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OLGU SUNUMU / *CASE REPORT*

A Rare Case of Gastroduodenal Fistula Following Gastric Resection and Radiotherapy: First Case in the Literature

Mide Rezeksiyonu ve Radyoterapi Sonrası Gelişen Nadir bir Gastroduodenal Fistül Olgusu: Literatürde İlk Olgu

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ABSTRACT

Gastroduodenal fistula is an abnormal opening of the stomach into the duodenum and it usually develops as a complication of peptic ulcer. Postoperative gastroduodenal fistulas generally develop after peptic ulcer surgery. Gastroduodenal fistula following cancer surgery has not been reported previously. In this paper, we present the development of a gastroduodenal fistula in a patient with gastric cancer and treated by surgey and chemoradiotherapy.

Key words: *fistula, stomach, duodenal, neoplasm*

ÖZET

Gastroduodenal fistül, midenin duodenuma anormal ağızlaşmasıdır ve genellikle kronik peptik ülserin komplikasyonu sonucu gelişir. Ameliyat sonrası oluşan gastroduodenal fistüller genellikle peptik ülser cerrahisi sonrasında gelişir ve kanser cerrahisi sonrası olgu bildirilmemiştir. Bu yazıda mide kanseri için cerrahi, ve kemoradyoterapi uygulanan bir hastada gelişen gastroduodenal fistülü sunuyoruz.

Anahtar kelimeler: *fistül, mide, duodenal, neoplazi*

Gastrointestinal fistulas are abnormal tracts between hollow organs and the skin or other hollow organs. They considerably increase mortality and morbidity rates[1]. Contrary to the relatively easier detection of the external fistulas that open onto the skin, the detection and treatment of internal fistulas are very difficult. Gastro-duodenal fistulas are rare forms of gastrointestinal fistulas and consist of tracts between the duodenum and the stomach[2]. They are mostly seen in patients with chronic peptic ulcers as a complication of the disease. Recovery in these fistulas following the treatment of the ulcer has been reported. They are rarely seen post operatively, however they may be secondary to ulcer surgery[1].

To our knowledge, gastro-duodenal fistula following cancer surgery has never been published previously. In this paper, we present a gastro-duodenal fistula in a 73-year-old female patient diagnosed with adenocarcinoma of the stomach. She had have chemo and radiotherapy following a major surgical procedure for the management of the cancer.

Case Report

A 73 year-old hypertensive woman admitted to the outpatient clinic of our general surgery department with symptoms of dyspepsia and weight loss. Her physical examination and laboratory findings were unremarkable. Her symptoms began three months ago and had become more severe for the last 15 days.

Because of the suspicion of a gastro-intestinal malignancy, a gastro-intestinal endoscopic examination was performed. During the endoscopic examination a vegetative, papillary mass was seen in the antral region of the stomach and punch biopsies were taken from the mass and the surrounding tissue. The pathological diagnosis confirmed the suspicion of malignancy as adenocarcinoma of the stomach (Figure 1).

The woman had an operation consisting of the combination of distal subtotal gastrectomy and gastrojejunostomy (Billroth type II). Following the surgery she received 6 cycles of intravenous chemotherapy containing 5-Fluorouracil and folinic acid. The gastric bed and lymphatic nodes were exposed to radiation at a fractionated dose of 180 cGy (rad) daily for 25 fractions.

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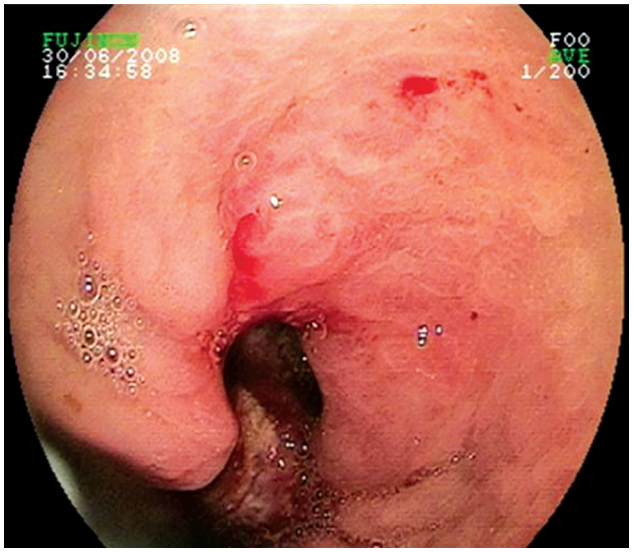

Figure 1. *The view of antral mass during gastroscopy.*

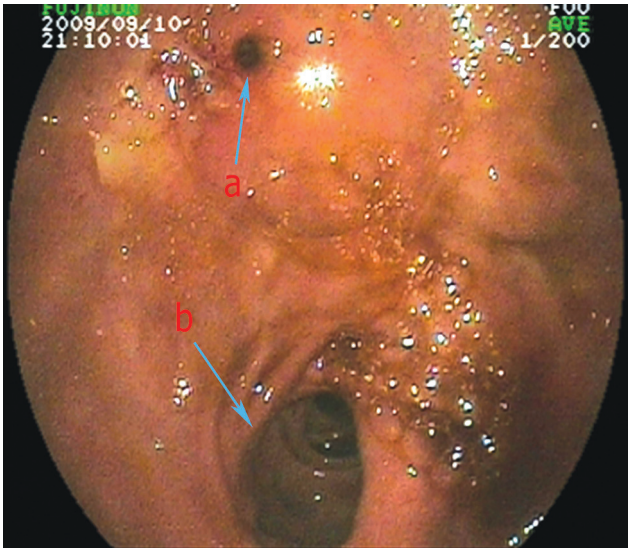

Figure 2. *The view of the gastrojejunostomy anastomosis and the gastro-duodenal fistula during the control gastroscopy 8 months after the surgery. a. Gastro-duodenal fistula. b. Gastrojejunostomy anastomosis.*

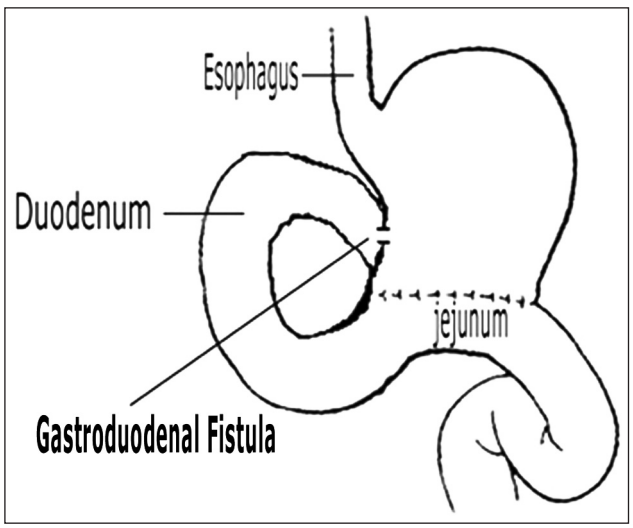

Figure 3. *The diagram representing the most likely localization of the gastro-duodenal fistula*

The woman admitted to our outpatient clinic 8 months later with the symptoms of loss of appetite, fatigue, and vomiting and gastric pain following oral alimentation. She had signs of malnutrition and oral feeding was not possible. We decided to give total parenteral nutrition (TPN) and perform a control endoscopic examination.

Endoscopic examination revealed a second opening through the stomach wall close to the gastric opening of the anastomosis created during the surgery (Figure 2). A copious amount of bile was leaking from this opening into the stomach. The tip of the endoscope was introduced into this opening and duodenal mucosa was seen inside the opening, indicating a gastro-duodenal fistula (Figure 3). There was also widespread erosion and gastritis in the stomach, which might be due to the chronic exposure to bile.

The abdominal ultrasound examination revealed diffuse intra-abdominal ascites and peritoneal spreading of the carcinoma cells. Supportive and adjunct medical treatment was commenced. TPN had been continued for a week and the patient recovered from her symptoms at the end of the first week.

Discussion

Gastro-duodenal fistulas have congenital or acquired forms[1, 3]. The congenital cases have normal mucosal and muscle layer of the channel in both ends of the fistula[4]. Acquired fistulas are usually located at the peri-pyloric area and derived as a complication of chronic peptic ulcer disease. The inflammation in the gastric antrum or duodenal bulb triggers the formation of adhesions between the adjacent walls of the stomach and duodenum. Progression of the inflammation into the muscle layers of the adherent walls results in a fistula tract.[4]

Gastro-duodenal fistulas secondary to gastrointestinal surgery are rare and usually develop following the ulcer surgery. Improper surgical techniques such

as tight sutures may cause ischemic necrosis of the anastomosis edges and lead to fistula formation[1].

Fistula formation rate following gastric surgery varied between 2 and 35%. The lowest frequency was observed following antrectomy while the highest frequency was observed after the left upper abdominal exenteration plus Appleby's method[1]. We could not find any data about the rate of fistula formation following subtotal gastrectomy and radiotherapy.

Radiotherapy is a treatment option with significant benefits in various cancers. Some gastrointestinal malignancies are also sensitive to radiation. However, radiation triggers the development of a sequence of pathological events that leads to fistula formation by inhibiting gastric mitotic activity at the beginning and then causing cell death. Fistula and other complications develop in 5-10% of patients receiving radiotherapy[5]. The complications and their clinical symptoms following radiotherapy have been reported to be dose-dependent. The tumour type, disease stage, patient's age, nutritional status, presence of additional systemic disorders and previous abdominal surgery are other factors that have role in fistula formation[6]. Radiotherapy is used at a dose of 4000-5000 rads for gastric carcinoma and radiation-related complications can develop in the stomach at those levels[7, 8]. De Cosse et al. have reported a higher incidence of adverse radiation effects in hypertensive patients compared to other co-morbid patients[5]. In our case, hypertension, malnutrition, previous abdominal surgery and radiation exposure were the predisposing factors for a gastro-duodenal fistula formation.

Medical treatment directed towards the cause is the primary treatment option of a gastro-duodenal fistula. However, surgical treatment is recommended when the medical treatment fails. If the patient does not recover from the symptoms or additional complications evolve, surgery is the recommended option[9]. The poor general condition of our patient with electrolyte imbalance and peritoneal carcinomatosis led us to medical treatment.

In conclusion gastro-duodenal fistulas should be considered in the differential diagnosis of gastric complaints in patients who had been treated for gastric cancer. In addition, gastro-protective treatment is an effective option, particularly in patients who are not prone to surgical intervention.

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