ARTERIOMESENTERIC COMPRESSION OF THE DUODENUM. RECURRENT POSTOPERATIVE FISTULAS OF THE ANTERIOR ABDOMINAL WALL

(CASE REPORT)

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SUMMARY

Results of diagnosis and treatment of a patient with chronically disturbed passage along the upper gastrointestinal tract, caused by chronic arteriomesenteric compression of the duodenum and multiple recurring postoperative fistulas of the anterior abdominal wall are reported.

Keywords: duodenum, arteriomesenteric compression syndrome, chronically disturbed duodenal passage.

First clinical picture of chronic duodenal obstruction (chronically disturbed duodenal passage is more correct) was described in detail by D. Wilkie in 1927 [1, 2]. Chronic duodenal passage disorder is a controversial issue of gastroenterology, generating opposite points of view such as recognition as well as denial of the decease existence [2, 3]. One of the causes of chronic disorders is arteriomesentric compression of the inferior horizontal duodenal part [1, 2, 4].

A 17-year-old male patient M. was admitted to hospital May 5, 2009. Planned hospitalization was organized. The patient complained of the fistula in the left lateral area of the abdomen with scanty serous-hemorrhagic exudate, weight loss had been more than 20 kg over the last 2 years. The patient had a tendency towards constipation, the feeling of fullness after a meal, complained of belching and sometimes regurgitation of the small amount of food. Patient's mother noted the fact that dyspepsia had manifested immediately after the first feeding of the child in the postpartum period.

MEDICAL HISTORY

Appendectomy for acute phlegmonous appendicitis using the approach of Volkovich-Dyakonov was performed in the surgery department at the place of residence on March 27, 2007. The early postoperative course was uneventful.

The patient was hospitalized 1 month later having infiltration and fistula of the postoperative scar with purulent exudate. Excision of the scar with a fistula was performed. However, the patient's condition did not improve, sub-febrile and febrile temperatures were persistent. The repeated abdominal ultrasound imaging revealed pelvic effusion. Diagnostic laparoscopy gave signs of enteritis and serous effusion in the lower abdomen. Effusion cell composition: lymphocytes, fungus spores. The patient was discharged after conservative treatment with improved result.

Over the next 6 months due to recurrent fistula of the anterior abdominal wall with suspected Crohn's disease the patent was diagnosed and operated on in a specialized clinical department. The lower midline exploratory laparotomy revealed no pathology. The fistulas in the anterior abdominal wall (right and left iliac areas) were excised. The patient recovered and was discharged.

However, the fistula in the left iliac region developed 3 months later. Excision was performed. The fistula recurred again.

Nuclear magnetic resonance imaging showed left retroperitoneal infiltration of up to 8 cm in diameter 1.5 year after the appendectomy. Excision of the fistula in the left iliac region was carried out. Histologic analysis of the excised tissue revealed signs of nonspecific inflammation.

However, the fistula recurred again. Biopsy of the left pectoral muscle marginal lymph nodes detected no specific pathology. Urologists examined the patient for the non-closed urachus but found no pathology. The patient was referred to the Septic Surgery Department of Irkutsk Regional Hospital.

Routine blood and urine tests together with repeated magnetic resonance imaging of the abdomen revealed no pathology.

The patient had no congenital deceases, drug or food allergies as well as bad habits. When being examined, he was calm, actively responded to questions and his condition was satisfactory. The patient had pale skin, body weight 45 kg, height 173 cm, the body mass index 13.1, normally shaped chest and mixed type of breathing (vesicular breathing in all lung fields when being auscultated). Peripheral lymph nodes were not enlarged. Blood pressure was 110/70 mm Hg and heart rate was 90 beats per min. Abnormal noise in the heart region was not detected. The patient had the white coated tongue and no mouth odor. The abdomen was pulled

in, and was involved in the respiratory act. There were multiple postoperative scars on the anterior abdominal wall and no hernia-like protrusions. In the left inguinal and lateral regions, the patient had an oblique post-operative scar of up to 15 cm length with the 2-cm-deep fistula of 1 cm diameter in its upper third with hyper granulated edges and serous hemorrhagic exudate (Fig. 1).

The lumbar region was not changed and effleurage was painless at both sides. The anus was closed, the sphincter tone was good, the ampoule was empty, and the stool was of normal color.

Taking into account the long medical history, the patient was going to have the whole gastrointestinal tract explored. Also, various specific infections had to be excluded. Blood, urine, and stool tests revealed no abnormalities.

The abdominal ultrasound showed no structural changes in parenchymal organs and no free fluid in the abdominal cavity and retroperitoneal space.

Fibrogastroduodenoscopy failed to pump the duodenal bulb up with the air and advance the device into the postbulbar part of the duodenum due to the pain. The duodenum seemed to be externally compressed.

Multispiral computed tomography of the abdomen revealed infiltration of subcutaneous fat and linear pattern of up to 10 mm width (fistula).

Excision of the blind ended fistula above the aponeurosis was performed May 20, 2009 (surgeon – S.A. Gelfand). Tissue sample was sent out for histologic examination. Conclusion No. 8474: productive chronic nonspecific inflammation of the fistula tissue, containing suture fragments.

More careful medical history collection revealed the fact that the patient ate small portions of food and couldn’t eat rough foods due of the appearance of heaviness and pain in the epigastrium.

During contrast duodenography, the duodenum was tightly filled with barium as far as it goes to the left off the spine at the level of L3. Narrowing of the inferior horizontal part of the duodenum was revealed. Barium was regurgitated into the stomach (Fig. 2). Thirty minutes later, there was a normal passage of barium distal to the stenosis along the inferior horizontal part of the duodenum. Conclusion: X-ray signs of the duodenal arteriomesenteric compression.

Fig. 1. Exterior view of the anterior abdominal wall of the patient M. on admission to the hospital.

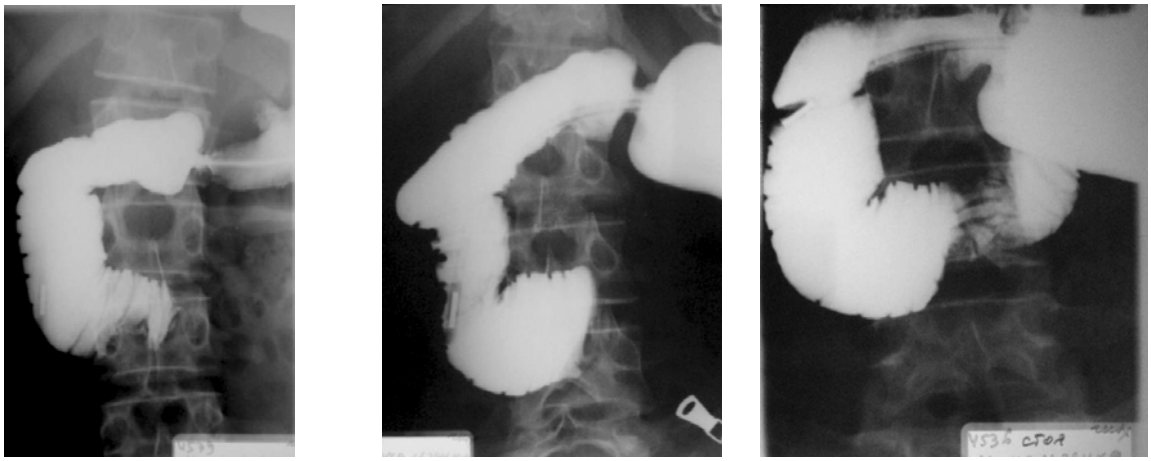

Fig. 2. Duodenography image, patient M.

Abdominal angiography detected that the superior mesenteric artery aroused from the aorta at angles less than 30 ° (Fig. 3).

The patient underwent selective angiography of superior mesenteric artery May 26, 2009. The artery aroused from the aorta at an angle less than 30° (Fig. 3).

Taking into account the procedure data, the lack of specific signs of inflammation and the existence of clinically and instrumentally proven signs of the chronic duodenal passage disorder caused by arteriomesenteric compression, the decision on operative therapy had been taken.

The patient underwent Robinson operation (surgeon – E.G. Grigoryev). Full midline laparotomy was performed. The greater omentum mainly presented by the peritoneal duplication with small adipose tissue interlayers (sign of dystrophy) was fixed in the right iliac region. The greater omentum was dissected. The fragment of the omentum tissue was resected for the further

histologic examination. Loops of the small intestine appeared to be collapsed. The elements of the Treytz ligament were cut. Vertical and inferior horizontal duodenal parts were mobilized using the Kocher – Senchillo-Yaverbaum maneuver. Those parts of the duodenum were dilated and the duodenal wall was hypertrophied. The significant difference between the duodenal diameter before the mesenteric vascular bundle and the one to the left of the bundle could be seen. The uncinate process of the pancreas was unusually enlarged and had a well-preserved structure. Jejunum was divided 10 cm off the duodenojejunal junction. The proximal segment of the duodenum was moved to the right of the mesenteric vessels and to the lower abdominal cavity through a window in the mesocolon closer to the right flexure. End-to-end duodenojejunal anastomosis was formed using uninterrupted extramucosal suture (thread 3.0, needle 20) (Fig. 4). The afferent loop was fixed to the mesentery of the transverse colon. Nasoduodenal tube was installed. Drainage tubes were placed under the liver and into the pelvis. The anterior abdominal wall was closed.

Postoperative course gave clinical duodenal passage disturbance, which was managed by conservative gastrokinetic therapy, tube feeding, correction of electrolytes and blood proteins and physiotherapy. The nasoduodenal tube was removed 10 days later. The patient put 700 grams on within a week of self-feeding. The midline laparotomy wound healed by primary intention. The wound in the left iliac region was clean and healing by secondary intention. Histologic conclusion No. 9192: the 1st fragment (the resected part of the greater omentum) is the adipose tissue with fibrous interlayers and suture fragments, the 2nd fragment is the small intestine wall tissue in the state of chronic active inflammation with focal surface erosion.

The repeated blood tests detected no pathological changes. Fifty one day after the admittance and 28 days after the surgery, the patient put 1 kg on and was discharged in the satisfactory condition at the place of residence (Khabarovsk Territory) (Fig. 5).

Subsequently, the patient had not sought treatment in our hospital.

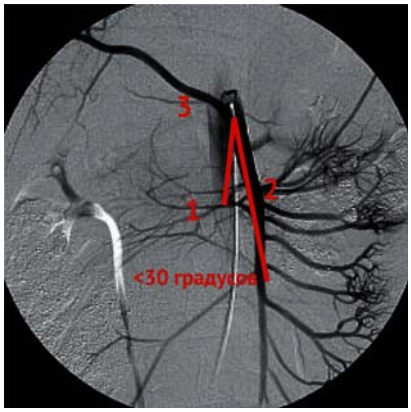

Fig. 3 Angiography of the aorta and superior mesenteric artery. 1 — aorta, 2 — superior mesenteric artery, 3 — right hepatic artery

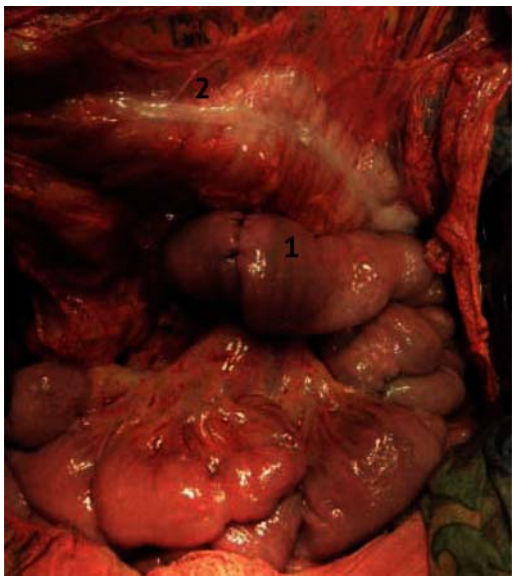

Fig. 4 Duodenojejunal anastomosis (1), transverse colon (2)

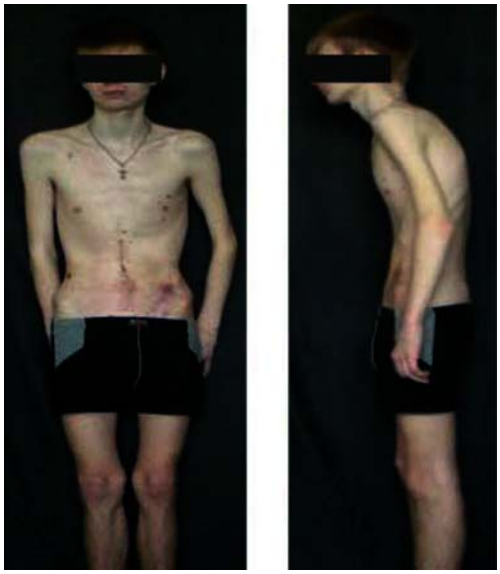

Fig. 5 Patient M., the day of discharge

The final diagnosis.

The principal diagnosis: chronic arteriomesenteric compression of the lower horizontal duodenal part.

Complications: subcompensated chronic duodenal passage disorder, cachexia (body mass index 13.1).

The secondary diagnosis: recurrent postoperative fistulas of the anterior abdominal wall.

Thus, the passage disturbance along the gastrointestinal tract in this patient has been traced since infancy. Collection of medical history and diagnostic examinations revealed the cause of the duodenal motor-evacuation disorders and let us perform effective surgical correction. Etiology for the continuous recurrence of the fistula in the post-operative scars of the anterior abdominal wall cannot be fully described (Crohn's disease is excluded with a high

probability). Perhaps, chronic passage disorders along the gastrointestinal tract and the consequent cachexia resulted in a decreased immune response and restorative opportunities of the organism.

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