

# Successful Management Of Chylothorax Following Transhiatal Esophagectomy

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## Abstract

Chylothorax is an uncommon complication following esophagectomy and should be suspected when there is an unexplained high-volume chest-tube output in the postoperative period. Prolonged conservative treatment for these patients who are already debilitated has been associated with high morbidity and mortality. Early operative intervention and ligation of the thoracic duct has been advocated to salvage these patients. We report the successful management of a patient with post-esophagectomy chylothorax.

## BACKGROUND

Chylothorax is characterized by the presence of chyle in the pleural space.<sup>2</sup> This is a relatively uncommon but potentially life-threatening and difficult-to-treat complication after esophagectomy. It occurs mostly after cardiac and thoracic surgeries<sup>6</sup> and is often associated with pulmonary complications. Experience in managing these cases is limited to large centers performing esophagectomies in good numbers. The daily amount and duration of chyle drainage along with the nutritional status of patients dictate the need and timing for reoperative surgery. The timing of reoperative surgery after esophagectomy is crucial especially in a nutritionally debilitated patient. An initial trial of conservative treatment<sup>5</sup> is often justified because it allows undisturbed healing of the esophagogastric anastomosis. On the other hand, postponing a reoperation too late may lead to severe metabolic<sup>7</sup>, immunologic, nutritional<sup>3</sup>, and cardiorespiratory consequences. We report the successful management of a patient with postesophagectomy chylothorax.

## CASE REPORT

A 45-year-old male presented to our department with esophageal stricture for restoration of gastrointestinal continuity. He had accidentally ingested toilet cleaning acid on 20-5-2011 for which underwent feeding jejunostomy on 30-6-2011. During this admission, upper gastrointestinal endoscopy revealed an ulcero-nodular lesion with stricture at 28cm, suspicious of malignancy. Biopsy was reported as esophageal ulcer with no evidence of malignancy in the

tissue sent. On contrast-enhanced computed tomography of abdomen and chest, a well-defined circumferential wall thickening was noted in the lower third of the esophagus with proximal dilatation. A fat plane was preserved between esophagus and descending aorta.

In view of the possibility of coexisting malignancy, the patient underwent trans-hiatal esophagectomy with gastric pull-through, bilateral intercostal drainage (ICD) and feeding jejunostomy on 2-1-2012. In the immediate post-operative course, the patient had high output in the left ICD (Figure 1; about 2500 to 3250ml per day).

ICD fluid analysis confirmed chylothorax. An opinion of a cardiothoracic surgeon was obtained.

### Figure 1

Figure 1: High-output drainage in the left ICD bag following transhiatal esophagectomy



In view of persistently high chylous output from the left ICD, it was planned to proceed with surgical ligation of the thoracic duct on the 7<sup>th</sup> postoperative day. The patient was fed with ice-cream through the feeding jejunostomy tube immediately before surgery.

Right posterolateral thoracotomy and thoracic duct ligation were done under general anesthesia. The right lung was retracted. The thoracic duct was ligated at multiple levels with surrounding tissues by ligating the tissue between azygos vein, aorta and vertebral body. After thoracic duct ligation, the ICD drainage was 200ml on the first postoperative day and gradually decreased, after which the ICD was removed.

### DISCUSSION

Chylothorax after esophagectomy should be suspected when there is an unexplained high-volume chest-tube output. It is often serosanguinous until then. The diagnosis is confirmed

by a triglyceride level of 110mg/dl or greater and the presence of chylomicrons in the chest tube drainage. Once the diagnosis is secured early intervention is critical. Although an exact volume of output as a threshold has not been shown, when the effluent is greater than 800cc per day for 4 to 5 consecutive days, waiting for the leak to stop on its own is futile and may be dangerous as it risks leukopenia and malnutrition. A high rate of mortality has been reported in post-esophagectomy patients when surgery is delayed.<sup>9,10</sup> Re-operation with thoracic duct ligation within five to seven days after the initial procedure has been suggested to save these patients.<sup>1,4,10</sup> Total parental nutrition with complete cessation of all oral intake, somatostatin, medium-chain triglyceride diets and percutaneous injection of sclerotic agents into the cisterna chyli will most likely fail in this situation. Re-operation should not be delayed in a post-esophagectomy patient if the patient is to be salvaged.<sup>8</sup>

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