Endoscopic Management of Persistent Chylothorax after Esophagectomy for Cancer

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Abstract

Chylothorax is a rare but serious complication after esophageal surgery. Conventional management includes parenteral or modified enteral diet associated with somatostatin or octreotide, or surgical revision. In the face of recurrent and persistent disease, less conventional therapies, such as midodrine administration or lymphatic embolization, have been described. We report a 47 years-old male presenting a recurrent chylothorax after esophagectomy for cancer. Whereas all currently published treatments failed to control lymph oozing, healing was finally achieved by endoscopic ultrasound (EUS) guided intrathoracic transgastric drainage (GITD).

ABBREVIATIONS

CT scan: Computed Tomography; EUS: Endoscopic Ultrasound; GITD: Guided Intrathoracic Trans-gastric Drainage

INTRODUCTION

Because of its low incidence, management of post-operative chylothorax is controversial. Facing failure of various approaches, we report the success of EUS-GITD in the case of a mediastinal collection resulting from recurrent post-esophagectomy chylothorax.

CASE PRESENTATION

A 47 years old man was referred to our center for early Barrett’s neoplasia and endoscopic evaluation. Esophagogastroduodenoscopy showed a ulcer on the Barrett's mucosa with no lifting sign. Histopathologic examination revealed a superficial adenocarcinoma. Complete workup excluded local extension or distant metastases. After multidisciplinary discussion, the patient underwent an Ivor-Lewis esophagectomy with a 2-field lymphadenectomy and prophylactic thoracic duct ligation. Definitive histopathologic report confirmed a pT1bN0Mx adenocarcinoma. On the 4th postoperative day, the patient developed hypoxemia. A chest CT scan demonstrated a mediastinal effusion, extending left to the esophago-gastric anastomosis, with bilateral pleural effusion and atelectasis. No leak was observed on amidotrizoate swallow. A right-sided chest tube was inserted. High-volume (800 ml/day) fluid drainage with elevated triglyceride dosage (124mg/dl) confirmed chylothorax diagnosis. Initial management consisted in fasting, total parenteral nutrition and octreotide infusion. As no improvement was seen after 2 weeks, the thoracic duct was surgically re-explored after preoperative injection of a fatty dye into the nasogastric tube. While there was no main duct leakage, some collateral branches showed diffuse effusion and were ligated. Fibrin sealant was also applied. Failure of this procedure could become part of the armamentarium for management of chylothorax.

DISCUSSION

This case shows that EUS-guided transmural drainage could become part of the armamentarium for management of chylothorax. This is particularly illustrative in the current report where all the classical medical and surgical approaches had failed.

Chylothorax is defined as chyle leakage into the pleural space, due to thoracic duct or collateral channels injury. The close relation of the thoracic duct with the esophagus leads to higher rates of chyle leak after esophagectomy, compared to other thoracic procedures [1]. With an incidence ranging from 0.4-4% and a mortality rate between 0-82% [2], chylothorax remains a rare, but potentially lethal complication following esophagectomy [1]. Triglyceride concentration above 110 mg/dL or presence of chylomicrons in a milky pleural fluid supports the diagnosis. Initial treatment is conservative, based on parenteral or modified enteral diet (medium-chain triglycerols) in association with somatostatin or octreotide. While it is admitted that surgical revision should be performed within seven days from initial intervention, no general consensus on surgical indication or timing exists [3]. Leaks above 13.5ml/kg/day after three days of conservative management suggest treatment failure [2]. Revision should include ligation of all right-sided tissues between column and aorta if the thoracic duct was not initially ligated or its variable anatomy identified by lymphangiography. Pleurodesis may also be performed. Facing persistent leaks, less conventional therapies have been described. These include midodrine (an α-1 adrenergic agonist) administration and pleurovenous or pleuroperitoneal shunts [4]. Okhura and colleagues recently reported the successful combination of etilefrine, a sclerosing agent, with octreotide [5]. Interventional procedures, such as lymphangiography and thoracic duct embolization, should be considered in high flow leaks and poor operative candidates [6].

None of the attempted strategies could halt chyle leakage in our case and the chylothorax evolved to a chronic mediastinal collection. Endoscopic drainage of mediastinal collections has been proposed before, essentially in the context of mediastinal extension of pancreatic pseudocysts [7,8]. A few cases of endoscopic management of lymphocele have been reported but these dealt with delayed collections becoming symptomatic long after surgery [9].

Monk and colleagues reported a 56 year-old patient in whom cystogastrostomy has been performed under CT guidance for a symptomatic post-esophagectomy mediastinal lymphatic cyst [10]. In our case, pigtail stents were placed by EUS-guided transgastric drainage. We believe this approach is safer and more accurate, allowing for precise puncture and hence reduced hemorrhagic risk. This endoscopic strategy could represent an interesting option in the case of postoperative recurring mediastinal chyle collections or even become considered as first-line therapy.
CONSENT

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

REFERENCES