

**Figure 1. A) Perioperative echocardiography after WATCHMAN left atrial appendage occluder implantation. Notice absence of membrane gap and absence of flow into the left atrial appendage. A) and (C) One-month follow-up echocardiography showing a gap within the left appendage occluder device membrane (red arrow) with persistence of blood flow within the left atrial appendage D) Three-month control echocardiography showing closure and endothelialization of the device (red arrow)**

WATCHMAN LAA system. An intraoperative echocardiography control showed perfect position of the device and absence of flow within the LAA (Fig. 1A). The patient was discharged on dual antiplatelet therapy. Oral anticoagulation was omitted being the patient at prohibitive risk for cerebral bleeding. At a one-month follow-up the device remained with good anchoring and position but a discontinuity of its membrane was noticed (Fig. 1B) allowing for persistent flow within the LAA (Fig. 1C). In spite of the increased risk of thromboembolism, no further intervention was planned in the hope that the membrane gap would have endothelialized spontaneously. A three-month follow-up echocardiography confirmed complete endothelialization and closure of the occluder without residual LAA flow (Fig. 1D).

When a membrane rupture is present, the communication between LAA and left atrium persists with increased risk of thrombus formation and embolism. This eventuality may be even increased in patients with contraindication to anticoagulation. If the membrane gap is limited in size, spontaneous closure may happen as herein reported. In any case caution should be advocated to perform appropriate monitoring of those patients where suspect of LAA structural failure has been documented. Moreover, the risk of recurrent cerebrovascular events should be pondered.

The case demonstrates that the LAA closure is relatively safe and effective. However, severe complications can occur. It might become an alternative for atrial fibrillation patients who are ineligible for long-term anticoagulation therapy.

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## Fistulous connection of left circumflex coronary artery to coronary sinus presenting with massive pericardial effusion



### *Büyük perikardiyal efüzyon ile ortaya çıkan sol sirkumfleks koroner arterin fistül ile koroner sinüse bağlantısı*

Coronary arteriovenous fistula is a rare anomaly through which the involved coronary artery flow drains into a cardiac chamber, great vessel, or other structures, bypassing the myocardial capillary network. The right coronary artery and the right ventricle are the most common origin and distal connection sites, respectively. A left circumflex artery with a fistulous connection to the coronary sinus is extremely rare.

In this report, we presented an extremely rare case of left circumflex coronary artery-coronary sinus fistula associated with restricted sinus opening to right atrium presenting with non-bloody massive pericardial effusion that was probably caused by abnormal pericardial veins drainage.

A 43-year-old-male was referred to our department because of progressive exertional dyspnea during the past 3 months with no risk factor for coronary artery disease. Transthoracic echocardiography showed massive circumferential pericardial effusion, marked dilatation of coronary sinus and multiple echo-free spaces adjacent to left atrioventricular groove (Fig. 1A, B. Video 1, 2. See video/movie images at [www.anakarder.com](http://www.anakarder.com)) and (Fig. 1B). Transesophageal imaging with color Doppler flow revealed multiple echo-free spaces with visible flow adjacent to dilated coronary sinus and left circumflex artery. There was aneurysmal dilatation of coronary sinus (5 cm) filled with intramural thrombus and significant narrowing (1-2 mm) with turbulent flow at its opening to the right atrium (Fig. 2A Video 3, 4. See video/movie images at [www.anakarder.com](http://www.anakarder.com)) with high velocity continuous Doppler signal (Fig. 2B). A preoperative cardiac catheterization showed aneurysmal dilation and severe tortuosity of left circumflex coronary artery draining into the coronary sinus (Fig. 3). On the basis of these findings, a final diagnosis of coronary artery fistula to the aneurysmal coronary sinus was made. The patient underwent surgical treatment under cardiopulmonary bypass. If left untreated, the coronary sinus aneurysm in the present case might have ruptured spontaneously.

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**Video 1.** Transthoracic echocardiography showing dilated left circumflex coronary artery and massive pericardial effusion

**Video 2.** Color Doppler transthoracic echocardiography showing abnormal continuous flow draining to right atrium

**Video 3.** Transesophageal echocardiography showing aneurysmal coronary sinus which is partially occluded by the thrombus and restricted sinus opening to right atrium

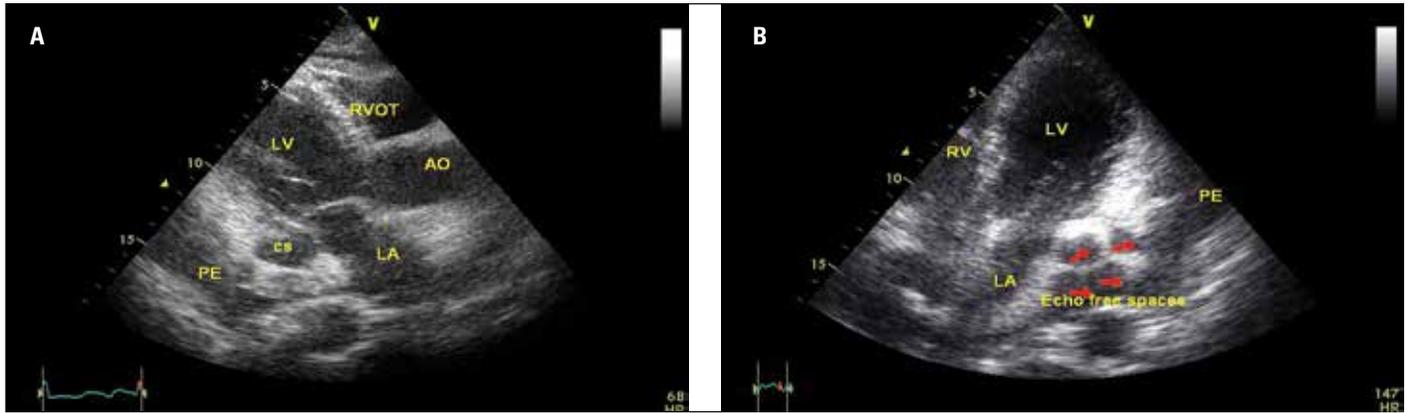
**Video 4.** Color Doppler transesophageal echocardiography

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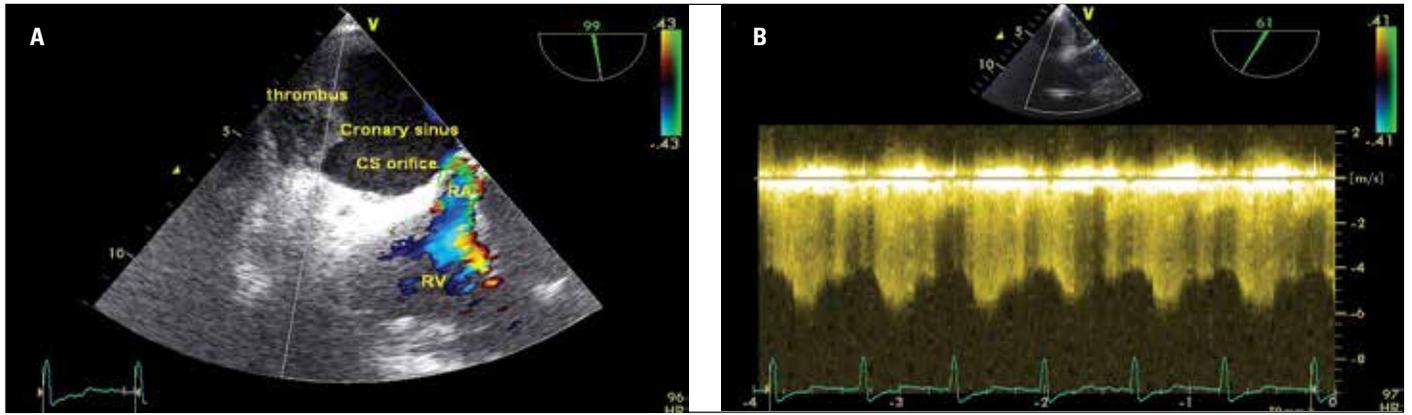
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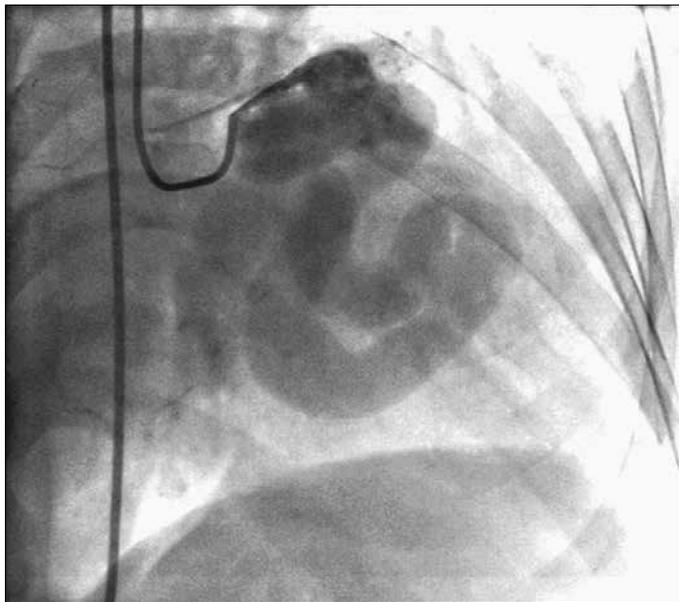


**Figure 1. A) Transthoracic echocardiographic images. Parasternal long-axis view (A) showed massive pericardial effusion and marked dilatation of the coronary sinus (CS), and multiple echo-free spaces (arrowheads) around atrioventricular groove (B)**

Ao - indicates aorta, LA - left atrium, LV - left ventricle, RVOT - right ventricular outflow tract, PE - pericardial effusion



**Figure 2. Transesophageal echocardiographic images: showing aneurysmal dilatation of the coronary sinus (CS), which is partially occluded by the thrombus and significant stenosis of its orifice with turbulent flow is seen (A). Continuous wave Doppler showed high velocity continuous Doppler signal (B)**



**Figure 3. Coronary angiography scene showing severe dilation and tortuosity of left circumflex artery. Coronary sinus was revealed in delayed frames**

Giant left atrial myxoma with left and right coronary system blood supply accompanying mitral stenosis; real-time three-dimensional echocardiography imaging 🎬

*Mitral darlığa eşlik eden sol ve sağ koroner sistemin beslediği büyük sol atriyal miksoma; gerçek zaman üç boyutlu ekokardiyografi kullanımı*

A 52-year-old woman was referred to our institution due to her specific symptoms such as typical chest pain, and exertional dyspnea. Chest radiography revealed a hypodense area on the left border of sternum (Fig. 1). Transthoracic echocardiographic (TTE) two- and three dimensional examination detected a hyperechoic, globular, large mass occupying almost the entire the left atrium (Fig. 2A, B). The mass protrude across the mitral valve into the left ventricle (LV) during diastole causing 5 mm Hg left ventricular inflow mean diastolic gradient. Mild mitral functional stenosis was present. Then, to confirm a diagnosis patient underwent transesophageal two- and tree- dimensional echocardiography (TEE). It revealed a huge mass hyperecho-