CASE REPORT

Parallel Stent Placement for Maldeployed Iliac Stent

M. Birrer¹, F. Mahler¹, I. Baumgartner¹, J. Triller² and D. D. Do*¹

¹Swiss Cardiovascular Center and ²Institute of Diagnostic Radiology, University Hospital, Freiburgstrasse, 3010 Bern, Switzerland

Introduction

Data accumulated since the first use of stents in peripheral arteries suggest that stent placement in iliac arteries is a safe and effective treatment.¹,² Stenting has become a valuable alternative to vascular surgery in the treatment of aortoiliac occlusive disease. However, despite the belief that iliac artery stenting is an easy procedure, technical failure and procedure-related complication rates range from 8% to 24%.³–⁸ The excellent initial technical success rate (range, 95–100%) is not rarely the result of adjunctive endovascular manoeuvres.⁸

The technique of parallel stent placement in an emergency setting of occluded or incompletely deployed coronary stent has already been reported.⁹,¹⁰ In this report we describe the use of this technique to prevent occlusion of the iliac artery by incomplete stent deployment.

Case Report

A 58-year-old female smoker with hyperlipidaemia and positive family history of cardiovascular disease presented with intermittent claudication after approximately 100 m because of a high grade calcified stenosis in the right common iliac artery (Fig. 1).

Under road map control from the contralateral side right femoral retrograde access was achieved and a 7 F (Terumo Corp., Tokyo, Japan) sheath was placed, followed by injection of 5000 IU heparin. The stenosis in the iliac artery was passed with a 0.035 inch standard angled Terumo guidewire (Terumo Corp., Tokyo, Japan). Because of the eccentric lesion and the danger of distal embolisation primary stenting was chosen. A 4–9/30 mm Palmaz stent (P 294M, Cordis/Johnson & Johnson Company, Miami Lakes, FL, U.S.A.) mounted by hand on a 7/40 mm angioplasty balloon catheter
Parallel Stent Placement for Maldeployed Iliac Stent

Fig. 2. Due to incomplete Palmaz stent expansion with an angioplasty balloon of 7 mm in diameter, the stent was dilated with an angioplasty balloon of 8 mm and finally 10 mm in diameter. Nevertheless, a haemodynamically significant stenosis remained. Note the hour-glass deformation of the balloon at lesion site (arrow).

Fig. 3. The first incompletely dilated Palmaz stent (arrow) and a second self-expandable Smart stent beside (double arrow).

(Wanda, Boston Scientific, Natick, MA, U.S.A.) a second self-expandable stent (Smart 10/40 mm; Cordis/Johnson & Johnson Company, Miami Lakes, FL, U.S.A.) was implanted from the ipsilateral side (Fig. 3). The final angiogram showed a patent iliac artery and no distal embolisation (Fig. 4).

Discussion

Although stenting of stenoses or occlusions of iliac arteries have become daily routine, unexpected procedure-related complications may occur.3-8 In our case occlusion of the common iliac artery was caused by incomplete deployment of a Palmaz stent and rupture of the balloon used for further dilatation. Attempted withdrawal of the balloon catheter caused severe stent deformation and pieces of the balloon material were caught by the stent.

As suggested in two earlier coronary reports9,10 we tried to avoid surgery by further endovascular treatment. The stent was partially crushed by subsequent balloon angioplasty and finally totally crushed by parallel stent placement. A self-expandable Smart stent was chosen because of its low crossing profile. Despite
In conclusion, this case report demonstrates the feasibility of stent crush of an incompletely expanded and/or occluded stent by parallel stent placement.

References


Accepted 1 April 2001