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CASE REPORT

Gastric Fistula as a Complication of Splenectomy: Case Report and Literature Review

[1]Hana Alhomoud, [2]Mohamed Abdelmohsen

ABSTRACT

Gastric fistula following splenectomy is a rare but serious occurrence, which may result in morbidity or death. Several factors, acting singly or in combination, may predispose to the development of postsplenectomy gastric fistula and perforation. These include direct surgical trauma to the gastric wall, generalized arteriosclerotic disease, hematoma in the gastrosplenic bed, and reflection of gastric muscle fibers into the gastrosplenic ligament. The usual site of rupture of the stomach is along the greater curvature in the fundic portion. In circumstances in which splenectomy is associated with known or suspected compromise of the blood supply to this portion of the stomach, a method of enfolding the greater curvature is done to prevent the development of a gastric perforation or fistula formation. The objective of this study was to report a case of a patient who had splenectomy because of closed abdominal trauma. 3 weeks postsurgery, the patient presented with hematemesis, and the results of investigations showed gastric fistula. During the second operation, perforation was identified at gastroesophageal junction resulting from a huge hematoma at postsplenectomy bed. The lesion was sutured after revival of its borders, and the patient had good recovery.

Awareness of the possibility of this uncommon but serious complication will aid in its early recognition and treatment.

Keywords: Gastric fistula, Splenectomy, Stomach rupture.

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INTRODUCTION

Delayed perforation of the stomach following splenectomy is uncommon. Reports of this complication have appeared sporadically. The perforation is usually situated high on the greater curvature of the stomach where short gastric vessels in the gastrosplenic omentum have been transected, and the cause has been assumed to be direct injury to the gastric wall. However, it appears that interference with the vascular supply to the greater curvature may be a factor in fistula formation.

The objective of this study was to report a case of gastric perforation after splenectomy due to trauma that evolved with necrosis and gastric perforation, which was successfully dealt with.

CASE REPORT

A 37-year-old male was admitted to the emergency unit after fall from height. Physical examination revealed tachypnea, heart rate of 100/minute, and arterial pressure of 100/50 mm Hg. He had severe pain in pelvic due to pelvic fracture. Computed tomography (CT) chest, abdomen, and pelvis showed grade I splenic injury (in accordance with the organ lesion scale of the American Association of Trauma Surgery).

Patient was shifted to operating theater where pelvic fixation was done. Postsurgery, patient developed massive deep venous thrombosis (DVT) and kept on anticoagulant. Five days postsurgery, hemoglobin dropped and blood pressure too dropped, so resuscitation was done. Urgent abdominal CT showed presence of free abdominal fluid with splenic tear.

Laparotomy showed the presence of 500 mL of hemorrhagic fluid free in peritoneal cavity and a splenic tear involving the hilum. In the course of splenectomy, the short vessels were carefully individualized and sectioned. The body and fundic regions of the stomach were inspected without any inadvertent ligatures of the gastric wall being detected. A drain was fixed at left subphrenic space exteriorized through an opening on the left flank. At the end of the intracavity surgical procedure, the coloration of the stomach was normal.

Bowel sounds returned on the second operative day, and oral feeding was started. The drain was removed after 5 days. Patient was kept on anticoagulants due to massive DVT. Ten days post-op patient developed postsplenectomy hematoma at splenic bed in relation to stomach fundus and that was treated conservatively by adjusting the anticoagulant dose.

Three weeks postsurgery, the patient developed hematemesis. Upper endoscopy was done which showed perforated necrotic ulcer with bleeding at fundus stomach around 2 cm from gastroesophageal junction.

Patient was submitted to a new surgical intervention. Laparotomy showed a huge well-developed organized

[1]Consultant, [2]Registrar

[1,2]Department of Surgery, Al-Sabah Hospital, Kuwait City, Kuwait Kingdom of Saudi Arabia

Corresponding Author: Hana Alhomoud, Consultant, Department of Surgery, Al-Sabah Hospital, Kuwait City, Kuwait, Kingdom of Saudi Arabia, Phone: +966551440610, e-mail: hana_alhomoud@hotmail.com

hematoma at splenic bed with fistula tract connecting the perforated fundus ulcer to the hematoma.

The hematoma was evacuated completely with excision of the fistula tract and the lesion at stomach fundus was around 2 × 2 cm and was sutured after revival of its borders with simple stiches on two planes.

The patient was discharged 2 weeks postoperatively in a good general condition.

DISCUSSION

The stomach has exuberant arterial blood irrigation, which makes the organ resistant toward postoperative ischemic changes.[1] Several studies have demonstrated the rich intramural and extramural anastomotic network by experiments.[1,2] Nevertheless, there are some surgical procedures that interfere to a greater or lesser extent with the blood supply, such that reports of gastric necrosis and gastric perforation are becoming more frequent.[3,4]

Classically, this complication has been thought to be secondary to direct trauma to gastric wall by surgical instrumentation.[5] An area of necrosis presumably appears high on the posterior gastric wall and is followed by ulceration and perforation. At the apex of the triangular-shaped gastrosplenic omentum, the superior pole of the spleen is in its closest proximity to the stomach. In the course of ligation of the short gastric arteries in the apex of this triangle, direct injury to the stomach wall may occur. In describing the technique of splenectomy, various authors[6-9] have cautioned against inadvertent instrumentation of this area of the stomach. In spite of this precaution and careful surgical technique, gastric fistulas still do occur following splenectomy.

One of the rarest conditions which may predispose to a gastric fistula following splenectomy is the presence of organizing hematoma with inflammatory reaction in the gastrosplenic omentum adjacent to the gastric wall secondary to rupture of the spleen, which was published by Harrison et al.[10]

In this case study, we believe that the organized huge hematoma was the leading cause for the stomach perforation as it led to compression necrosis on the fundus wall.

There are other several conditions which may predispose to gastric fistula following splenectomy, such as abrasions or denudement of serosal covering of the greater curvature of the stomach resulting from a technically difficult splenectomy, interruption of a reflection of gastric muscle fibers into the gastrosplenic ligament at the attachment to the stomach wall. This condition was demonstrated by Whitesell.[11]

Decreased vascularity, especially in elderly patients with arteroscleroticdisease of the gastric vasculature, may also predispose to gastric fistula postsplenectomy. And severe trauma with multiple injuries or any condition predisposes to stress ulceration.

CONCLUSION

Gastric perforation and fistula formation should be suspected when a patient who has had splenectomy presents unfavorable postoperative evolution. Awareness of the possibility of this uncommon but serious complication will aid in its early recognition and treatment.

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