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## Case Report

# Metachronous Gastric Tube Cancer After Esophagectomy with Gastric Pull-Up – Case Report

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### ABSTRACT

The progresses in the therapy and methods of diagnosis of malignancies led to a prolonged survival and, consequently, to an increase in secondary tumors in cancer survivor patients [1-7]. We report the case of a 64-year-old patient who was diagnosed with a second primary adenocarcinoma in the gastric conduit, more than two years after the esophagectomy with gastric pull-up. We performed a resection of the gastric conduit and reconstructed with an ileocolon interposition.

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## Introduction

The stomach remains the most accepted method of reconstruction of the alimentary tract following an esophagectomy in cancer patients [4, 8-11]. Although rare entities, the number of reported cases of metachronous gastric tube cancers (hereinafter GTC) has increased in the last years due to improved therapy and screening [2]. These advances led to a better prognosis and survival rate, raising the incidence of secondary malignancies [1-7, 12].

## Case Report

The case of a 64-year-old man who developed a metachronous cancer in the gastric conduit was presented in our multidisciplinary tumor conference. In August of 2017 the patient had undergone an esophagectomy with gastric pull-up, due to a neoadjuvantly treated adenocarcinoma of the gastroesophageal junction. The tumor was staged ypT2, ypN0, L0, V0, Pn0, R0. Two years and two months later, a lesion in the gastric antrum was found in a follow-up endoscopy, endosonographically corresponding to a submucosal gastric cancer uT2 N0 (Figure 1). The histopathological examination indicated an adenocarcinoma.

The staging CT demonstrated a circular swelling of the mucosa of the esophagogastric anastomosis (Figure 2) (histopathologically corresponding to a reflux esophagitis) without regional or distant metastases but could not detect any lesion in the gastric antrum. The patient was asymptomatic, and his weight had remained stable during the previous 2 years. Given the fact that the tumor was about 20 mm in diameter and the submucosa was infiltrated, an endoscopic resection was contraindicated. Bearing in mind that our patient did not have any major comorbidities and the tumor was locally advanced without metastases, a primary resection with colon interposition was the therapy of choice.

## I Surgery

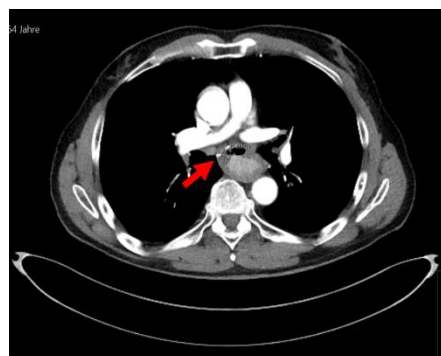
The first stage of the surgical procedure started with the laparotomy. After conducting a careful adhesiolysis, the exploration confirmed the absence of extensive nodal dissemination, liver metastases or peritoneal carcinomatosis. The temporary clamping of the right colic artery showed an adequate blood perfusion to the ascending colon through the middle colic artery, and therefore, the viability of a reconstruction using a colonic conduit. The prepyloric tumor was palpable. After mobilizing the abdominal part of the gastric conduit and post-pyloric duodenum, the gastroduodenal and the right gastric arteries were individually ligated, so that the distal end of the gastric conduit could be respected. The preparation of the ileocolon graft involved the resection of the terminal

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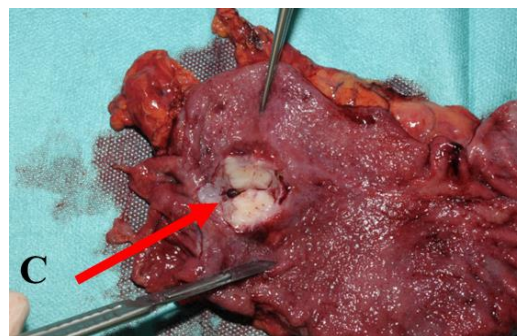
ileum and colon transversum (Figure 3A) and the ligation of the right colic artery and vein. The alimentary continuity was created with a side-to-side ileotransversostomy and an end-to-side anastomosis between the colon conduit and the first jejunal loop. Before the next stage of the surgical procedure, the terminal ileum and mobilized gastric conduit were delivered to the mediastinum through the hiatus.



**Figure 1:** Endoscopic finding: Lesion in the small curvature of the gastric antrum, measuring approximately 20 mm and corresponding to an endosonographic gastric tumor stage uT2 N0.



**Figure 2:** Contrast enhanced CT section. The red arrow indicates a circular swelling of the mucosa of the esophagogastric anastomosis.



**Figure 3:** A) Terminal ileum and ascending colon. B) The original gastric conduit. C) Prepyloric gastric tumor.

The thoracic stage of the surgery began with the mobilization and resection of the gastric conduit (Figure 3B) above the previous esophagogastric anastomosis. With the help of a 21mm circular stapler, the esophago-ileostomy was made, resulting in two thick and intact rings. The nasogastric tube was carefully repositioned inside the neoesophagus. The sufficiency of the esophago-ileostomy was confirmed through the injection of methylene blue through the nasogastric tube. After covering the anastomosis with pleura, two chest drains were placed before closing the thoracotomy. The entire operation took four hours and the amount of blood loss during the surgery was 250 mL.

## II Postoperative Course

Apart from a laparotomy wound dehiscence, which was treated with a vacuum therapy for five days, the postoperative recovery was uneventful. The upper gastrointestinal series done on the fifth postoperative day did not demonstrate any anastomotic leak or stenosis and the introduction of the oral nutrition was well tolerated. The patient was discharged on the twenty first postoperative day. The gross pathology findings revealed a 2.6 cm tumor (Figure 3C), histopathologically corresponding to a poorly differentiated adenocarcinoma. The proximal and distal margins were negative and none of the twelve lymph nodes showed metastatic dissemination. The tumor was staged rpT3, pN0 (0/12), L1, V1, Pn1, R0. The surgery was successful, and no adjuvant chemotherapy was required.

## Discussion

According to a systematic review article from Gentile et al., up to 2% of the cancer patients who underwent an esophagectomy with gastric pull-up developed GTC and the mean interval between the first surgery and the diagnosis was 56.8 months (4-236 months). Our patient developed the metachronous gastric malignancy relatively early, at about 26 months after the first surgery. Given the wide range of onset of metachronous GTCs, the importance of the annual endoscopic surveillance cannot be overstated, as it allows early detection of potentially curable gastric tube cancers [2, 3, 6, 11].

Although the etiology remains uncertain, factors presumably involved in the carcinogenesis are the mediastinal radiotherapy, reflux-induced intestinal metaplasia in vagotomized gastric tubes or *Helicobacter pylori* [6, 13, 14]. The choice of therapy should be tailored to the patient and tumor stage. Regarding the reported case, the possibility of an

endoscopic resection was discarded, because of the size of the tumor (approximately 20 mm) and invasion of the submucosa. Although associated with complications, the best curative option for patients with locally advanced gastric tube cancers is the radical resection of the gastric conduit with lymphadenectomy and reconstruction with a colon conduit. A neoadjuvant therapy was not indicated due to the absence of regional and distant metastases.

Mine *et al.* conducted a retrospective study that addressed the results of the colon interposition procedures after esophagectomy and concluded that ileocolon interposition was associated with an unquestionably lower frequency of leakage, compared with the reconstruction with ascending-transverse colon or descending colon. This is due to the identical diameter of the ileum in relation to the esophagus. Another advantage is the antireflux mechanism created by the ileocecal valve [8, 9].

## Conclusion

The long-term endoscopic follow-up of patients with GTC is of the uttermost importance in order to detect potentially curable patients [2, 13]. Although associated with complications, the treatment of choice for locally advanced gastric conduit tumors is a total gastrectomy with colon interposition [3, 4, 13].

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