Double transection of complete duodenal circumference after blunt abdominal trauma without other intra-abdominal injuries

Marko Zelić, Leon Kunišek, Nenad Petrošić, Davor Mendrila, Arsen Depolo, Miljenko Uravić

Clinical Hospital Center Rijeka, Department of Abdominal Surgery, Rijeka, Croatia

Received July 1, 2009, accepted after revision December 11, 2009

Summary. We report a case of a 20-year-old male with isolated complete duodenal transection at two duodenal segments after blunt abdominal trauma. On admission, the patient underwent physical examination, laboratory analysis, abdominal ultrasound and plain abdominal x-ray. Physical examination revealed diffuse rebound tenderness and extreme rigidity of the abdomen, guarding and decreased bowel sounds. Standard surgical techniques were used (median laparotomy, primary anastomosis, nasojejunal three-luminal tube for feeding and gastric decompression). At exploration, we found complete transection of the duodenum just below the pylorus and between the second and third part of the duodenum. We performed primary anastomosis of both transections with interrupted sutures in two layers. Prior to discharge, magnetic resonance imaging (MRI) was performed.

Early diagnosis of duodenal rupture is important. When dealing with trauma patients with pain greater than local findings, the mechanism of injury should always be taken into account.

Key words: Blunt trauma, double duodenal rupture.

Introduction

Isolated duodenal trauma is rare and in the majority of cases is caused by abdominal penetration, with only 20% resulting from blunt injury [1]. Blunt duodenal injury ranges from simple hematoma to perforation and rupture with disruption of the pancreaticoduodenal complex [2]. Preoperative diagnosis of isolated duodenal injury is essential but often very difficult to make. There is no single method of duodenal repair that eliminates the possibility of dehiscence of the duodenal suture line [2–4].

We report a case of a 20-year-old male with complete duodenal transection at two duodenal segments after blunt abdominal trauma.

Case report

A 20-year-old man suffering from diffuse abdominal pain and general weakness was admitted in the early afternoon to the emergency department of the Clinical Hospital Center Rijeka. While running in the park on the previous evening, he suffered a blow to the upper abdomen with an iron fence bar. Immediately after the incident he was referred to another medical facility and underwent physical examination, laboratory analysis,
abdominal ultrasound and plain abdominal x-ray. The patient was discharged to home care.

When admitted to our hospital, the patient was pale with cold extremities and sweating profusely. Physical examination revealed diffuse and rebound abdominal tenderness with extreme rigidity, guarding and decreased bowel sounds. He was hypotonic with tachycardia. Blood analysis revealed a hemoglobin concentration of 157 mmol/l and a white blood cell count of 14.4 x 10^9/l. Because of the signs of acute abdomen and the general severe condition of the patient, urgent operation was indicated.

The abdominal cavity was entered through median laparotomy and was full of gastric fluid and bile. At exploration, we found complete transection of the duodenum just below the pylorus (Fig. 1). The retroperitoneal space around the duodenum and towards the right iliac bone over the psoas muscle was infiltrated with bile. Further exploration revealed a second complete disruption between the second and third part of the duodenum (Fig. 2). No additional injuries were found. We performed primary anastomosis of both transections with interrupted sutures in two layers (Fig. 3). A nasojejunal three-lumen tube was placed for feeding and gastric decompression. The retroperitoneal space was opened and drained, and an additional drain was placed in the sub-hepatic space.

On postoperative day 14 a painful swelling was detected in the right lower quadrant of the abdomen and over the inguinal ligament. An incision over the bulge was made under general anesthesia and pus from the retroperitoneal space was removed. Two drains were placed in the retroperitoneum and daily lavage was performed. Drains were removed on day 10 after the incision.

The patient was discharged from hospital on postoperative day 34. Prior to discharge, MRI of the abdomen showed no intra-abdominal or retroperitoneal collection. Six months later the patient was complication free.

Discussion

Isolated duodenal injuries after blunt abdominal trauma are uncommon. Blunt intra-abdominal injuries comprise 1–4% of all injuries to the duodenum. Full-thickness duodenal ruptures occur in a very small number of the cases [3, 5]. Our patient had two complete transections: one just below the pylorus and the other between the second and third duodenal segment. Complete duodenal transections at two levels without other intra-abdominal organ injuries are rare and we have found no similar reports in the literature.

Blunt abdominal injuries may have a very general clinical presentation, which may result in delay in diagnosis. In such serious injury, even a very short delay significantly worsens both the general condition and the prognosis [3, 4]. Our patient was admitted to another medical institution immediately after the trauma. He complained of midepigastric pain and nausea. At the time, he had no other symptoms, no free intraperitoneal...