

# Images in cardiovascular medicine

## Unusual echocardiographic aspect of the right coronary artery

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A 74-year-old woman with non-typical chest pain was admitted to our department for cardiac evaluation.

In her past medical history: systemic hypertension, hyperlipidemia, deep vein thrombosis. She had been recently hospitalized for an episode of loss of consciousness preceded by chest pain and had been submitted to tilt test, venous ultrasonography and bicycle ergometry which were all negative.

Cardiac auscultation was negative; a transthoracic two-dimensional echocardiographic study was suggestive of mild dilation of the right sinus of Valsalva.

Considering her recent medical history a transesophageal echocardiogram was performed and showed a cavity originating from the right coronary sinus (Figs. 1 and 2), with mainly a diastolic blood flow (Fig. 3).

Coronary angiography showed a funnel-shaped extroversion of the right sinus

of Valsalva which proceeded in a winding right coronary artery measuring 3.5 mm at the origin (Fig. 4). The rest of the coronary tree was absolutely normal.

Data on coronary artery anomalies are still rather confusing: the real incidence varies from 0.3% (in the necropsy series) to 5.6% (in the angiographic series) but these numbers are actually afflicted by entry biases and lack of clear diagnostic criteria.

Such anomalies have been correlated with chest pain, sudden death, syncope, dyspnea, ventricular arrhythmias, cardiomyopathy, and myocardial infarction. In particular, secondary myocardial ischemia and an increased risk of fixed coronary atherosclerotic disease are expected in case of coronary ectasia such as the one depicted in our case<sup>1-3</sup>.

Reports at our disposal suggest that coronary anomalies can be lethal, often during or shortly after strenuous physical



Figure 1. Transesophageal long-axis view of the aortic root.



Figure 2. Modified transesophageal short-axis view of the aortic root.



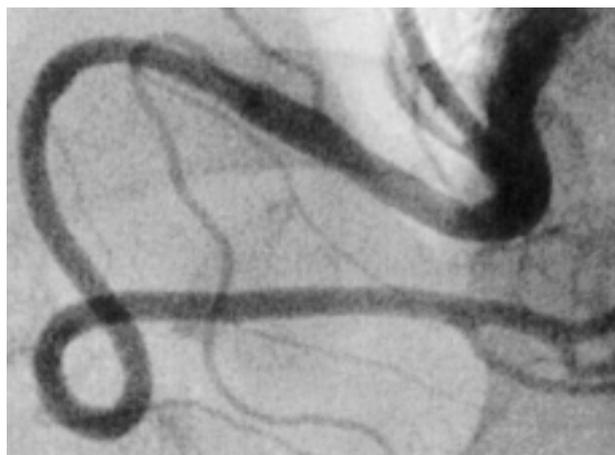
**Figure 3.** Modified transesophageal color Doppler short-axis view of the aortic root.

activity, especially in young individuals. The incidence of death related to coronary artery anomalies in physically active individuals aged 8-66 years is 11% but no data regarding older subjects have been published in the literature<sup>4</sup>. Nevertheless, coronary anomalies are also compatible with a normal myocardial development and function.

Transesophageal echocardiography may reveal coronary anomalies but the operator's ability in identifying an unusual appearance of an otherwise normal structure is of utmost importance<sup>4-6</sup>.

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**Figure 4.** Coronary angiography: the sinus of Valsalva and the right coronary artery.

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