

# ASSESSMENT OF DIAGNOSTIC VALUE OF MODERN RESEARCH METHODS OF MECKEL'S DIVERTICULUM

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**Abstract:** in the diagnosis of Meckel's diverticulum, ultrasonography of the abdominal organs and the x-ray contrast method should be used as components of a comprehensive examination for differential diagnosis with other forms of acute abdominal pathology. The laparoscopic method has high diagnostic capabilities for verifying the diagnosis in patients with this pathology and its complications and allows determining the tactics of subsequent surgical treatment of patients.

**Keywords:** children, Meckel's diverticulum, intestinal obstruction, intestinal bleeding, diagnosis, laparoscopy.

## АНАЛИЗ ДИАГНОСТИКИ СОВРЕМЕННЫХ ИССЛЕДОВАТЕЛЬСКИХ МЕТОДИК ДИВЕРТИКУЛА МЕККЕЛЯ

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**Аннотация:** при диагностике дивертикула Меккеля ультрасонографию органов брюшной полости и рентгеноконтрастный метод целесообразно использовать как компоненты комплексного обследования для проведения дифференциальной диагностики с другими формами острой абдоминальной патологии. Лапароскопический метод обладает высокими диагностическими возможностями верификации диагноза у больных с данной патологией и его осложнениями и позволяет определить тактику последующего хирургического лечения пациентов.

**Ключевые слова:** дети, дивертикул Меккеля, кишечная непроходимость, кишечное кровотечение, диагностика, лапароскопия.

UDC 616.344-007.64-002

Meckel's diverticulum (DM) is one of the most common congenital anomalies of the gastrointestinal tract and the cause of a number of severe pathological conditions in the abdominal cavity. The diagnosis of Meckel's diverticula is often difficult, and the choice of examination methods is based on clinical manifestations. The frequency of pathology, according to a number of researchers, ranges from 2-3%, while clinical manifestations and complications of the disease are observed in 25% of cases [2, 3].

The development and implementation of new technologies of minimally invasive surgery is one of the characteristic features of the current stage of surgery development [4, 6]. The improvement of laparoscopic techniques, the accumulation of clinical experience, and also a number of advantages of laparoscopic surgery: small surgical trauma, easier postoperative period by decreasing pain syndrome; early activation of patients; reduced number of post-operative complications of ileus, inflammatory reactions and the development of adhesions; reduction of terms of hospitalization; improving the quality of life of patients; a good cosmetic effect has promoted the introduction of endoscopic techniques to the practice of pediatric surgery [1, 5].

Two most relevant areas deserve further study: the development of a diagnostic algorithm with an assessment of the feasibility of additional research methods in the pre-laparoscopic period, and an objective assessment of the radicality and a differentiated approach to the choice of various methods of diverticular resection [7].

**Purpose of the research:** To determine the diagnostic value of modern research methods in the diagnosis of Meckel's diverticulum.

**Materials and methods of the research:** Over the past 18 years (from 2000 to 2018), 65 children with

Meckel's diverticulum were admitted to the surgical department of the 2-clinic of the Samarkand State Medical Institute. The age composition of children and the nature of the revealed complications of diverticulum are shown in Fig. 1.

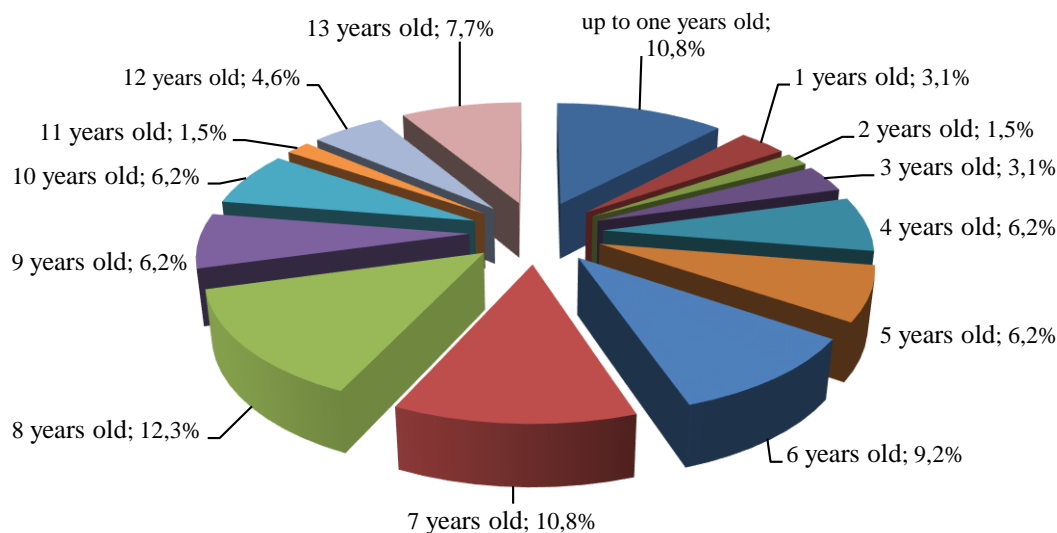


Fig. 1. Age composition of patients with Meckel's diverticulum

Most often, complications of Meckel's diverticulum were detected in children aged 1 month to 2 years old in the form of strangulation intestinal obstruction – 15.4%. In children over 3 years of age, the diverticulum in 3.1% of cases was manifested by intestinal bleeding, in 22% of cases - inflammation of the diverticulum, of which in one case the perforation of the latter. The gender composition was dominated by boys-78.5% (51).

4 newborns under the age of 1 year were admitted to the clinic of intestinal obstruction, anxiety, bloating, congestive vomiting, and lack of stool were noted. On the review X-ray of the abdominal cavity, "Kloiber's bowls" were diagnosed, the children were operated after short-term preoperative preparation. In 3 cases (children aged 8 months, 8 years and 12 years old), intussusception in the abdominal cavity was palpated upon admission, and an intestinal obstruction clinic was observed. Due to the late hospitalization - more than 24 hours from the onset of the disease, the children were operated on, all operations were performed laparoscopically.

A feature of invagination against the background of Meckel's diverticulum is the incidence in older children. Intestinal bleeding was observed in two children-4 and 6 years old, without pain. All children with melena were excluded from bleeding from the upper and lower parts of the digestive tract, bleeding Meckel's diverticulum was detected during diagnostic laparoscopy.

Upon admission to the hospital, all the observed patients underwent general clinical and special examinations (if they were in a satisfactory condition and for differential diagnosis).

Ultrasound examination was performed using an ultrasound device "ALOKA-650". The main ultrasound criteria for the presence of Meckel's diverticulum were considered: the peculiarity of the anatomical position, the lack of connection with the cecum, a diameter of up to 40 mm, and a clear visualization of the three-layer wall.

Diagnostic laparoscopy was performed under anesthesia in a specially equipped operating room. We used tools and equipment of the company "Karl Storz" (Germany): trocars of 5 mm and 3 mm with a blunt stilet; trocars of 5 mm and 3 mm with a sharp stiletto; telescope 5 mm with end cut 0 and 30 telescope 3 mm; atraumatic dessessart 5 mm and 3 mm; atraumatic blunt tip forceps 5 mm and 3 mm; scissors Metzenbaum 5 mm and 3 mm; coracoid scissors 5mm; needle holder with ratchet 5mm; tube suction 5 mm and 3mm.

**Results of the research:** Ultrasound examinations of the abdominal organs were performed in 55 (57.3%) patients. The main ultrasound criteria for the presence of Meckel's diverticulum were considered: the peculiarity of the anatomical position, the lack of connection with the cecum, a diameter of up to 40 mm, and a clear visualization of the three-layer wall. A "positive" result was evaluated in the presence of a blindly ending, fluid-filled section of the small intestine in the lower right quadrant of the abdominal cavity. As a rule, this segment was incompressible, there was no peristalsis, and there was no connection with the cecum. Echo signs of free fluid and enlarged mesenteric lymph nodes were detected. In 4 out of 55 (7.3%) patients, the study result was considered "positive" according to the main criteria.

In the remaining 51 (92.7%) patients, the results of ultrasonography of the abdominal organs allowed us to state only the fact of the presence of an inflammatory process in the abdominal cavity, i.e. the result was negative. Subsequently, Meckel's diverticulum was diagnosed intraoperatively in all 55 patients.

Thus, the percentage of false-negative results was 92.7%, which gives reason to consider the diagnostic capabilities of abdominal ultrasound as minimal from the point of view of verifying the diagnosis of "Meckel's diverticulum". At the same time, in the absence of a clear topical diagnosis, ultrasonography, to a greater extent, allows you to state the fact of the presence of an inflammatory process in the abdominal cavity. The figure shows the ultrasound data typical for Meckel's diverticula.

Pneumo-irrigoscopy was performed in 7 (7.3%) patients with Meckel's diverticulum and clinical signs of acute intestinal obstruction. During pneumo-irrigoscopy, 7 patients with a clinical picture of intestinal intussusception (intraoperatively diagnosed with small-colonic obstruction, the cause of which was Meckel's diverticulum) were determined to have intussusception in the upper right quadrant; air passage to the overlying parts of the intestine was not observed.

Diagnostic laparoscopy was performed in 48 patients. After a review of the abdominal cavity, revision of the distal ileum, and visualization of the Meckel's diverticulum, which took place in all the examined patients, the condition of the walls of the diverticulum and the adjacent intestine was evaluated. The presence of signs of catarrhal inflammation was revealed in 8 (18.6%) patients. The phlegmonous stage of the inflammatory process was diagnosed in 17 (39.5%) children. The gangrenous stage of the inflammatory process in Meckel's diverticulum occurred in 2 (4.7%) of the observed patients. The presence of gangrenous-perforative stage of the inflammatory process in Meckel's diverticulum in 16 (37.2%) children.

The pathognomonic endoscopic sign of bleeding from a peptic ulcer of Meckel's diverticulum-revealed in 18 of 21 (85.7%) patients-was the presence of a pronounced perifocal reaction, soldering of adjacent areas of the intestine, compaction and deformation of both the diverticulum and the intestinal wall. In 3(14.3%) patients, signs of peptic ulcer perforation were visualized.

In 6 patients with Meckel's diverticulum and clinical signs of acute intestinal obstruction, small-colonic intussusception was diagnosed. In this situation, according to many researchers, the diagnostic value of the method is difficult to overestimate: the ability to quickly and accurately diagnose is crucial, given the need for emergency surgery.

#### **Conclusions:**

1. Ultrasonography of the abdominal organs and the radiopaque method should be used as components of a comprehensive examination for differential diagnosis with other forms of acute abdominal pathology.

2. The laparoscopic method has high diagnostic capabilities for verifying the diagnosis in patients with Meckel's diverticulum and its complications and allows determining the tactics of subsequent surgical treatment of patients.

#### ***References / Список литературы***

1. *Yusupov Sh.A., Muhammadiev A.A., Djalolov D.A.* CLINICAL AND DIAGNOSTIC FEATURES OF MECKEL'S DIVERTICULUM IN CHILDREN // Vestnik nauki i obrazovaniya. № 23(101), 2020. P. 56-60.
2. *Shamsiev A., Yusupov S., Shakhriev A. & Djalolov D.* (2020). THE CAUSES OF POSTOPERATIVE INTRA-ABDOMINAL ABSCESES IN CHILDREN AND WAYS OF THEIR PREVENTION. The Scientific Heritage.(48-2). 5-7.
3. *Robinson J.R., Correa H., Brinkman A.S., Loworn H.N.* Optimizing surgical resection of the bleeding Meckel diverticulum in children // Journal of Pediatric Surgery, 2017. 52 (10). P. 1610-1615.
4. *Lindeman R.J. & Søreide K.* (2020). The many faces of Meckel's diverticulum: update on management in incidental and symptomatic patients. Current gastroenterology reports. 22(1), 1-8.
5. *Jiarong C., Jingjing H., Qunfeng S. & Danping Z.* (2020). Clinical Effect of Single-Site Laparoscopy in the Treatment of Meckel's Diverticulum in Children. Journal of Surgery, 8(1), 34-37.
6. *Djalolov D.A., Abduvoyitov B.B., Khasanov A.B. & Shavazi R.N.* (2018). Features of microflora in the etiological structure of diffuse appendicular peritonitis. Voprosy nauki i obrazovaniya. 8(2), 116.
7. *Alisherovna S.L. & Ostanokulovich A.J.* (2020). DIAGNOSIS AND SURGICAL TREATMENT OF HIRSCHSPRUNG'S DISEASE IN CHILDREN. Nauka i obrazovaniye segodnya. (8 (55)).