

Alternative intervention for pericardial effusion article type: Case report

Mehmet Atay¹, Onur Saydam², Vedat Bakuy³, Alparslan Şahin⁴

¹ Bakırköy Dr Sadi Konuk Training and Research Hospital Cardiovascular Surgery Department, İstanbul.

² Karaman State Hospital Cardiovascular Surgery Department, Karaman.

³ Bakırköy Dr Sadi Konuk Training and Research Hospital Cardiovascular Surgery Department, İstanbul.

⁴ Bakırköy Dr Sadi Konuk Training and Research Hospital Cardiology Department, İstanbul

Abstract

Pericardial effusion is defined as the increase in the fluid levels between pericardial sheets. It may occur as a result of many etiological factors. Cardiac tamponade is the most important complication of the Pericardial effusion. Therefore it requires close follow-up and primary treatment. There are many treatment approaches. It can be treated with pericardiocentesis needle and catheter, surgical pericardial window opening with subxiphoidal approach and left anterior thoracotomy, pericardiectomy with open thoracotomy and video thoracoscopic pericardiectomy assists (VATS) can also be applied. Nowadays especially for recurrent PE less invasive procedures are becoming more popular than open surgery. For this reason in this article, we mentioned about video assisted thoracoscopic surgery (VATS) method in a patient diagnosed with a recurrent pericardial effusion without any underlying etiologic factors. VATS method should be considered in elective cases which pericardiocentesis cannot be drained, effusion with fibrinous formation, treatment of posterior side effusions. VATS method is recommended especially in patients with pericardial effusion accompanied by pleural and lung disease.

Keywords: Pericardial Effusion, cardiac tamponade, video assisted thoracoscopic surgery.

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Introduction

Pericardial effusion (PE) is defined as the increase in the fluid levels between pericardial sheets. It may occur as a result of many etiological factors. Cardiac tamponade is the most important complication of the PE.⁽¹⁾ Therefore it requires close follow-up and primary treatment. Many medical conditions can cause PE such as viral and bacterial infections, cancer, trauma, myocardial infarction, renal failure, autoimmune disease and idiopathic.⁽¹⁾ There are many treatment approaches. It can be treated with pericardiocentesis needle and catheter, surgical pericardial window opening with subxiphoidal approach and left anterior thoracotomy, pericardiectomy with open thoracotomy and video thoracoscopic pericardiectomy assists (VATS) can also be applied.⁽²⁾

Nowadays especially for recurrent PE less invasive procedures are becoming more popular than open surgery. For this reason in this article, we mentioned about video assisted thoracoscopic surgery (VATS) method in a patient diagnosed with a recurrent pericardial effusion without any underlying etiological factors.

Case

58 years old male with no known medical history was admitted to the cardiology clinic with shortness of breath and fatigue. His blood pressure was 90/55 mmHg and heart rate was 98 bpm. In his physical examination jugular venous distention was observed and hearth sound was unremarkable. An electrocardiogram showed low QRS voltage and abnormal P wave changes. X-ray showed cardiomegaly and pulmonary vascular congestion. Laboratory results show no evidence of any viral or bacterial infections. Cardiac enzymes were in normal range. Echocardiography was performed and showed severe PE, normal left ventricular ejection fraction of % 60 with normal left ventricular size and wall motion. Computerized tomography was performed to rule out etiological factors (**Figures 1**).

Therefore, needle pericardiocentesis performed under local anesthesia. 300 cc serous fluid was drained and sent to cytology. Two days after pericardiocentesis echocardiography showed decreased in pericardial

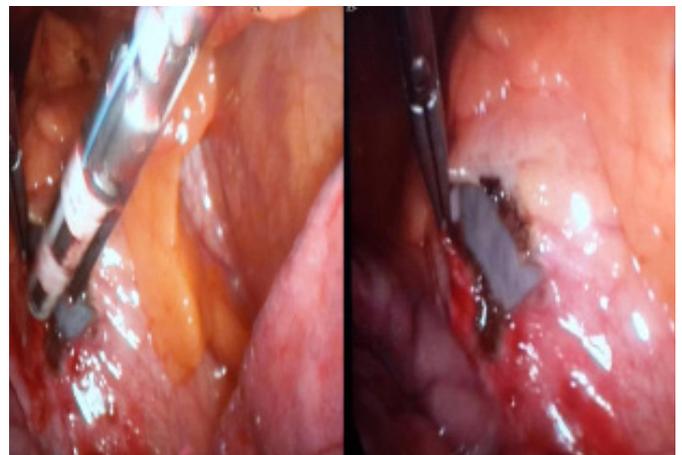
effusion and showed normal left ventricular ejection fraction. Patient was discharged from hospital without any symptoms. Approximately 1 month after on this event, effort chest pain developed in patient. Electrocardiography showed ST depression in V4-6 and elevation in aVR. Coronary angiography performed. Critical isolated left anterior descending coronary artery (LAD) stenosis monitored in patient and stent was mounted. 2 months after the LAD stent placement the patient was admitted to the clinic again with shortness of breath. Echocardiography was performed and advanced pericardial effusion determined but this time pericardial effusion could not drained with pericardiocentesis due to fibrin formation. Thereupon, the patient was consulted and was hospitalized with operation plan in our clinic.

Endoscopic ports on the right side of the chest were placed under general anesthesia. Severe adhesions in the right lung were observed. Pericardium was seen after elimination of adhesions. About 2 cm incision was made on the pericardium. Pericardial fluid was drained (**Figures 2**). Pericardial fluid and material was sent to pathology. Drain was placed and layer was closed in anatomical plan. Postoperative follow-up period was normal and the patient was discharged after 4 days with healing.

Discussion

Pericardial effusion is defined as the increase in the amount of accumulation of fluid in the pericardi-

Figure 1A – 1B. Preoperative computerized tomography images for pericardial effusion.



um. Cardiac tamponade is the most vital complication of pericardial effusion. Close follow should be performed with echocardiography. It can be treated with pericardiocentesis needle and catheter, surgical pericardial window opening with subxiphoidal approach and left anterior thoracotomy, pericardiectomy with open thoracotomy and video thoracoscopic pericardiectomy assists (VATS) can also be applied. There is no ideal method for the treatment of pleural effusion. Ensuring full and permanent drainage expected from an ideal method. Also, pericardial effusion material with biochemical, cytological and histological can be sampled with ideal method.

Furthermore, the method with the lowest risk and least invasive intervention for the patient should be selected.^(2, 3) VATS procedure is a minimally invasive method. In this method unlike thoracotomy, ribs are not separated from each other, nerves and blood vessels

are not damaged and the integrity of the chest cavity remains intact. Patients have less pain in the postoperative period. Studies shows patients undergo VATS method have better pulmonary function than the patients undergoing thoracotomy.^(4, 5) Because VATS is performed under general anesthesia and due to the cost, the use of VATS is limited in patients requiring emergency intervention.

VATS method should be considered in elective cases which pericardiocentesis cannot be drained, effusion with fibrinous formation, treatment of posterior side effusions. VATS method is recommended especially in patients with pericardial effusion accompanied by pleural and lung disease.⁽⁶⁾ VATS method provides good field vision, opportunities to get a sample of tissue and less postoperative pain. Because all of this result VATS treatment of pericardial effusion can be used safely and effectively.

Figure 2A – 2B. Peroperative images of surgical field for opening pericardial window



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Corresponding author:

Dr. Mehmet Atay

Mail: drataym@gmail.com