CASE REPORT

Pedicled jejunal flap reconstruction for partial duodenectomy: a report of two cases

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Abstract

Conventional jejunal reconstruction procedures for large duodenal defects include jejunal serosal patch repair and duodenojejunostomy and have some risks of postoperative complications. The pedicled jejunal flap is used for reconstruction following laryngopharyngectomy, esophagectomy and other gastrointestinal surgeries. We report two cases of successful closure of duodenal defects after partial duodenectomies by pedicled jejunal flap reconstruction. Case 1: A 72-year-old man was diagnosed with gastrointestinal stromal tumor by esophagogastroduodenoscopy (EGD), endoscopic ultrasound-guided fine needle aspiration biopsy and computed tomography (CT). Case 2: A 63-year-old woman was diagnosed with early duodenal cancer using EGD and CT. Partial duodenectomy and pedicled jejunal flap reconstruction were performed in both patients. A part of the jejunum was formed into a pedicled flap to fit the duodenal defect and duodenojejunal anastomosis was performed. The patients did not report any postoperative gastrointestinal symptoms or abnormal findings during follow-up EGD or upper gastrointestinal radiography.

INTRODUCTION

Gastrointestinal surgeons sometimes find it difficult to repair a large duodenal defect caused by a severe perforating duodenal ulcer or by partial duodenectomy for duodenal tumors. Repairing procedures for duodenal defects include simple closure, jejunal serosal patch repair and duodenojejunostomy (Roux-en-Y anastomosis). These procedures have risks of duodenal stenosis, internal hernia and blind loop syndrome. Jejunal reconstruction is performed for various surgical procedures such as laryngopharyngectomy, esophagectomy and other gastrointestinal surgeries [1, 2]. Here, we report two cases of successful pedicled jejunal flap reconstruction for partial duodenectomy.
Case 1

A 63-year-old woman was found to have a 7 × 8 mm, 0-IIc type tumor on the opposite side of the duodenal papilla in the follow-up EGD after endoscopic submucosal dissection for early gastric cancer (Fig. 3a). The pathological diagnosis was well-differentiated adenocarcinoma (Fig. 3b). CT revealed no lymph node metastasis or distant metastasis (Fig. 3c). We diagnosed early duodenal cancer as cT1aN0M0 (TNM classification). We planned to perform partial duodenectomy first and then pancreatoduodenectomy secondarily if the pathological examination of the resected specimen showed advanced duodenal cancer. After the duodenectomy, pedicled jejunal flap reconstruction was performed in the same manner as in Case 1. The pathological diagnosis was early duodenal cancer (pTisN0M0Stage0). The patient was discharged on the ninth postoperative day without any surgical complications. No tumor recurrence or gastrointestinal symptoms were reported 13 months after surgery.

DISCUSSION

Pedicled jejunum is used in the form of an interposition or flap for reconstruction following laryngopharyngectomy, esophagectomy and other gastrointestinal surgeries. Only a few cases of pedicled jejunal flap reconstruction for duodenal defects have been reported [3, 4]. Simple closure, jejunal serosal patch repair and duodenojejunalostomy (Roux-en-Y anastomosis) have been performed to repair duodenal defects. However, these procedures have risks of duodenal stenosis, internal hernia and blind loop syndrome. Pedicled jejunal flap reconstruction has many advantages compared with conventional procedures. Firstly, foods pass physiologically and the patient has a lower risk of postoperative ileus due to internal hernia as it is not necessary to make significant changes in the functioning of the digestive tract. Secondly, it is possible to close even a larger duodenal defect by forming a large flap [5]. Thirdly, pedicled jejunal flap repair leads to better wound healing of the defect than the serosal patch [6]. Finally, in a situation like Case 2, a two-step pancreatoduodenectomy is easier to perform than the

Figure 1: (a) EGD showed a submucosal-like mass on the opposite side of the duodenal papilla (black arrow). (b) EUS revealed a tumor derived from the muscular layer of the duodenal wall (white arrow). (c) CT showing an enhanced tumor in the descending part of the duodenum. (d) Immunohistochemical assessment of the fine needle aspiration biopsy samples showing the GIST (KIT ×400).
other procedures. On the other hand, postoperative failure and flap necrosis due to the ischemia is the specific complication of this procedure.

When performing pedicled jejunal flap reconstruction, attention should be paid to the direction of the intestinal peristalsis and flap size. A too small or too large flap induces duodenal stenosis or diverticulum at the anastomotic site. In both of our cases, duodenal stenosis, diverticulum and motility disorder were not observed on follow-up EGD or upper gastrointestinal radiography. We think it is also important to confirm good blood flow of the flap using intraoperative Doppler ultrasonography in some high-risk cases to prevent postoperative failure and flap necrosis [7].

Herein, we report two cases of successful closure of a duodenal defect after a partial duodenectomy using pedicled jejunal flap reconstruction. In cases where gastrointestinal surgeons may have trouble closing a large duodenal defect caused by a severe perforating duodenal ulcer and partial duodenectomy for a benign tumor or early carcinoma, pedicled jejunal flap reconstruction would be useful. More cases with long-term follow-up data would be needed to complement the success of this procedure.
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CONFLICT OF INTEREST STATEMENT

None declared.

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