Synchronous Minimally Invasive Resection of Esophageal Cancer and Pancreatic Cancer: Advanced Single-Stage Procedure

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Video Links:

VATS thoracoscopic subtotal esophagectomy

Laparoscopic gastric tube construction

Laparoscopic distal pancreatectomy & splenectomy

Gastric tube pull-up

Case Report

We presented a 70-year-old male diagnosed with esophageal squamous cell carcinoma (SCC), cT4N2Mx, in the lower esophagus. A hypo-enhancing lesion at the pancreatic tail was also detected, which was FDG-avid on positron emission tomography scan.

Considering the intend of synchronous minimally invasive resection, neoadjuvant treatment was designed based on both pathological identities. After CCRT (weekly carboplatin−paclitaxel and intensity modulated radiation therapy of 4000 cGy), downstaging of esophageal cancer to ycT3N1M0 and partially resolved FDG uptake of pancreatic tail tumor were disclosed.

Video-Assisted Thoracoscopic (VATS) Subtotal Esophagectomy, Laparoscopic Distal Pancreatectomy and Splenectomy

During VATS phase, the esophagus was dissected and resected with Endo-GIA at the level of neck superiorly and esophagogastric junction inferiorly. The associated intrathoracic lymph nodes were also dissected.

After laparoscopic trocars set, the greater omentum was detached with preservation of gastroepiploic arch. Short gastric arteries were divided. Left gastric artery was divided with Endo-GIA. Lymph nodes at celiac axis were dissected. The stomach was resected partially including cardia with stapler. Right gastric and gastroepiploic arteries were preserved. Stapled ends were sutured together.

Splenogastric and splenocolic ligaments were mobilized. Lienorenal and lienophrenic ligaments were divided. The adhesions between posterior wall of stomach and pancreas were divided. Splenic artery was ligated with Hem-o-lok. The pancreatic parenchyma with splenic vein were divided using Endo-GIA following a gradual stepwise compression. After bilateral neck lymph node dissection, the gastric tube was pulled up through posterior mediastinal route. The cervical end-to-side esophagogastrostomy was performed with Endo-GIA, reinforced with 4-0 Maxon continuous sutures.

Outcome

The pathological report later disclosed ypT0N0Mx and tumor regression grade 1a of esophageal cancer. The pancreatic tail tumor was assessed as ductal adenocarcinoma, pT1cN2Mx, histologic grade 2, with lymphovascular invasion and perineural Invasion.

Discussion

The Dilemma of Diagnosis: Double Primary Cancer or Metastatic Disease?

The most common primary cancer sites of pancreatic metastasis are kidney, colorectal cancer, melanoma, breast cancer, lung carcinoma and sarcoma. Surgical resection is advocated when the lesion is single and for patients fit to perform pancreatectomy.

The Design of Preoperative Treatment

Neoadjuvant CRT followed by surgery, as well as definitive CRT, demonstrate comparable effectiveness in overall survival in locally advanced esophageal SCC. Considering a resectable pancreatic tumor, neoadjuvant chemotherapy (ChT) is not advised.

The Essentials of Safely and Effectively Accomplishing a Synchronous Minimally Invasive Resection

Neoadjuvant treatment facilitated synchronous minimally invasive resection. Omentum was divided by chest surgeons to preserve right gastric and gastroepiploic arteries; dissection of celiac trunk was performed by general surgeons to divide splenic vessels. Celiac lymph node dissection was simplified after splenic artery controlled; gastric tube was constructed based on clarified anatomy.

Simulating The Perioperative Treatment Strategy

This patient needs no further treatment for esophageal SCC with complete remission, while survival benefit can be obtained from adjuvant ChT in resected PC. mFOLFIRINOX or gemcitabine─capecitabine will be evaluated by multidisciplinary tumor board.

Conclusion

After well-designed neoadjuvant treatment and participating surgeons' interactions, synchronous minimally invasive is considered part of a curative treatment strategy that leads to long-term survival.



Figure 1 Left decubitus position during VATS phase.

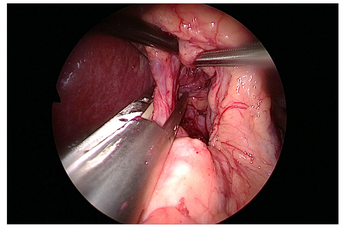


Figure 2 Division of left gastric artery.

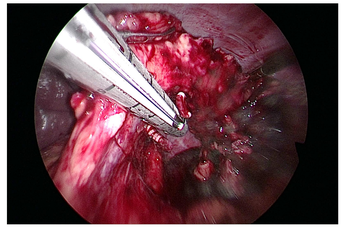


Figure 3 Division of pancreatic parenchyma.

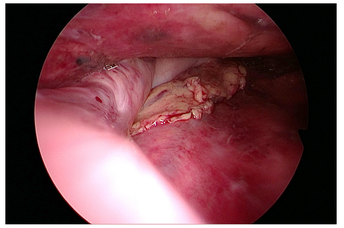


Figure 4 Gastric tube pull-up under thoracoscopy.

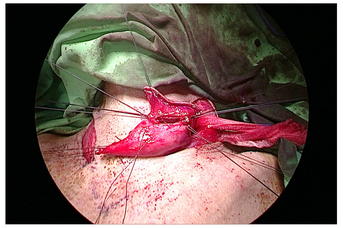


Figure 5 Cervical end-to-side esophagogastrostomy.

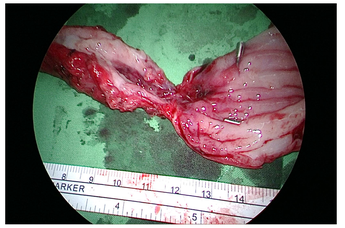


Figure 6 Esophageal SCC, ypT0N0Mx.



Figure 7 Pancreatic tail ductal adenocarcinoma, pT1cN2Mx.