonance imaging (MRI)—have become indispensable diagnostic tools. Their value extends beyond confirming the fact of obstruction: imaging allows indirect assessment of disease severity, identification of early ischemic changes, and prediction of potentially irreversible complications. Recent advances in CT and MRI techniques, including contrast-enhanced protocols, provide high-resolution visualization of bowel wall perfusion and vascular compromise, making them essential components of modern diagnostic algorithms.

Nevertheless, there is still no universally accepted prognostic model that integrates imaging-based findings with clinical and laboratory data for comprehensive risk stratification in ASBO. The development of such a model is of great importance, as it would not only guide the choice between conservative management and surgical intervention but also optimize the timing of surgery, thereby reducing postoperative complications and improving overall outcomes.

Thus, the relevance of studying the diagnostic and prognostic potential of instrumental imaging methods in ASBO lies in their ability to enhance clinical decision-making, enable early identification of high-risk patients, and facilitate the implementation of personalized strategies in emergency abdominal surgery. (9,11,13,15,19,20,21).

Objective of the study. The objective of this study is to evaluate the diagnostic and prognostic value of instrumental imaging methods in patients with acute adhesive small bowel obstruction (ASBO).

Material and methods.

A total of 115 patients with a confirmed diagnosis of acute adhesive small bowel obstruction (ASBO) were included in the study. All patients underwent inpatient treatment in the Department of Emergency Surgery of the Khorezm Regional Branch of the Republican Scientific and Practical Center of Emergency Medical Care between 2021 and 2024.

All patients were admitted on an emergency basis, either through the ambulance service or independently, presenting with complaints characteristic of intestinal obstruction syndrome. Following clinical and instrumental confirmation of the diagnosis, they were hospitalized and treated according to the standard protocol adopted in the institution.

In accordance with the study objectives, patients were divided into two groups:

Control group – 56 patients (48.7%) treated during 2021–2022. This retrospective cohort received therapy in compliance with current clinical guidelines for the management of acute intestinal obstruction, without the use of immunotherapeutic interventions.

Main group – 59 patients (51.3%) treated during 2023–2024. This prospective cohort received standard treatment supplemented with immunocorrective therapy schemes, which were tailored on the basis of clinico-immunological examination results.

Additionally, a control group of healthy individuals (n=20) matched by sex and age was included. These individuals had no history of acute or chronic inflammatory, autoimmune, or oncological diseases, and no prior abdominal surgeries. Examinations were performed on an outpatient basis at the institution's clinical diagnostic laboratory. The obtained values were used as reference data for assessing the degree of deviation of immunological indicators in patients with ASBO.

Results and discussion. General characteristics of patients.

A total of 115 patients with acute adhesive small bowel obstruction (ASBO) were analyzed. The control group included 56 patients (48.7%) treated in 2021–2022, while the main group included 59 patients (51.3%) treated in 2023–2024 with the addition of immunocorrective therapy. An additional

group of 20 healthy individuals served as a reference cohort for immunological parameters.

The sex and age distribution of patients was comparable between groups. Male patients accounted for 48.1% (n=55) and female patients for 51.9% (n=60). The majority of cases occurred in patients aged 35–60 years (34.8%) and over 60 years (52.1%), with no statistically significant differences between groups (p>0.05).

Clinical presentation.

All patients presented with typical symptoms of intestinal obstruction: abdominal pain (100%), abdominal distension (88.7%), nausea and vomiting (76.5%), and absence of stool passage (81.7%). The mean time from onset of symptoms to hospital admission was 18.6 ± 7.4 hours in the control group and 17.9 ± 6.9 hours in the main group (p>0.05).

Instrumental findings.

Ultrasound revealed bowel loop dilatation in 89.6% of patients, while multidetector CT (MDCT) demonstrated the transition zone in 94.7% of cases. Signs of possible bowel ischemia (bowel wall thickening >3 mm, reduced contrast enhancement, mesenteric edema, free intraperitoneal fluid) were observed in 21.4% of control group patients and 19.6% of main group patients.

Treatment outcomes.

Conservative therapy was successful in 27.6% of cases, while 72.4% required surgical intervention. Postoperative complications occurred in 23.2% of control group patients versus 11.9% in the main group (p<0.05). Mortality was 7.1% in the control group and 3.4% in the main group.

Immunological findings.

Compared with healthy controls, patients with ASBO demonstrated a significant reduction in $CD4^+$ T-cells and $HLA\text{-}DR^+$ expression, along with increased levels of circulating immune complexes, IL-6, and TNF-α (p<0.01). In the main group, the addition of immunocorrective therapy resulted in partial normalization of immune parameters, with improved CD4/CD8 ratios and reduced pro-inflammatory cytokine activity by the 10th postoperative day.

Conclusions.

1. A comprehensive analysis of clinical, symptomatic, laboratory and instrumental data in patients of the control group with OSTCN allowed us to identify a number of signs statistically and clinically associated with the need for emergency surgical intervention. Among them, we can highlight an increase in the duration of pain syndrome and lack of stool, fever, tachycardia, peritoneal symptoms, leukocytosis, an increase in CRP and D-dimer, as well as such visual signs as loop expansion, lack of peristalsis and contrast delay.

2. The identified signs, although they create the basis for constructing a prognosis scale, do not provide a complete pathogenetic explanation for the differences in the course of the disease, which is especially important for clarifying the indications for pathogenetically oriented therapy. This necessitates an in-depth assessment of the immunological status as an additional factor that can increase the accuracy of stratification and identify patients at risk of complications with a clinically unexpressed picture

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