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Methods for Diagnosing Acute Intestinal Obstruction in Chronic Diffuse Liver Diseases

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Abstract: This review introduces gastrointestinal endoscopy (ESGE). (ESGE) recommends small bowel capsule endoscopy as a first-line investigation before considering other endoscopic and radiological diagnostic tests when small bowel bleeding is suspected, given the excellent safety profile of capsule endoscopy, its patient tolerance, and its ability to visualize the entire small bowel mucosa. Strong recommendation, moderate-quality evidence. MR2: ESGE recommends small bowel capsule endoscopy in patients with clear suspicion of small bowel bleeding as soon as possible after a bleeding episode, ideally within 48 hours, to maximize diagnostic and subsequent therapeutic yield.

Keywords: liver cirrhosis, acute intestinal obstruction, gastrointestinal endoscopy.

A study of the possibility of ultrasound in diagnosing adhesive intestinal obstruction and determining indications for surgical treatment is presented in the work of Borisenko VB, Kovalev AN, Denysiuk TA (2020). The results of diagnosis and treatment of 60 patients with acute adhesive intestinal obstruction were analyzed with the comparative use of X-ray and ultrasound methods. The use of a standard X-ray examination of the abdominal organs upon admission to the hospital made it possible to diagnose acute adhesions of small intestinal obstruction in only 32 (53.3%) patients. Transabdominal ultrasound made it possible to establish adhesive intestinal obstruction during hospitalization in 53 (88.3%) patients, as well as in 7 (11.7%) patients during a dynamic examination 2-3 hours after admission. Due to the lack of a positive effect from conservative therapy based on ultrasound data, 33 (55%) patients were operated on. During X-ray examination, only 10 (30.3%) of these patients showed negative X-ray dynamics, and during ultrasound examination, worsening echo patterns were observed in all 33 (100%) patients. The authors state: in comparison with the x-ray method, transabdominal ultrasound is recognized as a safe, accessible, simpler, non-invasive and highly informative method for studying acute adhesions of small intestinal obstruction. The method allows you to evaluate the dynamics of conservative therapy and determine indications for surgical treatment. In the work of Chinese scientists Li RT, Zhao Y, Zou XJ. (2022) shows the priority of point-of-care ultrasound in diagnosing intestinal obstruction. Point-of-care ultrasound, as a non-invasive and radiation-free bedside diagnostic tool, has the desirable characteristics of speed, repeatability, accuracy and convenience. This is useful for making critical decisions and quickly guiding future interventions. In addition, it may be easily familiar to clinicians, especially emergency department and intensive care physicians after professional training. As a result, ultrasound has become a vital assessment and diagnostic tool in the early diagnosis and timely management of patients with intestinal obstruction.

Abdominal ultrasound examination of the gastrointestinal tract is performed in the supine position, using a low-frequency (3–5 MHz) convex abdominal transducer. A high-frequency

(>10 MHz) linear transducer is used in thin patients or for high-resolution imaging or evaluation of fine structures. The examination is carried out clockwise from the epigastrium to the pelvis, and then follows the dilated colon to find the site of AI. During the examination, appropriate abdominal compression may be applied to expel gas and bowel contents, making the ultrasound image clearer. Key observations: intestinal morphology, peristalsis, intestinal diameter and intraluminal contents, intestinal vascularity, intestinal wall thickness and location, characteristics of obstructive mass, ascites and enlarged lymph nodes.

In the absence of special circumstances, such as significant abdominal abnormalities, we will start with the abnormal area and a three-stage examination method will be suggested. Step 1: assessment of the upper abdomen; Step 2: Assess the left mid-abdomen and descending colon; Step 3: Assess the right lower abdominal terminal ileum and ascending colon.

For the evaluation and diagnosis of intestinal obstruction in the emergency department, it is a valuable tool with high sensitivity and specificity comparable to CT, X-ray and MRI. Additionally, it can be performed by non-radiology clinicians, helping to provide rapid, convenient and reproducible assessment in challenging clinical settings. These characteristics are useful in critical decision making and guide emergency surgical interventions.

Ultrasound examination suggests the presence of intestinal obstruction with an accuracy of 93.5%. The main diagnostic signs of intestinal obstruction, if the clinical picture is consistent, can be considered visualization of dilated intestinal loops in all parts of the abdominal cavity or in its individual areas, the presence of free fluid, as well as disturbance of the peristaltic movements of intestinal contents, both in the form of its complete absence and sluggish unidirectional or pendulum-like movements.

Davydkin V.I. et al (2020) note that transabdominal ultrasonography is highly informative in the diagnosis of acute intestinal obstruction, as well as in assessing the effectiveness of treatment measures. Conservative treatment is ineffective when the loops of the small intestine are dilated by more than 4.0±1.51 cm, the thickening of the intestinal wall is more than 4.9±1.62 mm and Kerkring's folds are more than 5 mm, as well as the detection of fluid between the loops of the small intestine. Sonography on days 5-6 of the postoperative period revealed disturbances in intestinal motility in 45.5% of patients. This is an indication for continuing prokinetic therapy on an outpatient basis. Due to its safety and ease of use, dynamic ultrasonography can be used to clarify further treatment tactics. The use of ultrasound does not require significant time, is possible in any conditions, with any severity of the patient, does not carry radiation exposure, can be used repeatedly during conservative treatment, in the postoperative period and to clarify treatment tactics. Tamburrini S, Lugarà M (2019) consider ultrasound to be highly accurate in the diagnosis of small bowel obstruction, and that the most valuable sonographic features are the presence of dilated intestinal loops and abnormal peristalsis. Diagnostic accuracy rates of ultrasound relative to CT results were calculated: Ultrasound versus CT had a sensitivity of 92.31% (95% CI, 74.87% to 99.05%) and specificity of 94.12% (95% CI, from 71.31% to 99.85%) in the diagnosis of SBO.

Double-balloon enteroscopy is a well-established procedure, originating over twenty years ago, that allows direct visualization of the small bowel and also overcomes the limitations of capsule endoscopy by allowing endoscopic treatment of small bowel lesions, including hemostasis and polyp resection.

Trebbi M, Casadei C, Dari S, (2023) A group of Italian scientists propose the use of double-balloon enteroscopy (DBE) to directly visualize the entire small intestinal mucosa and, unlike other imaging methods, allow biopsies and therapeutic interventions. (DAE) is a general term that includes any endoscopic examination of the small intestine using a progression assist system (balloon, tube, or other stiffening device). DAE includes double-balloon enteroscopy (DBE, Fujinon Inc., Saitama, Japan), single-balloon enteroscopy (SBE, Olympus Optical Co., Tokyo, Japan), spiral enteroscopy (PowerSpiral; Olympus Medical, Tokyo, Japan), and balloon-guided

endoscopy (device NaviAid AB, SMART Medical Systems Ltd., Ra'anana, Israel Complete visualization of the small intestine can be achieved with a combined oral and anal approach.

During enteroscopy, a clip or tattoo may mark the most distal point to determine whether a "panenteroscopy" has been achieved. DAE can detect lesions missed by VCE, so when the two techniques are combined, positivity rates can be as high as 92.5% in some studies.

The authors evaluated the indications, diagnostic performance, therapeutic efficacy, and complications of DBE in a cohort of consecutive patients according to patient age. The researchers conducted a retrospective study of consecutive patients who underwent DBE in the endoscopy unit between January 2006 and December 2021. A total of 387 consecutive patients undergoing 460 DBE procedures were included. The average age of the patients was 63 years. The overall diagnostic yield was 67.6%; The predominant endoscopic findings were vascular lesions (31.5%), followed by polyps or neoplastic lesions (17.6%). Elderly patients (≥65 years) showed statistically higher rates of clinically significant outcomes than adult patients (18-65 years) ($p = 0.001$). Crohn's disease and polyps or tumors were more common in the younger group ($p = 0.009$ and $p = 0.066$, respectively), while vascular lesions and nonspecific inflammation were the most common findings in the older group ($p < 0.001$ and $p < 0.001$, respectively). The rate of therapeutic interventions was 31.7%. The rates of endoscopic treatment were significantly higher in the older group ($p < 0.001$). A total of complications occurred after five procedures (1.1%). In clinical practice, DBE is an effective diagnostic and therapeutic agent with a high safety profile, especially in the elderly population.

Conclusion: literature data indicate that numerous domestic and foreign studies show that the results of treatment of patients with acute insufficiency and concomitant liver disease are largely determined by compliance with the principle of phasing, which involves the implementation of the volume of interventions depending on the nature and duration of the disease, the stage of acute insufficiency and liver diseases , age of patients, severity of adhesions in the abdominal cavity and concomitant diseases. Information on the problem of acute intestinal tract diseases and liver diseases is still scarce, therefore, the assessment of experimental and morphological studies of various parts of the gastrointestinal tract, against the background of concomitant liver disease, requires the development of modern approaches to solving the problem. This dissertation research is devoted to finding answers to a number of these problems.

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