Letters to the Editor

Nodal re-entry tachycardia with angina treated with adenosine

We wish to report a short case history of a patient who suffered an attack of nodal re-entry tachycardia with angina pectoris, and the effect on this of an adenosine injection.

The patient was a 54-year-old man with diabetes who had been treated with oral antidiabetics for 13 years. He had a 6 month history of central chest pain on exertion 1-4 times per week and also occasionally when he got angry. Basic anti-anginal therapy was metoprolol (Seloken ZOC®) 100 mg once daily and sublingual nitroglycerin 0.5 mg tablets as needed. An exercise test performed 2 months earlier showed precordial ischaemic ST segment depression of 2 mm at maximal exercise of 120 Watts, at which time heart rate was 107 beats. min⁻¹ (on β-blockade) and systolic blood pressure 190 mmHg. Exercise was limited by chest pain. He was due for a visit to be included in a clinical study.

When the patient came for his first introductory exercise test in the trial, he complained of chest pain and palpitations. This had started whilst driving to the hospital and had persisted while he was walking from the car park to the laboratory. An ECG was adapted and he was found to have a supraventricular regular tachycardia with a heart rate of 157/min and no discernible P-waves. Leads V₁ and V₃ showed ST segment depression of about 2 mm below baseline. T-waves in leads V₁ to V₄ and in all extremity leads were lower than previously. Also, the bolus dose of adenosine would transiently (over about 30 s) have increased adenosine concentrations in the heart above what is presumably formed through ischaemia, yet there was no change in the perception of chest pain during the conversion. The 'funny feeling' coincided with the ectopic beats and lasted as long. Thus, although adenosine bolus injections have been shown to cause chest sensations of an oppressive and angina-like nature in healthy subjects¹ and in patients with angina pectoris², the present case history would indicate that adenosine is not the algogenic factor in tachycardia-provoked angina pectoris. An alternative explanation is that maximal pain stimulation already had been achieved through the ischaemia.

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References


Rare cause of pure aortic regurgitation: congenital quadricuspid aortic valve

The quadricuspid aortic valve is a rare cardiovascular abnormality. Until now, 52 cases of a quadricuspid aortic valve have been reported as an incidental finding at autopsy, at echocardiography or at aortic valve replacement¹. Here are reported two new cases of quadricuspid aortic valves associated with superior displacement of the left coronary ostium and severe aortic regurgitation.

A 65-year-old man was admitted to hospital because of pericarditis with effusion. On auscultation, there was no murmur. The ECG showed sinus rhythm but the chest X-ray was normal. Severe and pure aortic regurgitation was detected on transesophageal echocardiography with moderate left ventricular enlargement. Transesophageal echocardiography showed a quadricuspid aortic valve with a 'X' configuration. Computed tomography was normal. An aortic root angiogram showed severe aortic regurgitation (grade 4 according to Seller) with superior displacement of the left coronary ostium. Right heart catheterization revealed normal right side pressure. There was no coronary artery disease. No surgery was performed because of the patient's very poor general condition and severe mental handicap.

A 41-year-old woman with history of aortic insufficiency was hospitalized for cardiac catheterization because of left ventricular enlargement. She had no dyspnoea or chest pain. A 3/6 diastolic murmur along the left sternal border with a systolic murmur were heard on auscultation. The ECG showed moderate left ventricular hypertrophy and sinus rhythm. An echocardiogram with Doppler and an aortograph confirmed pure and severe aortic regurgitation (grade 3). The coronary angiogram was normal. At operation, the aortic valve was found to have four cusps: three equal-sized and one small cusp. The supernumerary cusp was located between the right and non-coronary cusps. These cusps were not calcified but dystrophic. The left coronary ostium was located between the middle of the supernumerary cusp and the right coronary cusp. The four cusps were excised and no. 23 mm Carbomedics prosthetic valve was inserted. The postoperative course was uneventful and ten months later, she was doing very well.
Quadricuspid aortic valves arise from anomalous septation of the truncus arteriosus, and its association with ostium coronary displacement would indicate a common developmental defect. Quadricuspid aortic valves account for only 0.3% of excised purely regurgitant aortic valves. Their echocardiographic incidence is 0.013% and they are even less common than quadricuspid pulmonary valves. Usually, diagnosis is made by transthoracic echocardiography: parasternal short-axis views show a characteristic ‘X’ configuration. In patients with a low quality image, transoesophageal echocardiography is useful (case 1). Diagnosis could also be made by aortography in left anterior oblique view. Our patients had a displacement of one coronary orifice but they had no other cardiac abnormalities, which is rare with quadricuspid aortic valves.

It is very important for the surgeon to recognize coronary ostium displacement to prevent ostial obstruction with the prosthetic valve ring. At operation, many anatomical variations of quadricuspid aortic valves have been described by Hurwitz and Roberts. The most common variation consisted of three equal-sized and one smaller cusp which is the supernumeracy one. This latter was located between the right and non-coronary cusps. The quadricuspid aortic valve had mild fusion of all four commissures without any calcification or postinflammatory disease. On follow-up, severe aortic regurgitation detected by transthoracic echocardiography assessment, led to operation. None of the reported surgical patients with quadricuspid aortic valve had clinical or anatomical evidence of infective endocarditis.

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References