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Case Report

Re-Resection and Deltopectoral Flap Reconstruction for Recurrent Anastomotic Esophageal Cancer

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Abstract

In this case report, we present a challenging scenario of isolated local recurrence following esophagectomy for esophageal cancer. Our patient, a 60-year-old man, developed anastomotic recurrence after neoadjuvant chemoradiotherapy and esophagectomy with gastric tube reconstruction via the retrosternal route. To address this, we implemented an innovative surgical approach involving esophagogastrectomy, reconstruction using a deltopectoral fasciocutaneous local flap, and the creation of a feeding jejunostomy. This strategy not only provides significant technical advantages but also offers nutritional benefits. By adopting this novel approach, there is a potential to enhance the current management of recurrent anastomotic esophageal cancer after esophagectomy.

Keywords: Recurrent anastomotic esophageal cancer; Retrosternal route; Deltopectoral fasciocutaneous local flap

Introduction

Esophagectomy is considered the primary curative treatment for locally advanced esophageal cancer. Previous studies have reported a significant variability in the rate of locoregional recurrence following this procedure, ranging from 9% to 19% [1,2]. However, the incidence of local recurrence at the anastomotic site has been generally found to be low, affecting less than 5% of operated patients [2]. Although complete resection can result in favorable long-term outcomes [2,3], there is still no consensus on the optimal surgical approach for managing recurrent anastomotic lesions. Here, we present a case of recurrent anastomotic esophageal cancer that was effectively treated through re-resection and reconstruction using a deltopectoral fasciocutaneous local flap.

Case Presentation

A 60-year-old man diagnosed with T1bN3M0 lower third thoracic esophageal squamous cell carcinoma underwent neoadjuvant chemoradiotherapy with a total radiation dose of 43.2 Gy delivered in 24 sessions of 1.8 Gy each. The chemotherapy treatment plan involved administering carboplatin on a weekly basis, with doses adjusted to achieve an area under the curve of 2 mg per mm per minute, along with paclitaxel at 50 mg/m^2 body surface area, for a period of six weeks. The neoadjuvant chemoradiotherapy regimen resulted in partial tumor response, and four months later, the patient underwent a McKeown minimally invasive esophagectomy with gastric tube reconstruction via the retrosternal route. Subsequent pathology revealed a pathological complete resection (ypT0N0M0), obviating the need for adjuvant therapy. However, after twenty months, the patient began experiencing dysphagia, leading to suspicion of tumor recurrence at the anastomotic site. A thorough cancer staging evaluation was conducted, including endoscopic biopsies (Figure 1A), endoscopic ultrasound, chest and abdomen computed tomography, and positron emission tomography (Figure 1B and C). The results confirmed the presence of recurrent squamous cell carcinoma at the esophagogastric anastomosis. Consequently, after one month, the patient underwent esophagogastrectomy and reconstruction. During the procedure, an upper hemi-sternotomy revealed a recurrent anastomotic tumor (Figure 2A), and a segmental defect of approximately 7 cm was observed after the esophagogastrectomy (Figure 2B). To address this issue, we opted to use a deltopectoral fasciocutaneous local flap with a propeller transposition design for the purpose of reconstruction (Figure 2C). To redirect post-operative salivary flow, we implemented a temporary esophagostomy at the superior edge of the tubed flap (Figure 2C). Additionally, we established a feeding jejunostomy to provide nutritional support. To close the donor site, we advanced the flap on the chest wall and applied a split-thickness skin graft to the shoulder area (Figure 2 D). The patient experienced a fever episode along with local wound infection five days after surgery. However, with appropriate medical treatment, the condition improved. During subsequent follow-up esophagography, a mild leakage was detected, which necessitated the continuation of nutrition support through a feeding jejunostomy. After successfully managing these postoperative complications, the patient was discharged three weeks later. At six weeks post-surgery, he gradually started consuming water in small sips as part of the recovery process. Ten weeks after the operation, the patient underwent esophagostomy closure, taking into account the improvement in his dietary status. Subsequently, he received adjuvant chemotherapy with 5-fluorouracil and cisplatin. After eight months, the patient began experiencing progressive dysphagia due to an anastomotic stricture. However, these symptoms were effectively

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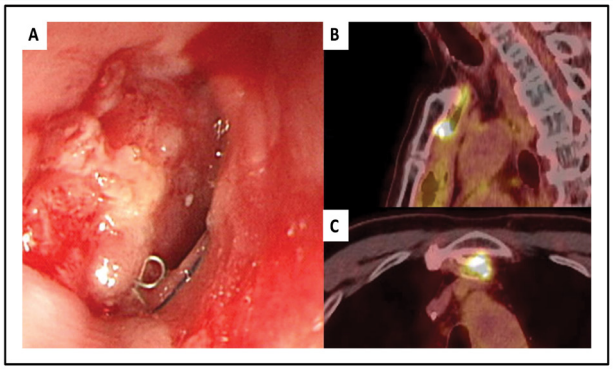

Figure 1: Pre-operative imaging assessment. (A) An endoscopic examination revealed a protruding recurrent cancerous mass at the site of esophagogastric anastomosis; (B and C) Positron emission tomography images (sagittal and axial sections) identified an intensely hypermetabolic mass at the esophagogastric anastomosis located in the retrosternal region.

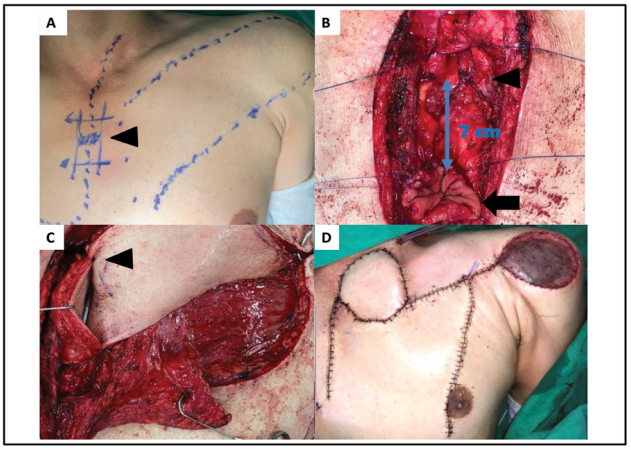

Figure 2: Detailed surgical procedure. (A) Incision made for the removal of the tumor (marked by arrowhead) and subsequent reconstruction; (B) A 7-cm segmental defect was observed between the residual portion of the esophagus (marked by arrowhead) and the gastric tube (marked by arrow); (C) A locally sourced deltopectoral fasciocutaneous flap, designed with propeller transposition, was used for the reconstruction of the segmental defect. Then a temporary esophagostomy of 1.5 cm (marked by arrowhead) was created at the superior edge of the flap; (D) Condition of the wound following the surgical procedure.

alleviated through endoscopic dilatation. A follow-up at 16 months revealed no evidence of tumor recurrence.

Discussion

Although rare, isolated local recurrence after curative esophagectomy for esophageal cancer can potentially be cured through complete resection. However, the surgical approaches for repeated reconstruction in cases of recurrent anastomotic esophageal cancer have been diverse. These include reanastomosis of the proximal esophagus and residual gastric conduit, as well as colon or jejunal interposition [2,3]. The surgical management technique utilized in our patient, consisting of re-operation after esophagectomy and gastric tube reconstruction via the retrosternal route, offers at least two significant advantages over previous methods. Firstly, locating the esophagogastric anastomosis becomes easier after upper hemi-sternotomy, reducing the risk of extensive pneumonolysis and potential lung injury caused by adhesions from previous radiotherapy and surgery. Additionally, consistent oxygenation can be achieved under two-lung ventilation throughout the procedure, particularly for individuals with compromised cardiopulmonary fitness following prior chemoradiotherapy. The most direct approach to reconstructing the esophagus after recurrent anastomotic esophageal cancer resection is through the anastomosis of the residual esophagus and gastric tube. However, this method may not always be possible when a long segmental defect is present. In such cases, an alternative conduit such as the colon or jejunum should be used for reconstruction. However, the harvest of a colonic or jejunal graft can be challenging due to prior abdominal surgery. To improve perioperative outcomes, the placement of a jejunostomy tube during esophagectomy has been shown to be beneficial [4]. However, the early introduction of enteral nutrition through feeding jejunostomy after colon or jejunal interposition may be limited due to multiple anastomoses distal to the jejunostomy wound. A local fasciocutaneous flap presents a viable option for reconstructing cervical esophageal or hypopharyngeal defects [5], and is less surgically demanding than a free flap. Given the previous anastomosis at the retrosternal region, the utilization of a deltopectoral fasciocutaneous local flap proved to be a viable option for reconstructing the long segmental defect observed in our patient. Significantly, the implementation of a local flap technique enabled the prompt initiation of enteral nutrition via feeding jejunostomy. This achievement can be attributed to the reduced complexity of the abdominal surgical procedure. In light of these findings, we believe that embracing this surgical approach holds substantial promise for improving the existing treatment strategies for recurrent anastomotic esophageal cancer following esophagectomy.

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