

## CASE REPORT

# Ischemia induced by coronary steal through a patent mammary artery side branch: A role for embolization

Nuno Moreno<sup>a,\*</sup>, Alexandra da Silva Castro<sup>a</sup>, Adriana Pereira<sup>a</sup>, João Carlos Silva<sup>b</sup>, Pedro Bernardo Almeida<sup>b</sup>, Aurora Andrade<sup>a</sup>, Maria Júlia Maciel<sup>b</sup>, Paula Pinto<sup>a</sup>

<sup>a</sup> Serviço de Cardiologia do Centro Hospitalar Tâmega e Sousa, Penafiel, Portugal

<sup>b</sup> Serviço de Cardiologia do Hospital de São João, Porto, Portugal

Received 15 August 2012; accepted 4 September 2012

Available online 25 June 2013

### KEYWORDS

Patent left internal mammary artery side branch;  
Coronary steal syndrome;  
Coil embolization

### PALAVRAS-CHAVE

Ramo patente da artéria mamária interna;  
Síndrome do roubo coronário;  
Embolização

**Abstract** Non-occlusion of the internal mammary artery side branches may cause ischemia due to flow diversion after coronary artery bypass grafting.

The authors present the case of a 67-year-old man with recurrent angina after undergoing myocardial revascularization with a left internal mammary artery to left anterior descending bypass. He presented with impaired anterior wall myocardial perfusion in the setting of a patent left internal mammary artery side branch. Effective percutaneous treatment was carried out through coil embolization, with improved flow and clinical symptoms, confirmed through ischemia testing.

Coronary steal through a patent mammary artery side branch is a controversial phenomenon and this type of intervention should be considered only in carefully selected patients.

© 2012 Sociedade Portuguesa de Cardiologia. Published by Elsevier España, S.L. All rights reserved.

### Isquemia induzida por roubo coronário através de um ramo patente da artéria mamária interna: um papel para a embolização

**Resumo** A não oclusão de ramos laterais da artéria mamária interna após cirurgia de revascularização miocárdica pode causar isquemia devido ao desvio do fluxo coronário.

Os autores apresentam o caso de um homem de 67 anos de idade, com angina recorrente após revascularização miocárdica com *bypass* da artéria mamária interna esquerda para a artéria descendente anterior. O doente apresentava redução da perfusão miocárdica na parede anterior na presença de um ramo patente da artéria mamária interna. Foi realizada de forma eficaz a embolização percutânea com *coils* deste ramo com melhoria do fluxo e dos sintomas clínicos, dados confirmados com testes de avaliação de isquemia.

\* Corresponding author.

E-mail address: numoreno@yahoo.com (N. Moreno).

O roubo coronário através de ramos laterais patentes da artéria mamária ainda é um fenómeno controverso e este tipo de intervenção deve ser apenas considerada no tratamento de pacientes bem seleccionados.

© 2012 Sociedade Portuguesa de Cardiologia. Publicado por Elsevier España, S.L. Todos os direitos reservados.

## Introduction

Coronary steal due to an unligated side branch of the internal mammary artery (IMA) is a rare but important condition that can cause ischemia in patients after coronary artery bypass surgery. Although this is a known phenomenon, it is not always easy to relate it to the patient's symptoms.

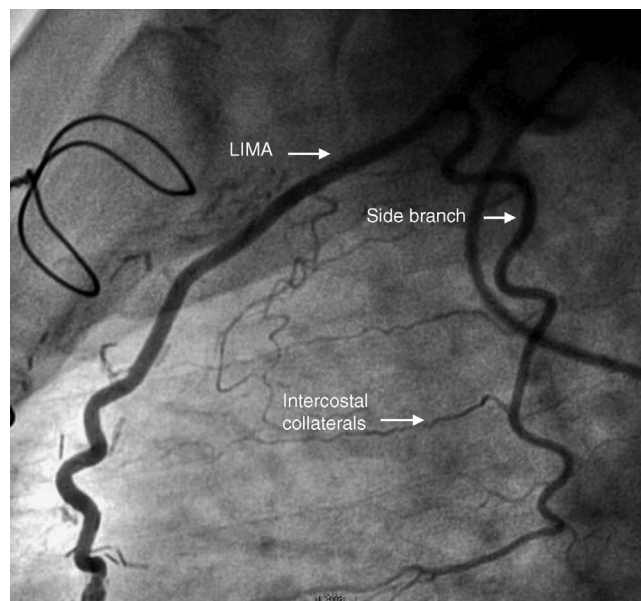
We describe the case of a patient with significant ischemia in whom an unligated side branch was successfully treated by coil embolization. This intervention can be a useful option and should be considered in the management of symptomatic patients with patent IMA side branches.

## Case report

The authors present the case of a 67-year-old man who had undergone coronary artery bypass grafting after an acute myocardial infarction over four years previously, due to an ostial lesion in the left anterior descending (LAD) artery, with a left internal mammary artery (LIMA) to LAD bypass. One year after the procedure he was admitted to the cardiac intensive care unit for unstable angina. He underwent coronary angiography, which revealed an 80% stenosis in the bypass anastomosis, and angioplasty with a drug-eluting stent was successfully performed. The angiogram also showed a branch arising from a very proximal segment of the LIMA, not occluded during the surgery and supplying the whole lateral chest wall via numerous intercostal collaterals (Figure 1). Due to the bypass stenosis the clinical importance of the patency of this vessel was not appreciated. After this angioplasty he presented with early-onset recurrent angina, and performed a treadmill stress test that was symptomatic and electrically positive for ischemia. Repeated coronary angiography showed the graft and the stent to be patent, without evolution of the native disease.

After discharge the patient remained highly symptomatic despite optimal medical therapy.

Dobutamine stress echocardiography showed inducible ischemia in the anterior wall distribution. These findings led to a diagnosis of a probable steal phenomenon due to a patent IMA side branch. Percutaneous coil embolization of this branch was performed. The left internal mammary artery was selectively cannulated with a Heartrail catheter inside a 6-F femoral guiding catheter via the right femoral artery and a microcatheter was advanced over the guidewire into the side branch. Following removal of the guidewire, detachable embolization coils (Tornado®, Cook Medical, 4/2 mm, 4/2 mm and 3/2 mm) were placed in the side branch.



**Figure 1** A large side branch originating from the left internal mammary artery. LIMA: left internal mammary artery.

The coils were attached to a delivery wire and were released in the appropriate position. During the procedure, a dissection was detected in the proximal region of the LIMA and two biolimus and bioabsorbable polymer stents (Biomatrix 3 mm × 24 mm and 3 mm × 28 mm distal and proximal, juxtaposed) were implanted, covering the entire dissected segment. Control angiography at the end of the procedure showed the side branch still patent but with compromised flow (Figure 2)

At one-month follow-up, the patient reported clinical improvement and increased functional capacity. He underwent treadmill stress testing and repeated dobutamine stress echocardiography four months after the procedure, which showed no evidence of ischemia.

## Discussion

Although the use of LIMA to LAD grafts as a means of revascularization is routine and effective, it is not a risk-free procedure. There can be various reasons for ischemic symptoms in patients who have undergone coronary artery bypass surgery, including incomplete revascularization at the time of surgery, progression of atheromatous disease or graft occlusion. A rare cause of recurrent symptoms can be

Download English Version:

<https://daneshyari.com/en/article/1126337>

Download Persian Version:

<https://daneshyari.com/article/1126337>

[Daneshyari.com](https://daneshyari.com)