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Spontaneous rupture of gastroduodenal artery aneurysm

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Rezumat

Ruptură spontană de anevism de arteră gastroduodenală

Anevrismul de arteră gastroduodenală este o entitate rară, reprezentând doar 1,5% din totalul de aproximativ 3000 de cazuri de anevrisme de artere viscerale descrise în literatură. Prezentăm cazul unui pacient în vârstă de 55 ani, cunoscut în antecedente cu patologie cardio-vasculară, diagnosticat în ambulator cu hernie inghinală dreaptă, internat în clinica noastra în vederea tratamentului chirurgical. Se intervine chirurgical a doua zi; intraoperator se evidențiază o hernie inghinală oblică externă și se practică cura chirurgicală a herniei procedeu retrofunicular Halsted. Evoluție postoperatorie inițial favorabilă, TA=120 mmHg, P=68 b/min. ulterior, la aproximativ 16 ore postoperator, starea generală se înrăutățește brusc, cu apariția semnelor de șoc hemoragic. Ecografic se evidențiază colecție lichidiană masivă în toate cadranele. Se intervine chirurgical de urgență. Intraoperator, la deschiderea cavității peritoneale se constată hemoperitoneu masiv, hematom masiv care infiltrează rădăcina mezocolonului transvers și retroperitoneul până în loja splenică. Se disecă și se evidențiază sângerare activă la nivelul unui anevrism rupt de artera gastroduodenală. Se practică hemostază in situ, toaleta și drenajul cavității peritoneale. Evoluția postoperatorie favorabilă. Pacientul se externează în stare vindecat chirurgical în ziua 8 postoperator. În concluzie ruptura anevrismului de arteră gastroduodenală este rară, pacientul prezentând simptome nespecifice. Diagnosticul rapid, localizarea și intervenția chirurgicală sau endovasculară sunt necesare pentru a evita consecințe devastatoare.

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Cuvinte cheie: anevrism, ruptură, spontan, arteră gastroduodenală

Abstract

Gastroduodenal artery (GDA) aneurysm is a rare entity, comprising only 1.5% of all 3000 cases of visceral artery aneurysms that have been reported in literature. We report a case of a 55-year-old Caucasian man, diagnosed with right inguinal hernia. He was admitted to our department for surgical treatment. His medical history was remarkable for hypertension, and angina. He was operated the next day. A external oblique right inguinal hernia was diagnosed intraoperative. The Halsted technique was used for primary inguinal hernia. Immediate postoperative evolution was favorable, systolic blood pressure of 120 mmHg, pulse of 68 beats/minute. 16 h postoperative there was a sudden alteration of the general condition with signs of hemodynamic shock, with a systolic blood pressure of 60 mmHg, tachycardia of 110 beats/min. Physical examination revealed a pale, cold, and clammy patient. His hemoglobin had dropped from 14 g/dL on admission to 6 g/dL. A bedside ultrasound identified pelvic free fluid. An exploratory laparotomy revealed hemoperitoneum, and over 2 500 ml of blood and clot, a large hematoma was identified that was occupying the transvers colon mesentery and retroperitoneum. A clot was removed, revealing ruptured gastroduodenal artery aneurysm with active hemorrhage. The opening was isolated and closed. The contents were returned to the abdomen, which was irrigated and closed. Postoperative laboratory evaluation revealed hyperamylasemia (1543 IU/L, Normal Value (NV) = 15–95 IU/L). He remained normotensive throughout his 8-day hospitalization and was discharged home in good condition. In conclusion, gastroduodenal artery aneurysm rupture is a rare and patients can present with nonspecific symptoms. Rapid

diagnosis, localization, and surgical or endovascular intervention are necessary to avoid devastating consequences.

Key words: aneurysm, rupture, spontaneous, gastroduodenal artery

Introduction

Visceral artery aneurysms (VAA) are uncommon and remain mostly asymptomatic, they are associated with a high mortality rate when they rupture. More than 3000 cases have been reported in literature. Gastroduodenal artery (GDA) aneurysm is rare, comprising only 1.5% of all reported cases (1, 2). This form of peripancreatic aneurysm is usually related to pancreatitis and may present with gastrointestinal (GI) bleeding, abdominal pain, rupture, or jaundice (3–8). We report a case of an operated inguinal hernia, which was complicated by spontaneous rupture of gastroduodenal artery aneurysm leading to massive hemoperitoneum and hemorrhagic shock. To the best of our knowledge, no other case of inguinal hernia complicated with spontaneous rupture of gastroduodenal artery aneurysm has ever been described in either the Romanian or English literature.

Case Report

A 55-year-old Caucasian man, diagnosed with right inguinal hernia was admitted to our department for surgical treatment. Electrocardiogram was normal. His medical history was remarkable for hypertension and angina. Full blood count showed a Hb of 14.5 g/dl, a WBC of 6,900/cm^3, and platelets of 142,000/mm^3. He was operated the next day. A external oblique right inguinal hernia was diagnosed intraoperative. The Halsted technique was used for primary inguinal hernia. Postoperative the patient acused upper abdominal pain. The pain began 16 h postoperative and was sharp, severe, radiating to the back, and was associated with dizziness. Physical examination revealed a pale, cold, and clammy patient with tachycardia, hypotension, abdominal distension, and upper abdominal tenderness. The patient had hemodynamic shock, with a systolic blood pressure of 70 mmHg, tachycardia of 110 beats/min, and an altered level of consciousness. His hemoglobin had dropped from 14 g/dL on admission to 6 g/dL. Two liters of normal saline were administered, increasing his systolic blood pressure to 100 mmHg. A bedside ultrasound identified pelvic free fluid. An exploratory laparotomy revealed hemoperitoneum, and over 2 500 ml of blood and clot. All four quadrants were packed. Intraabdominal organs and major vessels appeared normal, and no definite bleeding source was identified. On systematic abdominal exploration, a large hematoma was identified that was occupying the transvers colon mesentery and retroperitoneum (Fig. 1). A clot was removed, revealing ruptured gastroduodenal artery aneurysm with active hemorrhage. The opening was isolated and closed with a 5-0 Prolene suture (Fig. 2, 3). The contents were returned to the abdomen, which was irrigated and closed. The patient was extubated and transferred to a monitored unit. Postoperative laboratory evaluation revealed a hematocrit and hemoglobin of 34% and 12 g/dl, respectively; also showed hyperamylasemia (1543 IU/L, Normal Value (NV) = 15–95 IU/L). An acute pancreatitis was suspected. He remained normotensive throughout his 8-day hospitalization and was discharged home in good condition.

Figure 1. *Large hematoma of bursa omentalis and transvers colon mesentery*

Figure 2. *Gastroduodenal artery dissection*

Discussions

Approximately 3000 cases of splanchnic artery aneurysms have been reported in the literature, with an estimated incidence of 1% in the general population (9).

The true incidence is difficult to determine because many are asymptomatic. They are, however, diagnosed with increasing frequency because of the widespread use of CT, ultrasonography, and magnetic resonance imaging.

The most commonly involved sites are the splenic (60%) and hepatic (20%) arteries. The remaining arteries include the superior mesenteric (5.5%), celiac (4%), gastric and gastroepiploic (4%), intestinal (3%), pancreaticoduodenal and pancreatic (2%), gastroduodenal (1.5%), and inferior mesenteric (rare) (10).

Figure 3. *Aneurysm rupture exposure*

There are a variety of causes including medial degeneration, atherosclerosis, fibromuscular dysplasia, trauma, vasculitis, mycotic infection, congenital anomalies and acute pancreatitis. Portal hypertension and gestation are associated with aneurysm development and an increased risk of rupture (11,12,13).

Early diagnosis can be difficult and therefore requires a high level of clinical suspicion.

Spontaneous intraabdominal hemorrhage due to rupture of a visceral artery is often referred to as an abdominal apoplexy. (14,15)

Visceral artery aneurysms occur equally among men and women. (16)

Heavy smoking, diabetes mellitus, renal insufficiency, coronary artery disease, hyperlipidemia, and hypertension are associated with higher rupture rates.

Compression from the hematoma limits bleeding but may cause mesenteric vein ischemia with intestinal necrosis or intestinal obstruction. (17)

Spontaneous abdominal hemorrhage classically manifests as sudden and often severe abdominal pain accompanied by distension, a drop in hematocrit, and sometimes symptoms of hypovolemic shock. The abdominal pain may be caused by the blood quantity or rapid extravasation as blood itself is not a strong peritoneal irritant. (18)

In the case of aneurysm rupture, rapid hemostasis by transarterial embolization or surgery has a significant impact on mortality. Timely detection and localization of the source of acute intra-abdominal hemorrhage is a challenge.

Conclusions

In conclusion, gastroduodenal artery aneurysm rupture is a rare and challenging entity, and patients can present with nonspecific symptoms. Rapid diagnosis, localization, and surgical or endovascular intervention are necessary to avoid devastating consequences.

Awareness by general surgeons may hasten the diagnosis of visceral artery aneurysms rupture and decrease mortality

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