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CASE REPORT

Delayed Haemorrhage Following Radical Gastrectomy: A Case Report

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Abstract

A 53-year-old man, who underwent total gastrectomy and esophagojejunostomy due to gastric cancer, came back to the emergency ward with delayed intra-abdominal haemorrhage. The patient was suffering from a distended, painful abdomenn. The patient was hypotensive, tachycardic, and oliguric. Laboratory analysis detected severe reduced haemoglobin concentration and coagulopathy. After resuscitation and correction of coagulopathy, the patient was transferred to the operating room. At the emergency operation we found that intra-abdominal haemorrhage was from the transverse mesocolon and site of celiac lymph node dissection. Haemostasis was done by suturing, cauterization, and patches with Surgicel.

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Introduction

Delayed intra-abdominal haemorrhage following a radical surgery is a rare incident with a high mortality rate.[1] Delayed hemorrhage has been defined as bleeding from the surgical site 10 days or more after radical gastrectomy which requires a blood transfusion of more than 2 units of packed red blood cells (RBCs), intensive treatment such as laparotomy or transarterial embolization (TAE), and surgical intensive care unit supervision (1).

There is a 2% to 4% rate of intra-abdominal haemorrhage after total gastrectomy (1,2,3). This phenomenon mostly happens during the first 5 days after surgery. After this period, intra-abdominal haemorrhage is rare. Delayed intra-abdominal haemorrhage is more severe and fatal than early onset intra-abdominal haemorrhage, and in different case reports has a mortality rate of 25% to 50% (1). Recognizing clinical manifestations and predisposing factors of delayed intra-abdominal haemorrhage play an important role in the management of these patients (3) Jeong et al. recommended a diagnostic and therapeutic algorithm for delayed post radical gastrectomy haemorrhage (Figure 1) (3).

Case report

In the case of a 53-year-old man complaining of abdominal discomfort and dyspepsia, after work up, including upper endoscopy and biopsy, the diagnosis of gastric adenocarcinoma was made.

Further evaluations using CT scan and endosonography revealed the stage 3 of disease (T3, N2, M0). The patient was referred to an oncologist in order to receive neoadjuvant treatment before the first operation. Then, he was referred back to a surgeon for operation.

Laparotomy was performed and there was no metastasis. Despite the presence of a locally advanced tumor (T3, N2, M0), total gastrectomy, lymphadenectomy D2, and esophagojejunostomy Roux-on-Y were performed. Because of pancreas invasion due to tumor, the surgeon decided to resect the middle part of the pancreas en-block during gastrectomy. Post-operation period was without complication and the patient was discharged from hospital while on a soft oral diet and in stable hemodynamic status 1 week after surgery. Pathology results showed adenocarcinoma with free margins and 12 involved lymph nodes. The patient referred to an oncologist for adjuant chemotherapy. The patient was returned to the hospital with abdominal distension, pain, hypotension (BP: 90/50 mmhg), tachycardia (PR: 120 min), and oliguria 12 days after the first surgery. Laboratory tests detected coagulopathy due to increase in prothrombine time (PT), and drop in

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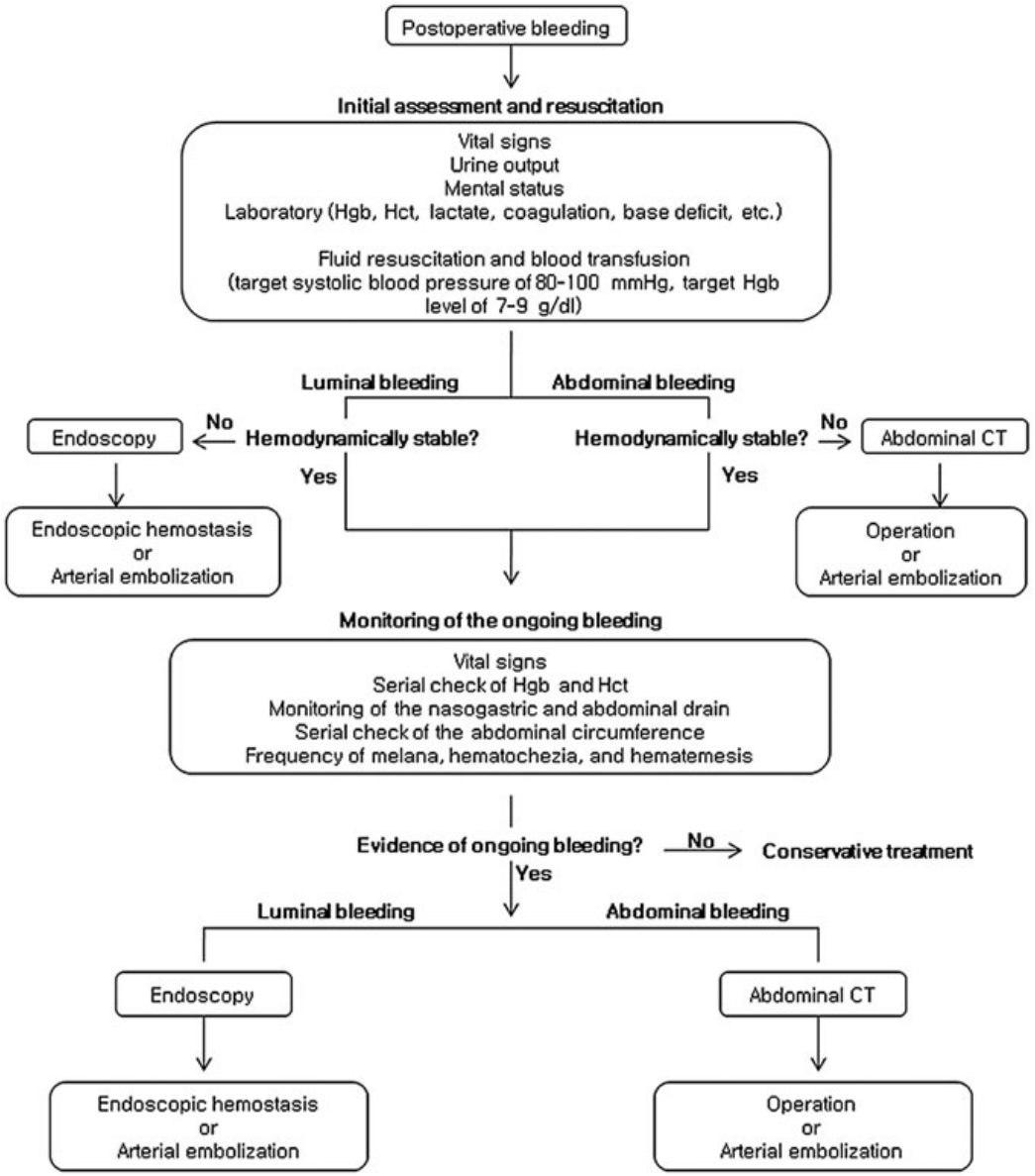
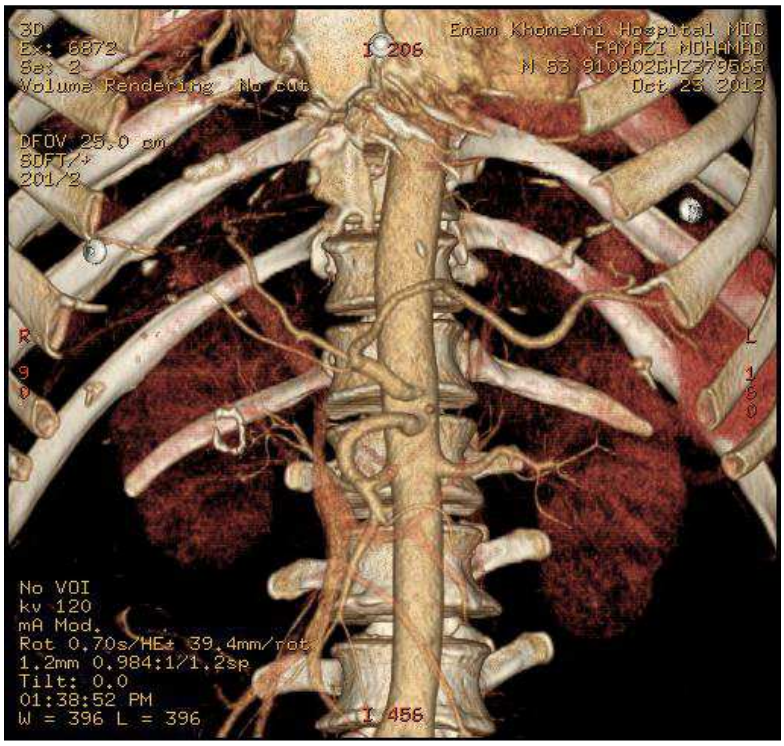


Figure 1. Suggested diagnostic and treatment algorithm for management of delayed bleeding after radical gastrectomy
(Reprinted with permission from publisher: Springer Japan KK, Journal of Surgery Today, Authors: Oh Geong et al.; Predisposing Factors and Management of Postoperative Bleeding after Gastrectomy for Gastric Carcinoma, Vol.41, Page 367)

haemoglobin concentration to 6.5 mg/dl. After resuscitation with 2 units of packed cell, and correction of coagulopathy using 4 units of fresh frozen plasma (FFP) the patient was taken to the operating room. Laparotomy was performed. The abdominal cavity contained 5 litres of blood and clot. After evacuation and washing of abdominal cavity, hemorrhaging site was discovered to be mesocolon of transvers colon and celiac lymph nodes dissection site. Haemorrhage was controlled by suturing material, cauterization, and using surgicel patches. During surgery, patient received 2 more units of packed cell and 2 units of FFP. At the end of surgery the patient was hemodynamically stable and transferred to surgical ICU.

Oral feeding started on the 3rd day after second surgery and the patient was transferred from ICU to surgical ward. On the 7th postoperative day, he developed intra-abdominal haemorrhage again. The haemorrhage presented itself by thin transparent blood and clot coming out of abdominal midline incision. There was no considerable discharge from the drain which was inserted at the site of bleeding (mesocolon and celiac lymph node dissection) before this. Because the patient was hemodynamically stable he was subjected to angiography in another hospital. Major and minor vessels were intact (Figure 2). CT scan of abdomen and pelvis showed blood and clot in the intraperitoneum and retroperitoneum (Figure 3). The second surgery was performed and with transfusion of blood and FFP (2 units of packed cell and 4 units of



Fifure 2. Abdominal CT angiography of the patient after delayed bleeding

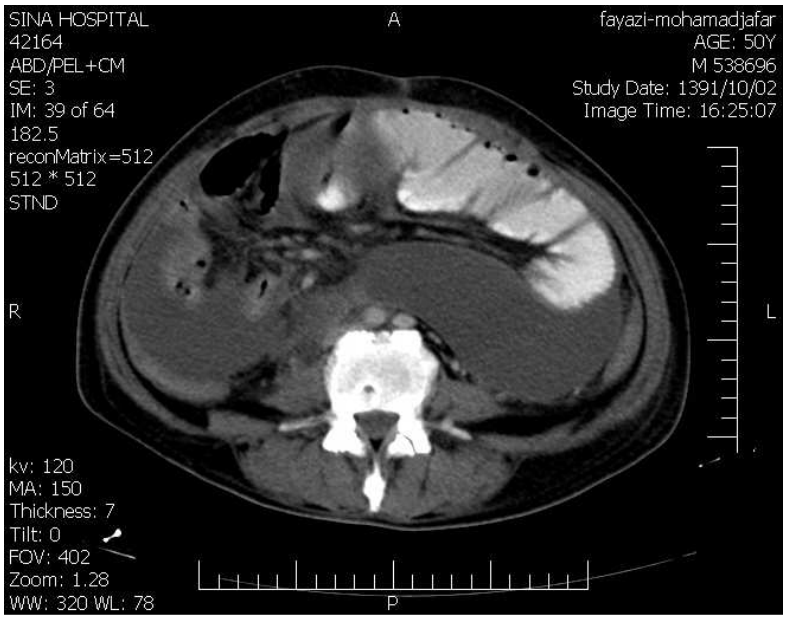


Figure 3. Abdominal CT scan after delayed bleeding

FFP), clot removal, intraperitoneal washing, and changing the drain, bleeding was controlled and the patient managed. He was transferred to ICU again. The patient was discharged on the 14th day after second surgery with stable vital signs, good general appearance, and tolerated oral feeding.

Discussion

Delayed haemorrhage is defined as bleeding from the surgical site 10 days or more after radical gastrectomy (1). In this case, haemorrhage began the 12th day after first surgery. Delayed haemorrhage development rate in patients who have undergone radical gastrectomy is 0.25% (2). Operating time and body mass index are effective independent factors in the occurrence of post-operative haemorrhage (3) In some articles, delayed haemorrhage site was reported to be gastroduodenal artery pseudoaneurysm, proper hepatic artery pseudoaneurysm, common hepatic artery

pseudoaneurysm, or bleeding from transverse mesocolon and anastomotic site (1,4,6,9) The causes of pseudoaneurysms include infection, trauma, or iatrogenia due to surgical procedures (6).

In this patient, site of haemorrhage was transverse mesocolon and celiac lymph nodes dissection site. We have to diagnose delayed haemorrhage after radical gastrectomy as soon as possible; therefore, vital signs, haemoglobin concentration, urine output, and intra-abdominal pressure (when oliguria is present) should be monitored, and serial abdominal examinations should be performed.

Delayed haemorrhage can be intraluminal or intra-abdominal. In case of intraluminal haemorrhage upper endoscopy is the preferred diagnostic method that should be performed by an expert endoscopist.

Since pseudoaneurysms may be the cause of this rare complication in many cases, angiography is another important diagnostic-therapeutic procedure (6). In all previous reports, angiography and, if needed, embolization was recommended. Even if they do not result in complete therapeutic response and cessation of bleeding, they will lessen the mortality rate (4). If haemorrhage could not be controlled by angioembolization, operation should be performed through emergent laparotomy. In this case the haemorrhage was intra-abdominal, an angiography was not available in the hospital, and considering the patient's general conditions he was taken to the operating room after first episode of delayed hemorrhage.

In most cases, delayed intra-abdominal haemorrhage is controlled by Laparotomy. Suture ligation of the bleeding vessels is more effective than cauterization for cessation of bleeding. In the reported case, haemorrhage was stopped using suture ligation, cauterization, and application of Surgicel patches.

Post radical gastrectomy haemorrhage is rare, but it has a high mortality rate of 25%-50% (1,2,3). This complication is mostly diagnosed late and its management is difficult. Delayed haemorrhage often happens abruptly. If there is evidence of intra-abdominal haemorrhage, the patient should be hospitalized immediately, resuscitated, and the coagulopathy disorder if present should be corrected. Then, angiography and embolization is the recommended approach when the patient becomes stable hemodynamically. Finally, a laparotomy can be done if necessary.

In this case, the patient underwent chemotherapy and radiotherapy after surgery and in follow-up (15 months later) his general health was satisfactory. Abdominal CT scan of the patient after second surgery is presented in figure 4.

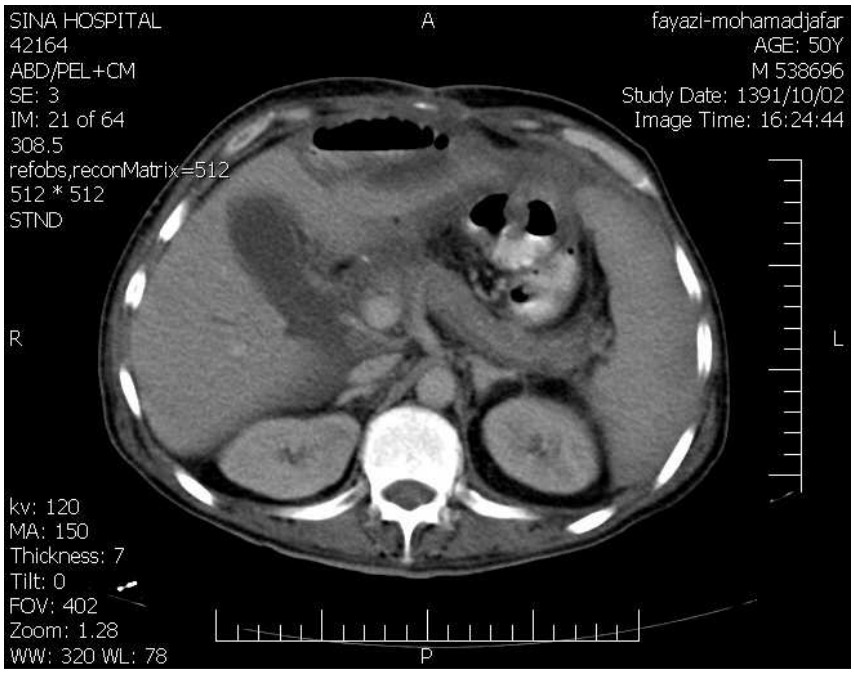


Figure 4. Abdominal CT scan of the patient after second surgery

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