Chylopericardium Resulting from Jugular Venous Catheterization After Cardiac Surgery: A Rare Complication: Case Report

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. The patients usually has the history of trauma, surgery or penetrating injuries. Management of this complication may be challenging, and conservative therapy is the mainstay of treatment. We aimed to present a 49-year-old patient who had chylopericardium, a complication probably resulted from jugular venous catheterization, after atrial septal defect and cor triatriatum sinistra surgery.

Key Words: Pericardial effusion; central venous catheterization

ÖZET Şiloperikardiyum göğüs ve kalp operasyonlarını takiben gelişen nadir fakat ciddi bir komplikasyondur. Çoğunlukla travma, cerrahi veya penetran yaralanma öyküsü mevcuttur. Bu komplikasyonun yönetimi bazen zor olmaktadır ve esas tedavisi konservatif yaklaşımdır. Bu yazımızda atriyal septal defekt ve kor triatriatum sinistra cerrahisi sonrası muhtemelen juguler ven kateterizasyonuna bağlı bir komplikasyon olarak şiloperikardiyum gelişen 49 yaşında hastamızı sunmayı amaçladık.

Anahtar Kelimeler: Perikardiyal efüzyon; santral venöz kateterizasyonu

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Chylopericardium is defined as an effusion in pericardial cavity that 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. It is a rare complication of cardiac operations, and mostly seen in the pediatric population. There are few reports in adults following cardiac surgery.[1,2]

Iatrogenic trauma to thoracic duct is a rare but serious complication. Early diagnosis is important because that 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.

There are various treatment options including oral dietary management, total parenteral nutrition and surgical procedures. Here we report chylopericardium management of a patient that was diagnosed after a cardiac operation.

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CASE REPORT

A 49-year-old man was admitted to Cardiac Surgery Department with secundum atrial septal defect (ASD) and cor triatriatum sinistra. He underwent cardiac surgery. In operation, percutaneous left jugular venous catheterization was performed for vascular access. On the second day of the operation, there was a minimal milky, chylus-like drainage from 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. Jugular venous catheter was removed, and another jugular catheter was inserted to the opposite side of the neck. Oral intake was stopped, 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.

FIGURE 1: Milky, chylus-like drainage from mediastinal tube.

DISCUSSION

The prevalence of chylopericardium after thoracic surgery has been reported between 0.22% and 0.5% in the literature, but there are a few reports following cardiac surgery.[3,4] The mechanism of chylopericardium is not clear. The largest lymph vessel of body is thoracic duct, which delivers most of the lymphatic fluid of body. It arises from cycterna cyhli located at anterior part of second lumber vertebra (rarely between T10-L3). It also rises up from the right side of aorta, and enters to 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, and lead to chylopericardium.

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 of the patient in case of major drainage. We treated our patient conservatively, clinical improvement was seen on postoperative fourth day, and the drainage stopped on postoperative sixth day.

It has been reported that somatostatin analogs and long-acting synthetic octreotide analogs may be effective when conservative therapy fails.[5] Ligation of thoracic duct is another alternative treatment in those patients.[6]

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.

Conflict of Interest

Authors declared no conflict of interest or financial support.

REFERENCES

1. Sing Yang Soon, Sharath Hosmane, Paul Waterworth. Chylopericardium after cardiac surgery can be treated successfully by oral dietary manipulation:a case report. J Cardiothoracic Surg 2009;4:44.
2. Pitol R, Pederiva JR, Pasin F, Vitola D. Isolated chylopericardium after cardiac surgery. Arq Bras Cardiol 2004;82(4):384-9.
3. Shanmugam G, Sundar P, Shukla V, Korula RJ. Chylopericardium after atrial septal defect repair: an unusual entity. Int J Thorac Cardiovasc Surg. 2003;19:124-5.
4. Mundra V, Savage EB, Novaro GM, Asher CR. Delayed chylous pericardial effusion after aortic valve replacement. Tex Heart Inst J 2011;38(4):431-2.
5. Lim KA, Kim SH, Huh J, Kang IS, Lee HJ, Jun TG, et al. Somatostatin for postoperative chylothorax after surgery for children with congenital heart disease. J Korean Med Sci 2005; 20(6):947-51.
6. Stringel G, Ouzounian SP, Napoleon L, Permut LC, Golombek SG. Thoracoscopic pericardial window creation and thoracic duct ligation in neonates. JSLS 2003;7(4):353-7.