

Emergency reconstruction of superior vena cava vein following biopsy of mediastinal lymphoma

Mediastinal lenfoma biyopsisi sonrası acil süperior vena cava ven rekonstrüksiyonu

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A 52-years-old female patient was admitted with an invasive anterior mediastinal mass. Frozen section analysis of the mediastinotomy revealed lymphoma. In the morning of the first day following surgery, sudden onset of massive hemorrhage induced by cough was present from the chest drain. The patient was immediately taken to the operating room and a median sternotomy was performed subsequently. Massive hemorrhage arising from another site of the biopsy site was detected. Anterior mediastinal mass was resected completely and superior vena cava reconstruction with polytetrafluoroethylene graft was performed. The patient was discharged on ninth day following surgery. We presented this case due to the rarity of this complication.

Key words: Emergency reconstruction; mediastinal tumor; rupture of superior vena cava.

Elli iki yaşındaki kadın hasta invaziv anterior mediastinal kitle ile başvurdu. Mediastinotomide frozen kesit inceleme lenfoma olarak yorumlandı. Ameliyat sonrası birinci gün sabah ani öksürükle göğüs dreninden masif kanama başladı. Hasta acil olarak ameliyathaneye alındı ve takiben median sternotomi yapıldı. Superior vena cavadaki biyopsi alanından farklı bir bölgeden kaynaklanan masif kanama tespit edildi. Anterior mediastinal kitle, komplet olarak rezeke edildi ve politetrafluoroetilen greft ile superior vena cava rekonstrüksiyonu uygulandı. Hasta ameliyat sonrası dokuzuncu günde taburcu edildi. Bu olgu, bu nadiren görülen komplikasyonu nedeniyle sunuldu.

Anahtar sözcükler: Acil rekonstrüksiyon; mediastinal tümör; superior vena cava rüptürü.

Hodgkin's lymphoma invades the mediastinum in 60-70% of patients.^[1] Superior vena cava (SVC) invasion by Hodgkin's lymphoma has been rarely reported in the literature.^[1,2] We present this case report due to the rarity of the vena cava rupture after a mediastinotomy and the emergency treatment of this uncommon complication.

CASE REPORT

A 52-year-old female patient was admitted to our clinic with chest pain. Chest computed tomography (CT) revealed an invasive anterior mediastinal mass (Figure 1). Transthoracic needle aspiration did not give a definitive diagnosis, so a right-sided anterior mediastinotomy was performed. Frozen section analysis revealed lymphoma. We placed a Jackson-Pratt (JP) drain (Cardinal Health Australia) into the right hemithoracic cavity through the opened mediastinal pleura. She was extubated on the table and had a smooth early postoperative period.

In the postoperative 24th hour, during her discharge visit, a sudden-onset of massive hemorrhage from the JP drain took place after coughing and chest pain. Loss of conscious, tachycardia, and hypotension occurred within a few minutes, and she was immediately taken to the operating room. The mediastinotomy incision was reopened, taking into consideration an internal mammarian artery injury related to the previous operation, and we observed an exsanguinating hemorrhage. The entire median sternotomy hematoma was then evacuated, and we noticed the massive bleeding from the SVC which had been partially invaded by the mass. The bleeding was nearly five centimeters above the biopsied region. Technically, it was impossible to repair the defect due to the invasion of the tumor; therefore, we planned to resect the mass. The tumor was excised *en bloc* with the SVC and the invaded lung. Replacement of the SVC was done with a 13 mm tubular

Received: September 15, 2009 Accepted: January 10, 2010

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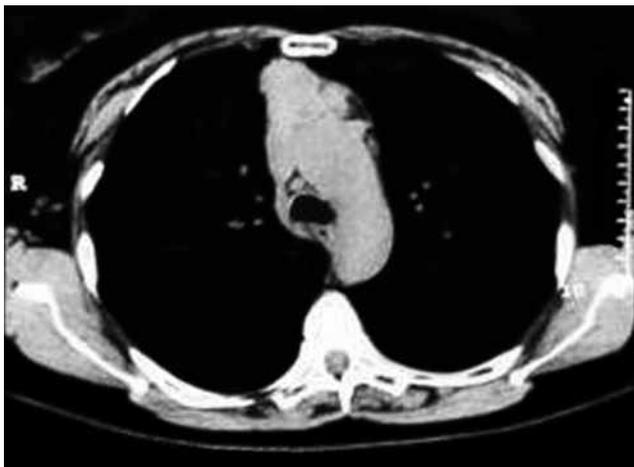


Figure 1. Chest computed tomography revealed an anterior mediastinal mass.



Figure 2. Superior vena caval resection and interposition with polytetrafluorethylene graft.

ringed polytetrafluorethylene graft (Figure 2). The total clamping time was 28 minutes, and reconstruction was done after heparinization with 5000 i.u. heparin sodium (Liquemine, Roche, Istanbul, Turkey). The patient was discharged on the ninth day after the second operation without any clinical or radiological complications. The histological analysis of the resected mediastinal mass was reported as stage II nodular sclerosis classical Hodgkin's lymphoma (NSCHL).

DISCUSSION

It is possible that the tear of the SVC was related to the manipulation of the tumor during the mediastinotomy operation. A second possibility is during the placement of the JP drain, it could have possibly eroded into the vessels or weakened the vessel wall, although this has never been reported. The aim of this presentation was to present this fatal complication. Repair of the defect was impossible due to tumor invasion, therefore, a caval replacement with excision of the mass was considered. Partial superior caval vein clamping is generally well tolerated, but total occlusion may cause intracranial bleeding, brain edema, and a reduction of cardiac output. These lethal complications can usually be avoided through intraoperative monitoring and aggressive management, such as increasing the venous return and maintaining the normal arterial-venous gradient in the brain with fluid implementation and pharmacological agents. Venous lines must be placed in the lower limbs to achieve intravenous volume expansion. Although resection of a lymphoma is not advocated, surgeons should have the ability to withstand this type of very uncommon lymphoma complication and other mediastinal masses that have invaded major vascular masses. Another point of

concern is the evaluation of these patients. This should be done as quickly as possible to obtain immediate cytologic results. Diagnostically, although fine needle aspiration cytology is the first choice, in some selected patients with major vascular invasion, surgical biopsy may be the appropriate option in order to start the therapy within the shortest amount of time. In a study presented by Elia et al.,^[3] the overall diagnostic accuracy was 80.4% for cervical mediastinoscopy and 95.9% for anterior mediastinotomy. On the other hand, Desai et al.^[4] showed that fine needle aspiration material was unsatisfactory in 18.5% cases, and the diagnostic accuracy and positive predictive values were 85.7% and 78.3%, respectively. We prefer anterior mediastinotomy for the diagnosis of invasive anterior mediastinal tumors. In the literature, elective SVC resection and graft interposition for mediastinal involvement of Hodgkin's lymphoma has been presented several times.^[2-5] We strongly refuse to perform elective surgery for SVC invasion in patients with a diagnosis of lymphoma. We present this case report due to the rarity of this complication and the necessity for the emergency reconstruction of the superior vena cava following biopsy for mediastinal lymphoma.

Declaration of conflicting interests

The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.

Funding

The authors received no financial support for the research and/or authorship of this article.

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