A Case of Chylothorax Following Aortic Valve Replacement: Case Report

Aort Valf Replasmanı Sonrası Bir Şilotoraks Olgusu

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ABSTRACT A 20-years-old young man developed chylothorax following aortic valve replacement (21 AHP St.Jude bileaflet mechanical valve) for severe aortic regurgitation. He was managed conservatively and discharged with cure.

Key Words: Aortic valve; chylothorax

ÖZET Yirmi yaşında erkek hastaya, ciddi aort yetersizliği nedeni ile aort kapak replasmanı (21 AHP St.Jude bileaflet mechanical valve) operasyonu yapıldı. Postoperatif şilotoraks komplikasyonu gelişen hasta konservatif olarak tedavi edilip şifa ile taburcu edildi.

Anahtar Kelimeler: Aort kapak, şilotoraks

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A 20-year-old young man developed chylothorax following aortic valve replacement (21 AHP St.Jude bileaflet mechanical valve) for severe aortic regurgitation. Oral intake was began in the 12th hour postoperatively. He developed passage of milky fluid in the right chest drain after beginning of oral intake. Output from the drain was 600 cc in the first postoperative 24 hours.

Biochemical analysis of pleural fluid was done to confirm the diagnosis of chylothorax. Laboratory investigation confirmed the presence of tryglicerides (638 mg/dL) and total cholesterol (45 mg/dL). Cholesterol/trygliceride ratio was calculated as 0.07 (< 1). Increased milky thoracic drainage after oral intake and cholesterol/trygliceride ratio of less than 1 confirmed the diagnosis of chylothorax.

After the diagnosis of chylothorax we suspended oral intake of the patient and parenteral nutrition was started. Subsequent chest X-rays showed expansion of lungs and after suspending of oral intake chyle output came down drastically to an amount of 300 cc in a period of 24 hour. The amount of drainages in the following 2nd, 3rd and 4th days were 150 cc, 100 cc and 50

cc respectively. Oral intake was began in the postoperative 4th day. Chest drain was removed when the output become negligible in the postoperative 5th day. Patient had no further complication and was discharged with cure in the postoperative 12th day.

DISCUSSION

Chylothorax is not often reported after aortic valve replacement (AVR). It is a very rare complication of cardiothoracic surgery with an incidence of 0.25 to 0.50% in the international literature. On the other hand, its occurrence after cardiac surgery is extremely rare. Most of these develop during harvesting of left internal mammarian artery.[1] There are only 2 cases of chylothorax following AVR in the literature. Treatment modalities of these cases were shown in Table 1.

In diagnosed early cases, the initial management of chylothorax is usually conservative, and the main goals are to minimize chyle formation, to prevent the immune deficiency, and to maintain adequate drainage as well as to replace a high-fat diet, which are absorbed directly in the portal system without passing through the thoracic duct.[2,3] If the drainage remains high in spite of the therapy, total parenteral nutrition must be indicated. In these cases, surgical intervention will be considered only if there is incomplete drainage or continuous loss of chyle.[4] On the other hand, as in our case, if the postinterventional diagnosis of surgical chylothorax was delayed, a fibrinous clot and its adhesions can make the search impossible. In adults, in case of refractory chyle leak greater than 1000 cc/d for 5 days despite conservative management surgical treatment remains the conventional method.[5]

The main step in surgery for chylothorax is finding the laserated area. As soon as the leak was detected it can be treated with sutures, clips, fibrin glue or talcage. Sachs et al. suggested that lymphangiography or computed tomography can be used in the postoperative localisation method.[6] Surgical approached are not always satisfactory and has a certain rate of complications. Because the general health of these patients are poor, particularly in the chronic stage. Therefore, these patients should be treated noninvasively.[7] Cerfolio et al. considered surgery for 34 out of 47 chylothorax cases.[8] They found the leakage area in 24 (68%) of these cases. Eighteen out of 34 patients developed complications and 3 patients needed secondary intervention.

Video assisted thoracoscopic surgery is a minimal invasive procedure and has good results, therefore it is being used since 1990s instead of classical surgical explorative approaches.[9] Treatment modalities of refractory chylothorax cases have a large variability. Classical surgical treatment approaches include chemical pleurodesis, pleurectomy and thoracic duct ligation. Additionally, prior to surgery, diet restriction (middle chained triglyceride diet) or total parenteral nutrition, and drainage of pleural effusion with either thoracentesis or tube thoracostomy are commonly accepted procedures.[7] It was also reported that drainage of chylous fluid can be decreased with somatostatin infusion.[10]

As a conclusion, chylothorax following AVR responds well to conservative treatment, whereas patients with AVR and additional surgical procedures may require surgical treatment for chylothorax. Our case and literature watch indicates that patients with chylothorax after AVR can be treated by conservative means. But this suggestion must be supported by more literature and case reports.

TABLE 1: Treatment modalities of different cases.

Cases	Operation	Treatment modality
Our case	AVR	Conservative
Ergenoglu MU, et al Asian Cardiovasc Thorac Ann 2006;14:(3):63-4.	AVR	Conservative
Kansu E et al Chest 1977;71:408-10.	AVR	Conservative
Schactman M Am J Crit Care 1994;3(4):313-5.	AVR + CABG	Surgery
Ahmed W J Coll Physicians Surg Pak 2006;16(7):483-4.	AVR + ASD	Surgery

AVR: Aort valve replacement, CABG: Coronary artery bypass graft, ASD: Atrial septal defect.

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