

Late-Onset Chylothorax After a Right Upper Sleeve Lobectomy

Sağ Üst Sleeve Lobektomi Sonrası Geç Dönemde Saptanan Şilotoraks

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ABSTRACT Chylothorax after sleeve resections is extremely rare. Early postoperative chylothorax is usually result of operative trauma and emerges after first fatty oral intake. We report a case of delayed-onset chylothorax found 63 days after right upper sleeve lobectomy. Radiologic evaluation displayed dense adhesions and multiple loculations compressed the residual lung. We performed video-assisted thoracoscopic surgery to deloculate and to destroy adhesions over lobes. The chyle leak was not identified and ligation of duct was not performed. Talk insufflation was performed on fourth postoperative day to prevent any future complications of chylothorax. Chylothorax may rarely be seen after bronchial sleeve resections. Late onset chylothorax in this patient was looked into postoperative follow and treatment and presented with literature.

Key Words: Lung neoplasms; chylothorax; thoracic surgery, video-assisted

ÖZET Sleeve rezeksiyonların sonrasında gelişen şilotoraks oldukça nadirdir. Erken postoperatif şilotoraks genellikle operatif travmanın sonucudur ve ilk oral yağlı gıda alımı sonrası farkedilir. Sağ üst sleeve lobektomiden 63 gün sonra saptanan geç başlangıçlı bir şilotoraks hastasını sunmaktayız. Radyolojik değerlendirme geride kalan akciğeri sıkıştıran yoğun yapışıklıklar ve birden fazla lokülasyonları göstermiştir. Lokülasyonları ortadan kaldırmak ve lobların üzerindeki yapışıklıkları kaldırmak için video yardımcı torakoskopik cerrahi uyguladık. Şilöz sıvı kaçağı görülmediğinden duktus ligasyonu uygulanmadı. Şilotoraksın gelecekte neden olabileceği komplikasyonları önlemek için işlemden dört gün sonra talk insüflasyonu uygulandı. Şilotoraks, bronşiyal sleeve rezeksiyonlardan sonra nadir de olsa görülebilmektedir. Olgumuzda geç dönemde izlenen şilotoraks, postoperatif takip ve tedavi yönünden incelenmiş ve literatur eşliğinde sunulmuştur.

Anahtar Kelimeler: Akciğer tümörleri; şilotoraks; göğüs cerrahisi, video yardımcı

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Chylothorax is an accumulation of chyle in the thorax. It is relatively rare complication associated with thoracic surgery and tends to occur in the early postoperative period.¹ The prevalence ranges from 1-2%, and without treatment mortality rate is around 50%.² Surgical intervention is indicated when conservative management is ineffective We report a case of delayed onset chylothorax after right upper sleeve lobectomy. Only very few cases have been reported in literature until now and almost all cases have been reported to occur within 15 days of surgery.¹

CASE REPORT

A 53 year-old male had been diagnosed non small cell carcinoma of right lung, underwent right upper sleeve lobectomy with the systematic mediastinal lymph node dissection. He was staged as T2N1MO (stage 2B). After an uneventful postoperative course, the patient was discharged to home.

He was controlled 10.th and 35.th days after discharge. Physical, laboratory and radiologic findings were normal at that time. He was admitted with dyspnea and cough, on 63.rd day after his surgery. Significant finding on examination was decreased breath sounds on right. Physical examination of other systems were unremarkable. Chest radiogram revealed nonhomogeneous opacity of upper and middle zones of right lung without air-fluid level (Figure 1). Thorax computerized tomography and ultrasonography displayed fluid accumulation and multiple loculations in right hemithorax (Figure 2).

Except mild anemia (haemoglobine 10.1 gr/dl, haematocrite 29.1%, leucocyte 4400/ml, platelet 254.000/ml) blood count and biochemical values were normal range.

Thoracentesis yielded a milky effusion characteristic of chylothorax. Analysis of the pleural fluid suggested the presence of chyle (cholesterol 76 mg/ dl triglyceride 1402 mg/dL) and was diagnosed as delayed onset chylothorax. Chest tube was inserted to decompress thoracic cavity. Dyspnea relieved, and patient felt better. Oral intake was stopped. Total parenteral nutrition was instituted with complete cessation of all oral intakes.

Video associated thoracoscopic surgery (VATS) was performed on fourth day of hospitalization. After 800cc of white colored milky effusion was aspirated, it was sampled for bacterial culture and biochemical analysis. We observed dense adhesions and multiple loculations compressed the residual lung. Adhesions and loculations were destroyed and deloculated. The chyle leak was not identified, so ligation of duct was not performed. Middle and lower right lobes expanded greater to fill right hemithorax.



FIGURE 1: Chest radiogram revealed nonhomogeneous opacity of upper and middle zones of right lung without air-fluid level.



FIGURE 2: Thorax CT feature of the patient.

In following days, chyle drainage decreased gradually from 500cc/day to 100cc/day on fifth postoperative day. On those days, total parenteral nutrition (30 cal/kilogram) was used without any oral intake. Daily blood count and biochemical values were in normal in all course of postoperative period. On fourth day, lessened daily drainage with serous appearance, directed us to talcage. It was done by poudrage with a sterile, asbestos-free and calibrated talc.

On sixth postoperative day with normal chest radiogram (Figure 3) chest tube was withdrawn and patient was discharged.

DISCUSSION

Standard lobectomy is usually inefficient in tumors involving main bronchus, pulmonary artery or fis-



FIGURE 3: Normal chest radiogram on sixth postoperative day.

tures. Sleeve lobectomy emerges an alternative for patients that can not tolerate pneumonectomy. It is less stressful than pneumonectomy, to preserve better cardiopulmonary functions and also, five years survival rates.²

Most of complications of sleeve lobectomy are pulmonary or cardiovascular in origin. Less frequently oncologic gastroesophageal and neurologic morbidity is encountered.³ Except insufficiencies of anastomosis in sleeve resections, similar complication rates are encountered in sleeve and standard lobectomies.²

Thoracic duct and tributaries have anatomic variabilities in 40% to 60% patients making it easy to be traumatized in the thorax and lead to accumulation of chyle.⁴ Various invasive and surgical procedures of thorax and neck, cancer invasion, direct or indirect trauma to duct may result in traumatization.⁵

On the other hand, chylothorax after lobectomy is relatively rare but may lead respiratory, hemodynamic, metabolic, immunologic and nutritional disturbances.⁵ The incidence ranges from 1-2%, and without treatment mortality rate is around 50%. Chylothorax can be expected higher in sleeve resections than standard resections due to more extensive resections and radical lymph dissections but similar rates were reported in literature.^{2,6}

Chylothorax after a pulmonary resection is usually diagnosed within 3 days after surgery be-

cause of oral intake starting within postoperative first day.⁷ Risk factors of postoperative chylothorax include extensive mediastinal dissection, radiation therapy, or mediastinal tumoral involvement.⁶ We think minor leakage because of total lymph node curettage may be a cause of a late onset chylothorax in the patient.

In convalescence period the diagnosis is more difficult. Symptoms and radiologic findings usually are nonspecific to condition and attributable to postoperative changes. Attention is usually paid on progressive or persistent symptoms and ignored nonspecific or blunt findings lead delay in recognition. Radiologic findings are not specific for chylothorax but knowing expected anatomic changes on chest radiography is important to recognize some of these complications. Unexpected accumulation of fluid into the pleural cavity in the postoperative period should raise suspicion for haemorrhage, infection, or development of a chylothorax.^{3,4}

Dyspnea, cough, and chest discomfort are frequently observed symptoms. Pleuritic chest pain and fever are uncommon because chyle is not irritating to the pleural surface. Chyle accumulation in thorax may cause mechanical compression and may compromise pulmonary and cardiovascular function.⁴

Decision of thoracentesis is cornerstone and diagnosis can then be verified via fluid analysis. Early recognition of situation is paramount importance, may prevent deterioration and impairment of patient.⁴ Pleural fluid cholesterol/triglyceride ratio of less than 1 and triglyceride level greater than 110 are chyle characteristics.² Suspicion should rise in excessive tube drainage over 72 hours after operation or serosanguinous fluid appearance. In suspected cases, cream administration through nasogastric tube enhance chyle formation. Pleural fluid analysis reveals diagnosis but if doubt present lipoprotein analysis demonstrating chylomicrons confirm diagnosis.^{3,4}

Postoperative chylothorax needs prompt diagnosis and intervention. Nonoperative and operative approaches depend on condition and

clinician appreciation.^{4,8} Nonoperative approach includes drainage of pleural cavity, enteral rest and total parenteral nutrition.⁴ Recently octreotide, a long acting somatostatin analog, administration yields some benefit to reduce thoracic ductal flow.⁹

If nonoperative approach fails surgical intervention is indicated. Delay in surgical intervention is usually associated with metabolic, nutritional, and immunologic disturbances. Accumulated chyle may result in adhesion formation, loculation, organization, and infection making surgical attempts difficult.⁹ Leakage more than 5 days at the rate of 1.5 L/d, leakage persist over 15 days and deterioration of nutritional and immunological status patient are indications of operation.^{3,10} Once identified oozing site, the leakage can be treated with suture, clips, fibrin glue, or talcage.¹¹

The presented case is noteworthy in several respects. First, we think this is one of the latest onset patient in literature developed 63 days after operation. Second, presenting symptoms did not say much about the condition. Dyspnea and cough were nonspecific findings and directed clinician more commonly known conditions such as nonspecific infection of respiratory tract, prolong adjustment of postoperative period, etc. Third, chest

radiograms were normal in first and second controls after discharge but in last admission they displayed non homogenous opacification to suspect and evaluate the condition. Fourth, except mild anemia blood count was normal. The relation between anemia and chylothorax is not clear and was not enough to suspect for the condition. Fifth, being preserved total plasma protein and albumin levels supported the delayed onset of condition. We did not perform any test to assess his nutritional status but oral intake before and after hospitalization was satisfactory. Sixth, we performed mediastinal lymphoid tissue dissection. It's difficult to see thoracic duct on naked eye during operation and it might easily be traumatized. Stopped oral intake a day before operation decreases lymph flow may lead in difficulties in noticing and recognition of chyle oozing.

Lastly, late onset chylothoraces may result of eradication of the duct by residual tumoral growth after operation.

Chylothorax is a rare life threatening complication. Early recognition and prompt treatment is essential. Any symptom developed after sleeve lobectomy should be considered important and requires an evaluation. Early and late follow-up period should be managed carefully.

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