



CASE REPORT

Percutaneous balloon mitral valvuloplasty and closure of the left atrial appendage: Synergy of two procedures in one percutaneous intervention



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KEYWORDS

Percutaneous left atrial appendage closure;
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Abstract Mitral stenosis (MS) is frequently associated with the development of atrial fibrillation (AF) as a consequence of hemodynamic and inflammatory changes in the left atrium. Both conditions predispose to thrombus formation, with frequent involvement of the left atrial appendage (LAA), and consequent increase in the incidence of systemic thromboembolic events. Percutaneous mitral valvuloplasty (PMV) reduces the risk of thromboembolism in patients with significant mitral stenosis. Percutaneous LAA closure is also associated with a reduction in thromboembolic risk in patients with AF, but there are no data regarding the use of this technique in patients with significant mitral valve disease. We report the case of a 57-year-old-woman with significant MS and permanent AF, in New York Heart Association functional class II, who despite adequate oral anticoagulation with acenocoumarol, presented several clinical episodes of systemic thromboembolism in the last four years. It was decided to perform a combined percutaneous procedure, including both PMV and percutaneous LAA closure with the Amplatzer Cardiac Plug device. No significant acute complications occurred and the patient was discharged on indefinite treatment with acenocoumarol associated with aspirin 100 mg/d for three months. After a one-year follow-up, there have been no new embolic episodes or other complications.

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PALAVRAS-CHAVE

Encerramento percutâneo do apêndice arterial esquerdo;
Valvuloplastia mitral percutânea;
Estenose mitral;
Fibrilhação auricular

Valvuloplastia mitral percutânea por balão e encerramento do apêndice auricular esquerdo. Sinergia de dois procedimentos numa única intervenção percutânea

Resumo A estenose mitral (EM) é frequentemente associada ao desenvolvimento de fibrilhação auricular (FA) como consequência de alterações hemodinâmicas e inflamatórias na aurícula esquerda. Ambas as condições predis põem à formação de trombos, com frequente envolvimento do apêndice auricular, e consequente aumento da incidência de eventos tromboembólicos sistêmicos. A valvuloplastia mitral percutânea (VMP) reduz o risco de tromboembolismo em doentes com EM significativa. O encerramento percutâneo do apêndice auricular esquerdo (PCLAA) na FA também está associado a uma redução de risco de tromboembolismo em pacientes com FA, mas não existem dados sobre a utilização desta técnica em doentes com MS. Relatamos o caso de uma mulher de 57 anos de idade com significativa EM e FA permanente, em classe funcional II, que, apesar de anticoagulação oral adequada com acenocumarol, apresentou nos últimos quatro anos vários episódios clínicos de tromboembolismo sistêmico. Foi decidido realizar um procedimento percutâneo combinado de PMV e PCLAA com dispositivo *Amplatzer Cardiac Plug*. Não se verificaram complicações agudas significativas e o paciente recebeu alta com acenocumarol de forma indefinida, associado com aspirina 100 mg/d durante três meses. Depois de um ano de *follow-up*, não houve novos episódios embólicos ou outras complicações.

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Introduction

Mitral stenosis (MS) is associated with increased thromboembolic risk, especially in individuals with atrial fibrillation (AF), a common finding in these patients.^{1,2} Percutaneous mitral valvuloplasty (PMV) in patients with hemodynamically significant MS is associated with a reduction in thromboembolic risk.³ Also, percutaneous left atrial appendage (LAA) closure is an emerging procedure that may be considered in patients with AF with high thromboembolic risk and in whom chronic oral anticoagulation is contraindicated.⁴⁻⁶

We describe the case of a patient with significant MS and a history of repeated thromboembolic events in spite of oral anticoagulation with acenocumarol who underwent both PMV and percutaneous LAA closure in the same procedure. Synergies between the two procedures are discussed.

Case report

A 57-year-old woman with significant MS, in New York Heart Association functional class II/IV, was referred to our unit for PMV, as echocardiographic parameters were suitable (mitral area 1.1 cm², mild mitral regurgitation, Wilkins score 7). Interestingly, she had previously undergone PMV 12 years before.

The patient had permanent AF and was treated chronically with acenocumarol. Despite adequate oral anticoagulation, in the last four years she had presented at least two episodes of ischemic stroke: an embolic stroke two years

previously in the right middle cerebral artery territory, and an embolic stroke eight months previously in the right posterior inferior cerebellar artery which caused transtentorial herniation. After these episodes the patient presented an acceptable neurological recovery and was independent for everyday activities. One month before admission, she had presented a non-ST-segment elevation acute myocardial infarction. Coronary computed tomography showed no coronary stenosis. Coronary embolism was diagnosed as the probable cause of the ischemic event and the patient had no recurrent ischemia or other complications. Our center's heart team decided to perform PMV and percutaneous LAA closure during the same procedure.

Transesophageal echocardiography performed 24 hours prior to the procedure showed no thrombus in the left appendage but revealed the presence of high-density spontaneous contrast (Figure 1). The LAA showed a 29 mm × 26 mm entry orifice (Figure 2).

In the procedure, the middle portion of the interatrial septum was punctured (Figure 3) and PMV was performed first by the usual technique with a Mullins sheath and a Brockenbrough needle and inflation of a 26 mm Inoue balloon (Figures 4 and 5), with a good result (absence of transmitral gradient, 2.1 cm² mitral area and no increase in the degree of valvular regurgitation). Percutaneous LAA closure was then performed. Keeping the guidewire in the same transeptal puncture, a pigtail catheter was introduced into the LAA to allow selective injections into this structure (Figure 6). A 30 mm Amplatzer Cardiac Plug (ACP) (St. Jude Medical), specific for percutaneous LAA closure, was inserted via the ACP release sheath and implanted

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