POST-TRAUMATIC DUODENAL INTRAMURAL HAEMATOMA: A REASON FOR UPPER SEGMENT ALIMENTARY TRACT OBSTRUCTION

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A case of post-traumatic intramural haematoma of the duodenum is presented in this report. The patient was admitted to the unit after multiorgan injury. Preliminary examination (X-ray, USG – diagnosis, paracentesis of the abdominal cavity) showed abdominal hemorrhage. The patient was urgently operated on (spleenectomy and partial small bowel resection). The post-surgical period was complicated by intramural duodenal haematoma, which blocked the passage of chyme to distal portions of the alimentary tract. The patient was treated conservatively. On postoperative day 9, the ailment receded. The patient was discharged from the hospital in good general condition.

Key words: blunt trauma, duodenum, intramural haematoma

A duodenal intramural haematoma is a rare complication of blunt abdominal trauma (1), which most often occurs during communication accidents or sports injuries (2). The originating haematoma leads to temporary partial or complete contraction of intestinal lumen (tumour effect) (3). Differentiating intramural haematomas from alimentary canal obstructions dictates further treatment because when strangular obstruction is excluded, the haematoma can be treated conservatively. The most often and typical clinical symptoms are stomach-ache, dizziness and emesis (symptoms of alimentary canal obstruction). The most important in diagnosis are USG – examination, abdominal computer tomography (4, 5), and upper gastrointestinal endoscopy. In past years, upper GI series was considered the “gold standard” of diagnosis and assessment of haematoma evolution. Today, computer tomography is the gold standard diagnostic tool (6). Clinical symptoms of contraction appear on the 3rd – 4th day after the injury. Conservative treatment (7, 8) (parenteral nourishment, stomach – pump) leads, in most cases, to absorption of intestinal mesentery after about 10 days. If the symptoms persist, open or laparoscopic surgery is advisable.

CASE REPORT

The patient S.P., age 16 (history number: 6687/2005) was admitted to the unit after a road accident with multiorgan injury. The patient underwent a clinical examination, after which a USG – diagnosis of abdominal cavity, chest X-ray, abdominal cavity diagnostic paracentesis and basic tests were performed. The diagnostic paracentesis showed hemoperitoneum so patient was sent for emergent surgery. The X-ray examination showed a compression fracture at T10 so the patient wore a Je-wett’s corset during the postoperative period.

During the operation, the surgeon observed: spleen fracture, disjunction of the small intestine 30 cm from Treitz ligament, serosal damage of the transverse and descending colons, disjunction of the small intestine mesentery. The spleen was removed, the damaged fragment of the small intestine was resected and an anastomosis of the two ends of the small intestine was created. The stitches were pla-
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On postoperative day 2, the patient experienced “coffee ground” emesis. A nasogastric tube was placed and 1620 ml of chyme was produced. On the next day, 3800 ml of chyme was produced. An upper GI series was performed on the patient (fig. 1). The examination showed lack of peristaltic movements, passing the contrast through pylorus and bulbus to duodenum, where it was stopping in the main part and modeling on spherical structure. The picture of the passage did not change after 30 minutes.

In connection with the result of diagnostic USG the patient was undergone computer tomography of abdominal cavity. The examination showed expansion of the distal duodenum and hyperechogenic formation.

A 76x55 mm lesion in the duodenal wall was observed, which was indicative of a duodenal intramural haematoma (fig. 2). Stomach suctioning was maintained. Subsequent fluid amounted to: - 4th day – 3555 ml, 5th day – 3700 ml, 6th day – 3100 ml, 7th day – 300 ml.

As a result, a decision was made to initiate complete parenteral nourishment. On postoperative day 7, an upper GI series was repeated (fig. 3). It was found that the earlier described structure seen in duodenum was washed by the contrast and some of it passed to the lower part of alimentary canal. In association with improvements in the patient’s general state of health, passing contrast to the distal portion of the alimentary canal and absen-
ce of retentions, the stomach pump was removed and a liquid diet was introduced on postoperative day 9. On postoperative day 9, a control USG examination was performed and showed regression of changes within the duodenal wall. The patient then received a light diet after several days. On the 14th day, USG examination was repeated and showed a duodenal intramural haematoma, which decreased in size to 55x25 mm.

The patient was discharged home in good general condition with the recommendation of a control USG-examination in 7 days.

DISCUSSION

An unusual obstruction of the upper segment of alimentary canal – a duodenal intramural haematoma– was described here. On the basis clinical examination, USG pictures and computer tomography showed the presence of a hyperechogenic structure within the duodenal wall. As a result, a decision to manage the patient conservatively was made. Subsequent results of USG – examination as well as improvement in the patient’s general health proved the accuracy of this decision.

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COMMENTARY

Duodenal injuries are observed in 3-5% of all intra-abdominal injuries. The above-mentioned usually coexist with trauma inflicted to surrounding organs. The retroperitoneal localization of the II and III segments of the duodenum hinders diagnosis. Intramural hematomas are evidence of I or II degree duodenal damage, according to the American Association for Trauma Surgery.

The above-mentioned is rarely observed and is characteristic of blunt abdominal injuries (70% of cases). Intramural duodenal hematomas (IDH) are most commonly observed in children.

The hematoma usually spreads in the submucosal and subserosal layers. IDH are rarely responsible for intestinal occlusion. Clinical symptoms of duodenal occlusion usually arise slowly, within 48 hours, as an effect of the enlarging hematoma (since hemoglobin is hypersonic leading to translocation of fluid to the hematoma). Other factors responsible for IDH
include chronic coagulotherapy, duodenal ulcer disease, duodenal biopsy, endoscopic papillotomy, and acute pancreatitis.

Diagnosis of complications following blunt duodenal trauma is often difficult. Clinical symptoms are frequently unclear.

In case of duodenal perforation radiological examinations with the use of gastrographin followed by barium enema are decisive. The presence of air in the retroperitoneal space is evidence of the above-mentioned diagnosis.

Abdominal computer tomography is the method of choice. In case of doubtful cases endoscopic examination is performed. Diagnostic laparoscopy has no advantage over traditional methods. The above-mentioned disease entity is verified during explorative laparotomy with the possibility of performing Kocher’s, Cattel’s and Broach’s maneuvers, as well as the mobilization of the area surrounding Treitz’s ligament (1). Hematoma absorption usually takes between 7 and 48 days.

Conservative therapy is the method of choice in most cases. It is effective in more than 50% of cases. The above-mentioned includes parenteral nutrition and gastric content aspiration. The patient should be hospitalized for at least a period of 14 days. One of the numerous complications (fortunately rare) includes wall necrosis and duodenal perforation due to compression. After three weeks of conservative therapy (TPN and gastric aspiration), the patient can begin oral nutrition and may be discharged from the hospital. Lack of improvement is evidence for the need to perform laparotomy. Prolonged obstruction might be associated with trauma of the head of the pancreas or duodenal perforation (1).

Early surgical treatment of IDH seems controversial.

Minimally invasive treatment consists of percutaneous drainage of the hematoma under ultrasound control or computer tomography, if 1-2 weeks of therapy prove ineffective (2, 3).

Indications towards surgical management of duodenal intramural hematomas are as follows:
1) continuous symptoms of obstruction (exceeding 14 days),
2) clinical symptoms of diffuse peritonitis,
3) diagnostic uncertainty considering the extent and type of duodenal injury.

Surgical management is burdened with a high percentage of complications and prolonged hospitalization. The most severe complication is the presence of a duodenal fistula, which occurs in 5-15% of duodenal trauma cases.

In conclusion:
1) intramural hematomas might be diagnosed after an isolated duodenal injury following blunt abdominal trauma,
2) common occurrence in children,
3) delayed diagnosis ranges between 18 hours and 7 days,
4) the radiological examination demonstrates signs of a “coiled spring” or “stacked coin”,
5) contrast computer tomography differentiates between an intramural hematoma and duodenal perforation,
6) treatment of IDH should be conservative (TPN+ NGT) and last approximately 14 days. In case of lack of improvement, one should consider surgical intervention,
7) management in case of duodenal hematomas is as follows:
a) hematoma occluding more than 50% of the lumen of the duodenum – evacuation, hemostasis and intestinal wall suturing, 
b) hematoma occluding more than 75% of the lumen of the duodenum-gastroenterostomy.

I would like to congratulate the Authors on presenting such an interesting clinical case. During my 45-year professional career, I have never encountered such a patient. The presented study supports existing diagnostic and therapeutic guidelines in cases of duodenal injury.

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