

Isolated chylopericardium following coronary bypass surgery: A rare complication of a common procedure

Koroner baypas cerrahisi sonrası izole şiloperikardiyum: Yaygın bir prosedürün nadir bir komplikasyonu

Ömer Faruk Çiçek¹, İbrahim Enes Özdemir²

Department of Cardiovascular Surgery, Selçuk University Faculty of Medicine, Konya, Türkiye

ABSTRACT

A 78-year-old male with a history of hypertension and chronic kidney disease without dialysis developed chylous drainage from mediastinal tubes following cardiac surgery while the pleura was intact. In this case report, we aimed to highlight that such a surprising complication can develop after coronary artery bypass grafting surgery without using the left internal mammary artery and that the conservative treatment approach can be successful.

Keywords: Chylopericardium, conservative treatment, coronary artery bypass surgery.

ÖZ

Hipertansiyonu ve diyaliz gerektirmeyen kronik böbrek hastalığı öyküsü olan 78 yaşında erkek hastanın geçirdiği kalp cerrahisi sonrasında plevra sağlam iken mediastenden şilöz drenajı gelişti. Bu olgu sunumunda, sol internal mammarian arter kullanılmadan yapılan koroner arter baypas ameliyatı sonrası böyle şaşırtıcı bir komplikasyon gelişebileceğini ve konservatif tedavi yaklaşımının başarılı olabileceğini vurgulamayı amaçladık.

Anahtar sözcükler: Şiloperikardiyum, konservatif tedavi, koroner arter baypas cerrahisi.

Chylothorax is characterized as a collection of chyle in the pleural space resulting in the thoracic duct or one of its main branches being disrupted. Chylopericardium is a specific clinical entity that refers to an isolated chyle deposit in the pericardium. Chylous trunk injury is an uncommon complication of cardiovascular surgery, yet more extraordinary after coronary artery bypass grafting through a median sternotomy without left internal mammary artery (LIMA) harvesting.^[1] The rate of chylous injuries is differentiated between 0.25% and 0.5% for all types of cardiothoracic surgical procedures.^[1] Herein, we present a male case who underwent coronary artery bypass grafting surgery

via median sternotomy for triple-vessel disease without LIMA harvesting and developed isolated chylopericardium in the early postoperative period.

CASE REPORT

A 78-year-old male with a history of hypertension and chronic kidney disease without dialysis presented to the emergency room complaining of dyspnea that had begun one week prior to admission. The patient's blood pressure was under control with medication and was 120/75 mmHg. Electrocardiography revealed normal sinus rhythm, and transthoracic echocardiography showed decreased left ventricular

Received: March 03, 2022 *Accepted:* March 26, 2022 *Published online:* June 06, 2022

Corresponding author: Dr. Ömer Faruk Çiçek. Selçuk Üniversitesi Tıp Fakültesi Kalp ve Damar Cerrahisi Anabilim Dalı, 42130 Selçuklu, Konya, Türkiye.
e-mail: farux@hotmail.com

Citation:

Çiçek ÖF, Özdemir İE. Isolated chylopericardium following coronary bypass surgery: A rare complication of a common procedure. *Cardiovasc Perf Nurs* 2022;1(2):38-40.

ejection fraction of 38%. After coronary angiography revealed triple-vessel disease, a coronary artery bypass grafting operation was decided.

Median sternotomy followed by standard aortocaval cannulation was performed under general anesthesia, and cardiopulmonary bypass was established. The LIMA was not harvested, and thus the pleura was intact. The patient underwent routine coronary artery bypass grafting with four saphenous veins after cross-clamping the aorta. The left anterior descending artery and its second diagonal branch, obtuse marginal artery, and posterior descending branch of the right coronary artery were bypassed with a reversed saphenous vein graft. The course of the operation was uneventful, and the sternotomy was closed successfully with the routine procedure. The patient was extubated on the first postoperative day, and an inconsiderable amount of hemorrhage emerged from mediastinal drains during the first two days of stay in the intensive care unit. However, milky-white fluid was observed in mediastinal drains on the third postoperative day, just before their scheduled removal. Once we noticed chylous drainage from the mediastinum, the patient's oral intake was switched to a low-fat diet straight away. In the samples taken from the milky-white liquid, the triglyceride level was 617 mg/dL (>500), and the cholesterol/triglyceride ratio was 0.14 (<1). Cultures and cytology results were negative for the milky white drainage. Except for bilateral basal atelectasis, a chest X-ray indicated no

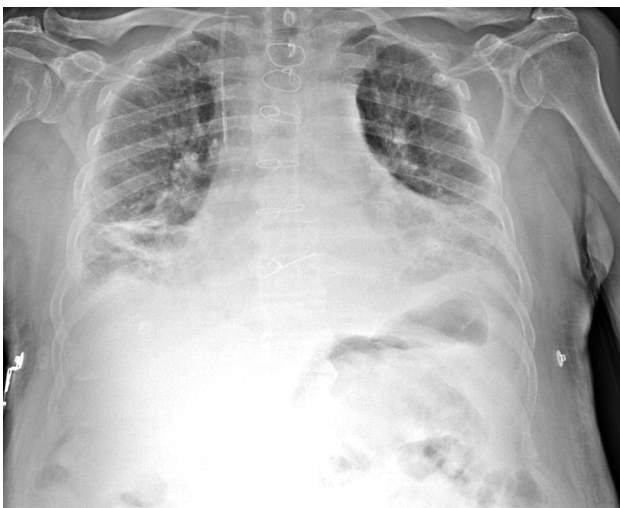


Figure 1. Chest radiograph demonstrating bilateral basal atelectasis on the postoperative third day.

major abnormalities (Figure 1). Surgical reexploration was not needed, and a conservative approach with an appropriate diet was sufficient to discontinue the chylous drainage from the mediastinum. The milky-white drainage was about 350 mL on the first day, 200 mL on the second day, and 50 mL on the third day, terminated on the fourth day after it was first observed. The drains were removed after the drainage ceased. The patient was discharged on the 15th day of hospitalization, and the two-month follow-up following discharge was normal.

DISCUSSION

Chylomediastinum is a condition that can be seen spontaneously or after surgery in a wide spectrum between pediatric and adult age, but isolated chylopericardium is more uncommon.^[2] Chylothorax that may develop after surgery is associated with an increased risk of morbidity and mortality. Postsurgery chylous drainage can occur in several ways: excessive dissection over the anterior mediastinum to the lymphatic vessels during surgical exploration, injury to the thoracic duct when harvesting the LIMA, and the excision of thymus tissue remnants in young people for exploration.^[3-5] In our 78-year-old patient, the thymus tissue was not prominent during surgery. The LIMA was not harvested in this patient, and major dissections were avoided due to our surgical procedure. It is possible that this occurred as a result of injury to the unnoticeable lymph nodes located in the adipose tissue surrounding the innominate vein in our patient.

Once the patient develops chylothorax, treatment options can be evaluated under two main descriptions. The first one being the minimally invasive or traditional surgical method, and the second is the conservative treatment method, which includes medical treatment and dietary changes.^[1] In our patient, the surgical approach was not initially planned since the patient was hemodynamically stable, there were no signs of tamponade, and the drains were still present. We preferred to immediately start the treatment protocol with the conservative treatment method for our patient. In our patient, two mediastinal drains were present. The patient was kept under close observation and follow-up by making necessary dietary changes, and the amount and color of the drainage were checked and followed daily. During the follow-up, the patient's drainage

decreased and eventually disappeared. Other than a prolonged hospitalization, this unexpected circumstance resulted in no complications.

In the event of such an unexpected complication, it is crucial to make treatment decisions based on the patient's situation, particularly in frail patients, a conservative approach may be considered initially.

Patient Consent for Publication: A written informed consent was obtained from the patient.

Data Sharing Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

Author Contributions: Idea, design, writing and review: Ö.F.Ç.; data collection, analyses and literature review: İ.E.Ö.

Conflict of Interest: 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.

REFERENCES

1. de Beer HG, Mol MJ, Janssen JP. Chylothorax. *Neth J Med* 2000;56:25-31.
2. Yu X, Jia N, Ye S, Zhou M, Liu D. Primary chylopericardium: A case report and literature review. *Exp Ther Med* 2018;15:419-25.
3. Kilic D, Sahin E, Gulcan O, Bolat B, Turkoz R, Hatipoglu A. Octreotide for treating chylothorax after cardiac surgery. *Tex Heart Inst J* 2005;32:437-9.
4. Brancaccio G, Prifti E, Cricco AM, Totaro M, Antonazzo A, Miraldi F. Chylothorax: A complication after internal thoracic artery harvesting. *Ital Heart J* 2001;2:559-62.
5. Yıldırım T, Selimoğlu Ö, Çevik C, Öztürk İ, Öz Mine F, Kurtoğlu N, et al. Chylopericardium following double valve replacement. *Turk Gogus Kalp Dama* 2009;17:296-8.