Fractional flow reserve guided stenting of a myocardial bridge

To the Editor,

Myocardial bridging (MB) is a common congenital coronary anomaly. The treatment is debated in symptomatic forms. Percutaneous coronary intervention (PCI) could be a possible solution; however, in these cases the major adverse cardiac event rate is high (1).

A 52-year-old man presented with chest pain provoked by emotional stress. Laboratory tests and transthoracic echocardiography were normal. Treadmill test was indicated according to Bruce protocol that demonstrated silent ischemia at 125 Watts workload. Beta blocker was uptitrated (bisoprolol 2.5–10 mg daily). Despite the oral medical therapy, the patient remained symptomatic. Coronary angiography showed MB in the mid left anterior descending artery (LAD) with lumen compression (minimal lumen diameter: 0.26 mm, reference vessel diameter: 2.6 mm, and lesion length: 25.4 mm) but without any atherosclerotic lesions. The treatment is debated in symptomatic forms. Percutaneous coronary intervention (PCI) could be a possible solution; however, in these cases the major adverse cardiac event rate is high (1).

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Adnan Kaya
Department of Cardiology, Faculty of Medicine, Düzce University; Düzce-Turkey

References


Address for Correspondence: Dr. Adnan Kaya
Düzce Üniversitesi Tip Fakültesi, Kardiyoloji Anabilim Dalı
81100, Konuralp, Düzce-Türkiye
E-mail: adnankaya@ymail.com
revealed good angiographic result, and final FFR (Pd/Pa=0.96) verified improved hemodynamics. After the procedure, the patient had no complaints and at the 18-months control multislice CT angiography excluded the restenosis.

Drug eluting stent implantation with a longer stent than the visible bridge was safe and effective in this patient during the follow-up period. PCI seems a reasonable treatment in symptomatic MBs; however, patient selection and procedural aspects remain unclear in the absence of comparative clinical trials.

Angina pectoris-like symptoms could be caused by several reasons beyond atherosclerotic coronary disease. To hold the MB responsible for the symptoms, its pathological role must be proved. In a recent publication by Hakkem (2), the FFR measurement was done with dobutamine provocation in the symptomatic bridge. The most severe hemodynamic alteration was found in diastolic FFR; therefore, the authors are suggested to use this value in the MB patients.

Dynamic compression caused by the MB is unique and this kind of coronary lesion differs from other atherosclerotic lesions. The high incidence of procedural failures like stent thrombosis (3), coronary perforation (4), and early restenosis (5) suggest that the stents’ mechanical properties, diameter, and length are the determining factors for a successful intervention. High inflation pressures may be required for optimal stent implantation despite the higher risk of coronary perforation.

Basically the stent recoil means the percentage by which the diameter of a stent decreases from its expanded diameter (when the balloon is inflated at nominal pressure) to its relaxed diameter (when the balloon is retrieved from the stent). We have to calculate with a dynamic stress component as well, which is caused by the myocardium mass above the lesion. The given device’s resistance to this permanent, cyclic force can make a difference between various stent types. On the contrary e.g., the pushability seems to be a less important feature when preparing for stenting a MB on the mid segment of the LAD.

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References


Address for Correspondence: György Bárczi, MD
Semmelweis University Heart and Vascular Center, Budapest, Hungary
Városmajor u. 68. 1122 Budapest-Hungary
Phone.+36 - 1- 4586841  Fax.+36-1-45868428
E-mail: barczigyorgy@gmail.com
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Pulmonary valve and pulmonary artery myxomas

To the Editor,

Myxomas arising from the pulmonary valve and pulmonary artery are very rare. The mechanisms of these myxomas remain unknown; however, it is supposed that they arise in situ or from a dislodgement of myxomas from remote sites (1). Eck reported the first case of pulmonary valve myxoma in a premature neonate in 1935 (2). Later in 1955, Blodorn (2) reported an autopsied case of myxomas involving both the pulmonary valve and pulmonary artery (2). Until present, only two decades of such cases have been reported worldwide. The myxoma could be found at any age, from neonate to very aged patients, with a slight male predominance.

The myxomas located near the pulmonary valve may influence opening and closing of the valve leading to valvular stenosis and (or) insufficiency. As some patients were asymptomatic, the myxomas were discovered by incidental findings during routine examinations, whereas majority presented with circulatory or institutional symptoms. Physical examinations, electrocardiography, and chest X-ray films might not offer specific diagnostic evidences.

Myxomas may be misdiagnosed as pulmonary valve stenosis, pulmonary artery embolism, or pulmonary valve vegetation and lead to an inappropriate therapy, such as anticoagulation or thrombolysis (3). Transthoracic or transesophageal echocardiography and cardiac computed tomography are reliable diagnostic means. Computed tomography could clearly show the location, size, and mobility of the myxoma as well as the relation between myxoma and cardiac system. The feature of pulmonary artery myxoma in cardiac magnetic resonance imaging was reported to be a hypointense mass (4). A moving mass on echocardiography or a filling defect on computed tomography could be helpful in