

## Chylopericardium resulting from jugular venous catheterization after cardiac surgery: A rare complication

Kalp cerrahisi sonrası juguler ven kateterizasyonuna bağlı şiloperikardiyum: Nadir bir komplikasyon

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### ABSTRACT

Chylopericardium is a rare, but serious complication of thoracic and cardiac operations. Patients usually has a history of trauma, surgery, or penetrating injuries. Management of this complication may be challenging, and conservative approach is the mainstay of treatment. Herein, we present a 49-year-old male case of chylopericardium, a complication probably resulted from jugular venous catheterization, after atrial septal defect and cor triatriatum sinistra surgery.

**Keywords:** Central venous catheterization; chylopericardium; pericardial effusion.

### ÖZ

Şiloperikardiyum göğüs ve kalp ameliyatlarının nadir, ancak ciddi bir komplikasyondur. Hastalarda genellikle travma, cerrahi veya penetran yaralanma öyküsü vardır. Bu komplikasyonun tedavisi güç olabilir ve esas tedavisi konservatif yaklaşımdır. Bu yazıda, atriyal septal defekt ve kor triatriatum sinistra cerrahisi sonrası muhtemelen juguler ven kateterizasyonuna bağlı bir komplikasyon olarak şiloperikardiyum gelişen 49 yaşında erkek bir olgu sunuldu.

**Anahtar sözcükler:** Santral venöz kateterizasyonu; şiloperikardiyum; perikardiyal efüzyon.

Chylopericardium is defined as an effusion in the pericardial cavity which contains chyle, the content of lymphatics, and thoracic duct. The fluid is opaque and appears milky. Chylopericardium occurs due to trauma, thoracic and cardiac operations, congenital lymphatic defects, or tumors.<sup>[1]</sup> It is a rare complication of cardiac operations, and mostly seen in the pediatric population. There are few reports in adults following cardiac surgeries.<sup>[1,2]</sup>

Iatrogenic trauma to the thoracic duct is a rare, but serious complication. Early diagnosis is critical, as it can lead to cardiac tamponade and death. It is usually diagnosed by discovery of a milky pericardial effusion. Analysis of the fluid reveals high triglyceride levels,

which is a diagnostic parameter.<sup>[2]</sup> There are various treatment options including oral dietary management, total parenteral nutrition, and surgical procedures.

Herein, we report chylopericardium management of a patient who was diagnosed after a cardiac operation.

### CASE REPORT

A 49-year-old man was admitted to the Cardiac Surgery Department with secundum atrial septal defect (ASD) and cor triatriatum sinistra. He underwent cardiac surgery. During operation, percutaneous left jugular venous catheterization was performed for the vascular access. On the second day of the operation,

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**Figure 1.** Milky, chylous-like drainage from mediastinal tube.

there was a minimal milky, chylous-like drainage from the mediastinal tube (Figure 1). The amount of the fluid increased up to 800 mL/day, and it became totally chylous. It was sent to the biochemistry laboratory for analysis, and reported to be consisting of lymph and emulsified fat. The jugular venous catheter was removed and another jugular catheter was inserted to the opposite side of the neck. Oral intake was discontinued, and total parenteral nutrition was started. Three days later, there was no drainage from the tube, and all of the catheters and tubes were removed. Transthoracic echocardiography revealed no fluid accumulation around the heart. The patient was discharged on postoperative Day 9.

## DISCUSSION

The prevalence of chylopericardium after thoracic surgery has been reported between 0.22 and 0.5% in the literature, although there are few reports following cardiac surgeries.<sup>[3,4]</sup> The mechanism of chylopericardium still remains unclear. The largest lymph vessel of the body is thoracic duct, which delivers most of the lymphatic fluid of body. It arises from cisterna chyli located in the anterior part of the second lumbar vertebra (rarely between T<sub>10</sub>-L<sub>3</sub>). It also rises up from the right side of aorta and enters

to the thoracic cavity from aortic hiatus. Medial to azygos vein, behind the esophagus, it rises up in the right hemithorax. Jugular vein catheterization may damage the duct in relation with its location, and possibly results in chylopericardium. During thoracic and cardiac operations, surgical exploration and mediastinal dissections may also damage some lymphatic tissues, leading to chylopericardium.<sup>[4]</sup>

The treatment of chylopericardium is challenging. Mediastinal tubes are essential for drainage of the fluid to prevent the cardiac tamponade. In our case, there was a mediastinal tube postoperatively. Conservative management includes cessation of oral intake, and total parenteral nutrition in case of major drainage. We treated our case conservatively. Clinical improvement was achieved on postoperative Day 4 and the drainage stopped on postoperative Day 6.

In addition, it has been shown that somatostatin analogs and long-acting synthetic octreotide analogs may be effective, when conservative therapy fails.<sup>[5]</sup> Ligation of the thoracic duct is another alternative treatment in this patient population.<sup>[6]</sup>

In conclusion, chylopericardium is a rare complication of jugular venous catheterization following cardiac surgery. The management of chylopericardium is challenging, and it includes medical treatment and surgical interventions. Starting total parenteral nutrition and cessation of oral intake is an effective treatment modality in suitable patients.

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