Non-Surgical Management of Chylotorax After Extrapleural Pneumonectomy: Case Report

Ekstraplevral Pnömonektomi Sonrası Gelişen Şilotoraks Olgusunun Cerrahi Dışı Tedavisi

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ABSTRACT Chylothorax is a rare complication of thoracic surgery. It may lead to serious metabolic, immunologic and nutritional disturbances. A 38-year-old man underwent extrapleural pneumonectomy for diffuse malignant mesothelioma. On postoperative day 2, a milky drainage about 1100 mL/day started. The fluid had physical and laboratory characteristics of chylothorax. Conservative treatment consisting of medium chain triglycerides and ocreotide 400 μg/day was initiated. On postoperative day 13, chest tube was removed and the patient was discharged uneventfully. Ocreotide and nutritional support including medium chain triglycerides may accomplish definitive treatment for post surgical chylothorax to avoid an aggressive surgical therapy.

Key Words: Mezothelioma, chylothorax, triglycerides

ÖZET Şilotoraks göğüs cerrahisinin nadir komplikasyonlarından biridir. Hayatı tehdit edebilecek metabolik, immünolojik ve nütrisyonel bozukluklara yol açabilir. Otuz sekiz yaşında erkek hastaya, malign mezotelyoma nedeni ile ekstraplevral pnömonektomi yapıldı. Ameliyat sonrası 2. günde 1100 mL/gün kirli beyaz renkte, süt kıvamında plevral drenajı oldu. Plevral sıvının şilöz karakterde olduğu tespit edildi. Hastaya deri altına okreotid 400 μg/gün ve orta zincirli yağ asidinden zengin diyet başlandı. Ameliyat sonrası 13. günde göğüs tüpü çekilerek hasta taburcu edildi. Akciğer rezeksiyonları gibi ciddi cerrahi girişimler sonrasında gelişen şilotoraks olgularında okreotid ve orta zincirli yağ asidinden zengin diyet, başka girişimlere gerek kalmadan gerekli tedaviyi sağlayabilmektedir.

Anahtar Kelimeler: Mezotelyoma; şilotoraks; yağ asitleri

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Post-surgical chylothorax represents chyle in the pleural cavity due to the damage to the thoracic duct during surgery. Delay in diagnosis and treatment lead to nutritional and immunologic disturbances due to the loss of chyle including essential proteins, fat, vitamins and immunoglobulin and increase the risk for loculation, organization, and infection of the chylothorax. Persistent drainage after a surgical intervention or increasing amount of pleural fluid after oral feeding should raise suspicion. In our case, the patient underwent a gross operation for malignant mesothelioma and re-operation would enhance the risk for mortality and morbidity. Successful treatment was achieved by ocreotide and nutritional support including middle chain triglycerides (MCT).

CASE REPORT

A 38-year-old male was operated for malignant mesothelioma. He underwent extrapleural pneumonectomy for the diffuse disease. The operation and postoperative day one were uneventful. On postoperative day two, a muddy white drainage approximately 1100 cc/day started after initiation of oral feeding. Laboratory analysis showed that the fluid was typically chylous (total cholesterol was 29 mg/dL and triglycerides were 621 mg/dL). On postoperative day three, a long acting somatostatin, ocreotide, (Sandostatin ampule; Novartis Pharmaceuticals; East Hanover, NJ) 100 μg was administered subcutaneously every 6 hours and 2500 calories/day dietary support which contained MCT was started. The total amount of pleural fluid decreased after the initiation of the treatment (Figure 1). The patient was discharged on postoperative day 14. Ocreatide was used only for 1 week because of a satisfactory response but dietary support with MCT was continued for 1 month. The postoperative course was uneventful during the 6-month follow-up.

DISCUSSION

Postsurgical chylothorax is often the result of damage to the thoracic duct, which may be treated with drainage of the chylothorax and stopping the chyle leakage. The management includes conservative therapy and surgery. Conservative strategy includes drainage of chylothorax and nutritional support (MCT or nil by mouth and total parenteral nutrition) which may resolve 50% of congenital and traumatic chylothoraces.[1] In addition, some therapeutic agents as somatostatin have a role in the conservative management of postsurgical chylothorax.[2]

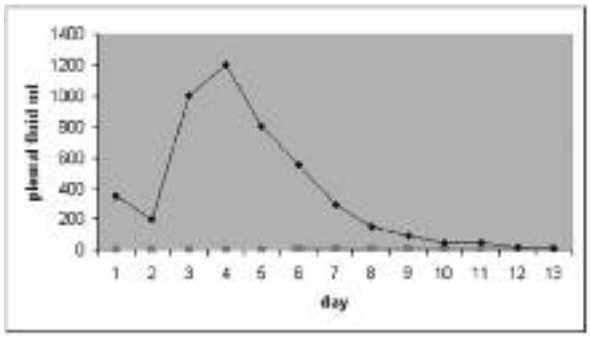

FIGURE 1: The diagram shows decreased amount of pleural drainage during non-surgical treatment of chylothorax after extrapleural pneumonectomy.

Traditional surgical management is thoracic duct ligation through an open thoracotomy or thoracoscopy. Recently, robotic technology is used successfully for the management of chylothorax.[3] Surgical treatment usually offers better results than medical management when the drainage is more than 1 L/day for more than 5 days.[4] Post surgical chylothorax after esophagectomy may have 50% mortality with medical management whereas with surgical management it drops down to 10%. Surgical treatment should not be delayed as operative risk is increased by the development of malnutrition and immune deficiency. However, aggressive surgical therapy is recommended for chylothorax if medical management fails.[5] In case of extrapleural pneumonectomy, it is not only difficult to find the level of leakage because of extended resection but also there is a higher risk for infections. Chemical pleurodesis, which is an alternative therapy for post surgical chylothorax, was inappropriate for the patient because of the pneumonectomy.

Somatostatin and its analogs inhibit growth hormone secretion and are particularly active on the gastrointestinal tract.[6] The mechanism of ocreotide on chylothorax is not clearly understood. Markham et al, reported the role of ocreotide in the treatment of chylothorax, which leads to an early decrease in drainage and early fistula closure.[7] Possible mechanism by which octreotide decreases chyle production includes reducing the intestinal absorption of fats, mainly triglycerides, and increasing fecal fat excretion.

Triglycerides are essential and are carried to the systemic circulation by chyle following absorption from the gut; however, MCT are exceptional because they are absorbed directly into the portal circulation. Treatment including ocreotide and MCT allow spontaneous healing of thoracic duct by reducing the intestinal absorption of fats and sufficient nutritional supply despite the reduction of lymphatic flow. In addition, the treatment avoids metabolic and infectious complications of parenteral nutrition.

In conclusion, conservative management with ocreotide and MCT diet may be helpful in the treatment of post-operative chylothorax even if the leakage is about 1 L/day. Surgical attempts are not risk-free and may not be effective in every patient. We recommend ocreotide and MCT diet as the initial treatment of post surgical chylothorax.

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