

# 8<sup>th</sup> Decades Presentation of Subaortic Fibrous Membrane with Left Ventricular Outflow Tract Obstruction

## 8. Dekatta Tanı Konan Sol Ventrikül Çıkım Yolu Darlığı Oluşturan Subaortik Fibröz Membran

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### ABSTRACT

Subaortic membrane is the reason of the left ventricular outflow tract obstruction in the adults and it may causes severe clinical outcomes. A 70-year-old old female patient presented with syncope, tachycardia, anginal pain. Subaortic fibromembraneus ridge was shown by echocardiography. She was treated with surgical resection of fibrous membrane with no any complication. She was discharged from hospital on the 10th postoperative day. At six-month postoperative follow-up there were not any recurrence on echocardiogram. Recurrence is possible and close follow-up is mandatory.

**Key Words:** Subaortic fibrous membrane, left ventricular outflow tract obstruction, left ventricular hypertrophy

### ÖZET

Subaortik fibröz membran, sol ventrikül çıkım yolunda darlık oluşturabilecek bir durumdur ve farklı klinik tablolarla karşımıza çıkabilir. Senkop, taşikardi ve göğüs ağrısı yakınmalarıyla başvuran 70 yaşındaki bayan hastaya yapılan ekokardiyografide subaortik membran tespit edildi. Hastaya komplikasyon olmadan başarılı bir şekilde cerrahi tedavi uygulandı. Operasyon sonrası 10. günde taburcu edilen hastanın 6. ay kontrolünde ise rekürrens tespit edilmedi. Fibromembranöz dokunun tekrar gelişebileceği göz önünde bulundurularak yakın takip önem arz etmektedir.

**Anahtar Kelimeler:** Subaortik fibröz membran, sol ventrikül çıkım yolu darlığı, sol ventrikül hipertrofisi

### Introduction

Discrete subaortic stenosis (DSS) is characterized by a fibromembraneous tissue which surrounds the aortic region. This is a rare cause of left ventricular outflow tract obstruction (LVOT) in the adult age. LVOT can cause progressive left ventricular hypertrophy, secondary aortic regurgitation (AR) and heart failure at the end (1,2,3). Clinical symptoms are variable for example chest pain and fatigue, progressive dyspnea, chief complaints can be seen (4). In this case we want to describe a subaortic fibrous membrane in an adult female undergoing surgical intervention.

### Case Report

A 70-year-old female was brought to emergency service with history of 3 syncopes for last one month. Also she had got dyspnea, tachycardia and palpitation too. The symptoms were progressive and she had mild exertional dyspnea New York Heart Association functional (NYHA) class II and edema. An electrocardiogram was at sinus rhythm of 68 beats/min and left ventricular hypertrophy. There was mild cardiomegaly in chest radiography. She had systolic murmur: grade 3-4 /6, harsh midsystolic murmur loudest at the left mid-sternal border. Transthoracic echocardiography (TTE) performed with the GE Vivid S5; revealed the presence of a fixed subaortic membrane coexisting with systolic anterior motion (SAM) of the mitral valve. The interventricular basal septum wall

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thickness was 16 mm at diastolic phase, a resting LVOT peak gradient Doppler-estimated 83 mm Hg, / 38 mm Hg mean gradient with valsalva (Figure 1), left atrium was dilated, measured 44 mm. Ejection fraction was %60-65. To define the anatomy of the subaortic membrane at the patient, a transesophageal echocardiography (TEE) was

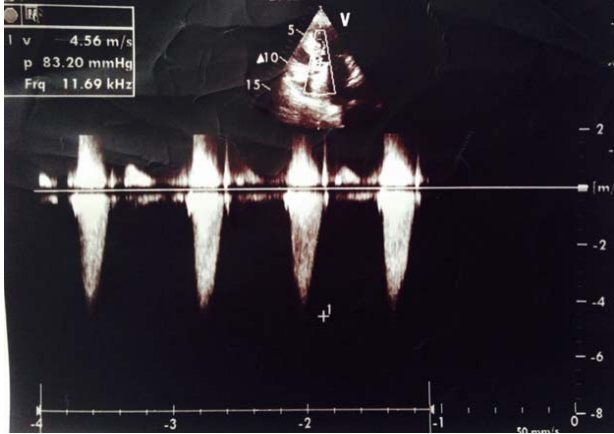


Fig. 1. Velocity of blood flow and gradient.

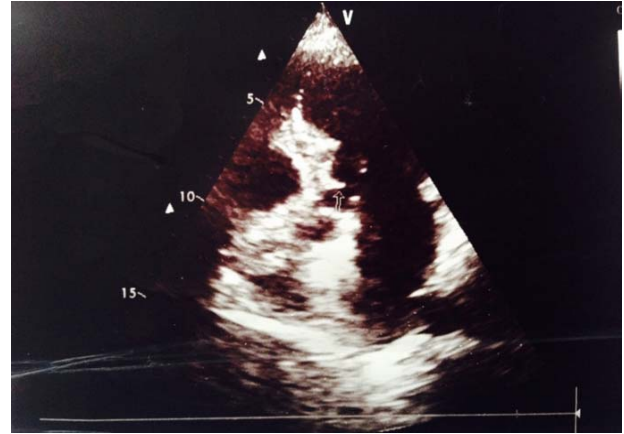


Fig. 2. Subaortic fibrous membrane.



Fig. 3. Aortic koaptation and subvalvular membrane.

Cardiopulmonary bypass was established by cannulation of the ascending aorta and the right atrium with two-stage cannula. Aortotomy was done with oblique incision and fibromembrane tissue resected surgically with preservation of her aortic valve without any complications (Figure 4). After resection of membrane, suturing over and over aortotomy and heart started to beat, TEE performed to check the gradient and any residual membrane and there was not any pathological finding. Her complaints reduced at less than one week after surgery. Before discharge TTE showed no significant findings. She was discharged at the 8th day after operation and she had no significant symptoms at her 6-week follow-up visit.

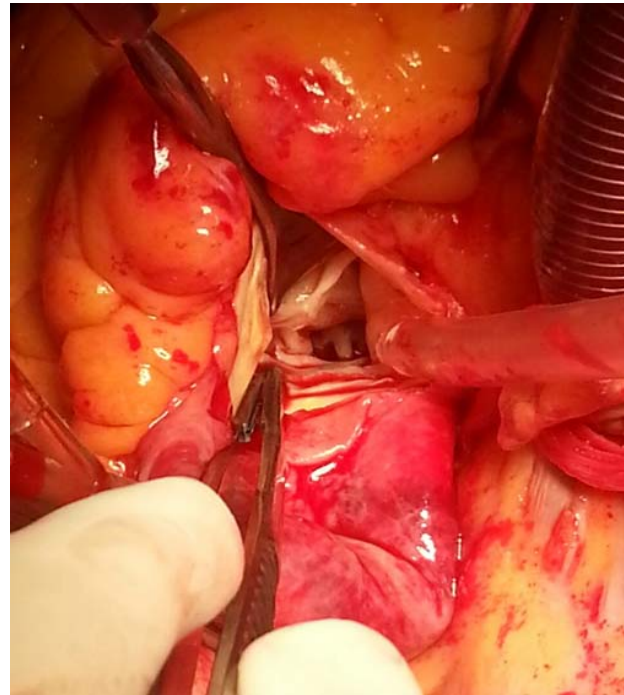


Fig. 4. Surgical view of fibrous membrane.

## Discussion

The etiologic characteristics, prevalence, therapeutic options for DSS in adults have not been established well (3,5). DSS is more common in children and accounts nearly 20% of all cases of LVOT undergo to surgery (5). DSS is a rare pathology and its etiology is unknown. It is one

of the reasons for LVOT obstruction and rapidly hemodynamic progression. Also it causes secondary aortic regurgitation. Although it can occur as a isolated lesion it may accompany with any other congenital diseases (1,6,7) such as accessory mitral valve tissue, abnormal left ventricular papillary muscle, anomalous muscular band, bicuspid aortic valve, atrioventricular canal defects, ventricular septal defect, interrupted aortic arch, patent ductus arteriosus, coarctation of the aorta, persistent superior left vena cava (1,6,8,9).

DSS causes morphologic abnormalities at LVOT. This status includes increased aorto-mitral fibrous distance, arised aorto-septal angle, malalignment ventricular septal defect and increased turbulence (10). Then septal shear stress generate proliferative reaction at endocardium and development of subaortic membrane (3,6,7) At the final producing of left ventricular hypertrophy and aortic regurgitation are inevitable (6,8).

In adults DSS may occur with many different symptoms. For example syncope, palpitation, dyspnea, chest pain but it may be asymptomatic too. Diagnosis can be made by echocardiography (6). A cohort study at 4 centers with 149 patients showed that DSS progressed slowly in adult. The baseline gradient measured  $32.3 \pm 17$  mmHg and  $<1$ mmHg rising per year. But if the gradient was more than 50mmHg and continue to increase, had severe AR were acceptable predictors for surgery (3). Timing for surgical treatment is controversial (6,8). But if left ventricular hypertrophy and AR started surgery must be the choice (10). At rapid progression on LVOT obstruction early resection of subaortic membrane with surgery may be recommended (4). Surgical treatment may range from excision of membrane to myectomy or aortic valve replacement (9). In our case subaortic membrane resected and aortic valve preserved.

DSS causes aortic stenosis in adults and it must be kept in mind. Treatment with surgery has low morbidity and mortality risk. But the main determinative point is the anatomic findings of the lesion. Long term surgery result is not presumable

for recurrent. So follow-up after surgery is compulsory.

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