

ANOMALOUS ORIGIN OF THE LEFT CORONARY ARTERY FROM THE RIGHT SINUS OF VALSALVA AND SEVERE MITRAL STENOSIS

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Abstract

Congenital coronary anomalies are presented in approximately 1% of patient referred for cardiac catheterization. Among the congenital coronary anomalies, a separated anomalous origin of all the coronary arteries from the right sinus of valsalva is very uncommon. We report a rare occurrence of simultaneous occurrence of mitral stenosis with ectopic origin of left main stem coronary artery from right sinus of Valsalva.

Keywords: Anomalous Origin of Coronary Arteries, Mitral Stenosis.

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Introduction

Among all the congenital coronary anomalies, anomalous origin of the left coronary artery from the right coronary sinus of valsalva is rare.¹ Congenital coronary anomalies are presented in approximately 1% of patient referred for cardiac catheterization.² Among the congenital coronary anomalies, a separated anomalous origin of all the coronary arteries from the right sinus of valsalva is very uncommon.³

We report a case of severe mitral stenosis with a rare anomaly of the left coronary artery.

Case report

A 41 year-old female patient with a history of rheumatic fever, since 30 years ago presented with chief complaint of dyspnea on exertion. Vital signs of the patient were normal. In cardiac examination a 3/6 diastolic rumbling murmurs followed by opening snap with presystolic accentuation and loud S1 was heard. ECG showed normal sinus rhythm with signs of left atrial enlargement.

In transthoracic echocardiography mitral valve showed severe stenosis (MVA=1cm² by planimetry). Mitral valve score for PTMC was 6. Ejection fraction was normal and mild to moderate pulmonary hypertension was present (pulmonary artery pressure was about 45 mm Hg). There was no left atrial clot in transesophageal echocardiographic examination.

The patient was scheduled for percutaneous transluminal mitral commissurotomy (PTMC). At first,

we tried to perform coronary angiography because her age was above 40, but we could not find the orifice of the left coronary artery with Judkins left catheter No 4.

On right coronary injection, left main stem and right coronary artery were seen to arise separately from right coronary sinus and left coronary vessel crossed posterior to pulmonary artery (posterior course) (Figure 1,2,3).

PTMC was done with 26-Inoue balloon and left atrial pressure decreased from 32 mm Hg to 20 mm Hg. No significant gradient was present between left atrial and left ventricular end diastolic pressure (LVEDP) at the termination of the procedure. No mitral regurgitation was seen at the final ventriculography (Figure 4).

Discussion

Congenital coronary anomalies are uncommon.⁴ Ectopic origin of a coronary artery from the conotruncal sinus of valsalva may have important clinical manifestation, most notably exertional sudden cardiac death particularly in youth.^{5,6,7}

A single coronary artery arising from the right sinus of valsalva has four anatomical courses;⁴

1- Anterior course: main stem turns anterior in front of RVOT.

2- Interarterial course: main stem turns between great vessels, aorta and pulmonary artery.

3- Septal course, main stem had intermyocardial septal continuation. 4- Posterior, main stem turns posteriorly behind the aorta.

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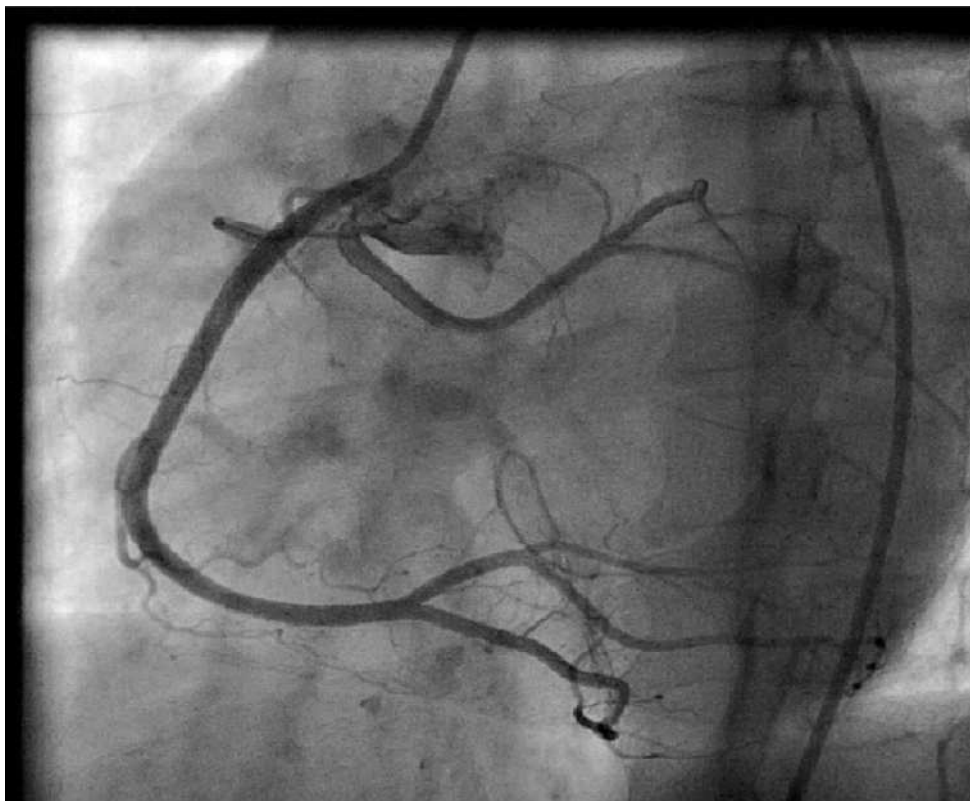


Figure 1. Anomalous origin of left main stem from right sinus of Valsalva (LAO view)

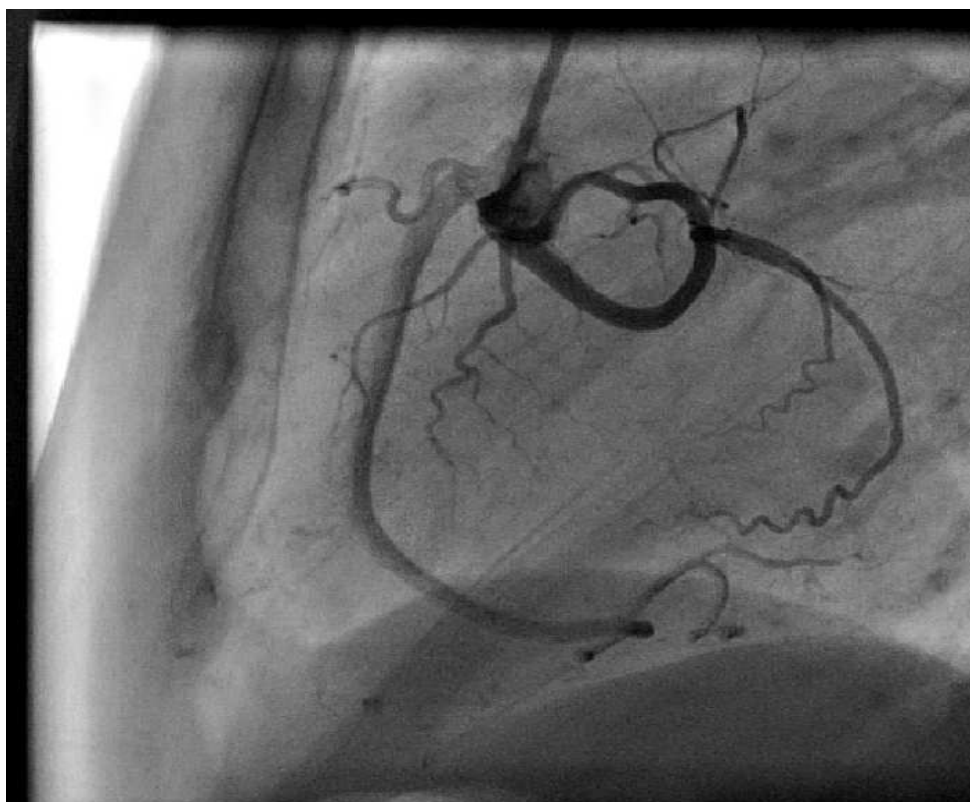


Figure 2. Anomalous origin of left main stem from right sinus of Valsalva(Lateral view)

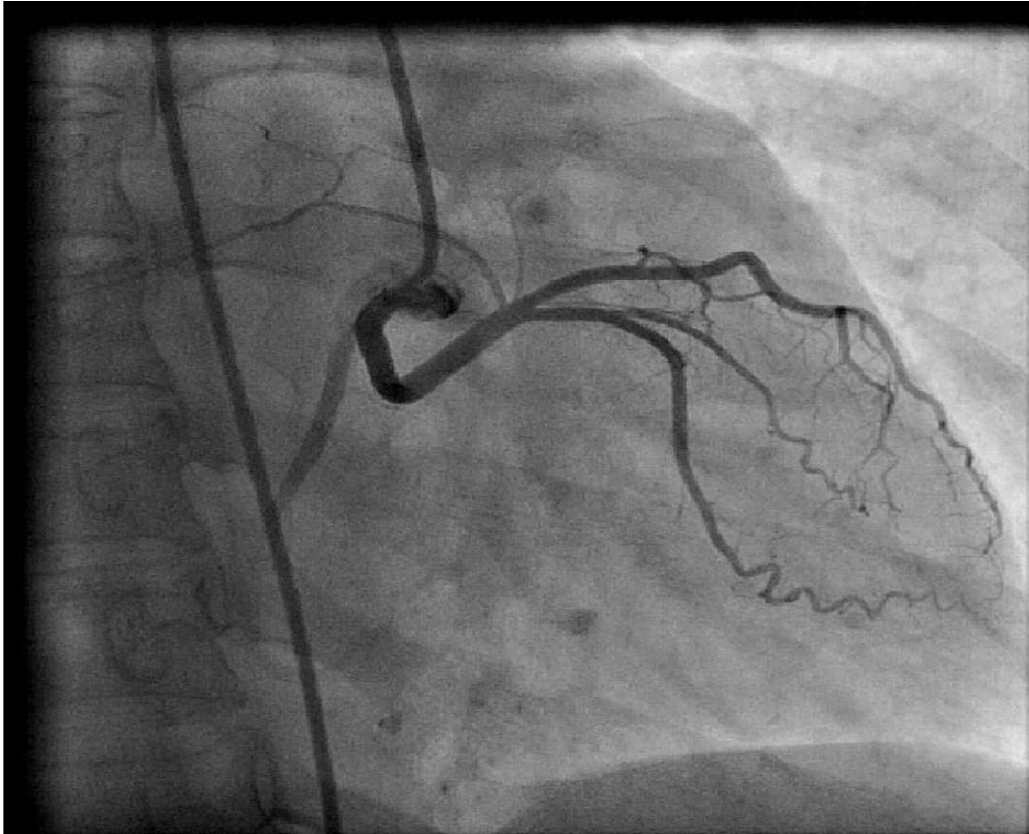


Figure 3. Anomalous origin of left main stem from right sinus of Valsalva (RAO view)

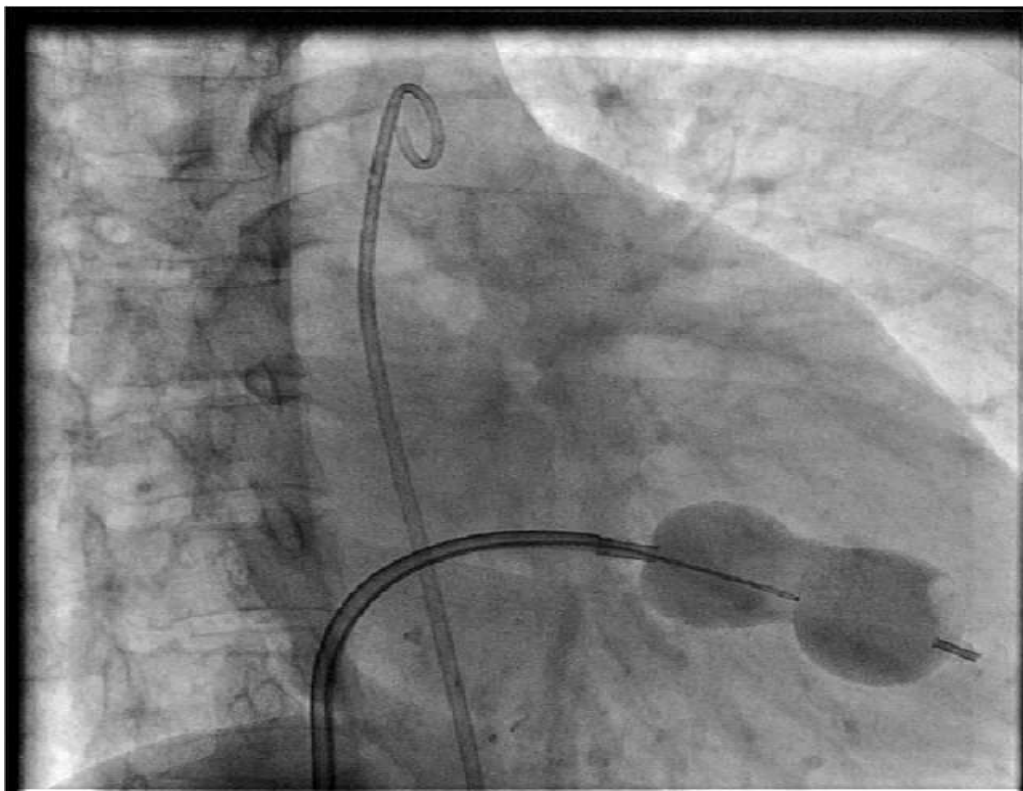


Figure 4. PTMC with Innoue No 26 balloon

The interarterial course has been known to have the worst prognosis with respect to symptoms and incidence of sudden cardiac death (SCD).⁸ Other types can also present with myocardial ischemia, heart failure or sudden cardiac death.

In the interarterial course, ischemia or SCD are assumed to be caused by vascular compression or kinking.⁹

Since the overall number of these patients is small, the treatment strategy varies and is not clearly defined. The possible treatment of choice to prevent SCD in particular interarterial course is CABG using the internal mammary artery as a conduit.¹⁰

In this case we report a rare occurrence of simultaneous occurrence of mitral stenosis with ectopic origin of left main stem coronary artery from right sinus of Valsalva.

Conflict of Interests

Authors have no conflict of interests.

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