Case Report

THE ROLE OF SURGERY IN IATROGENIC DISSECTION DURING IN-STENT RESTENOSIS TREATMENT

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ABSTRACT

In-stent restenosis (ISR) remains a challenging problem, and its optimal management is still unknown. Although redilatation has predominantly been used, unusual complication such as coronary artery dissection may occur. This report describes successful surgical treatment of a severe coronary artey dissection in the left anterior descending coronary artery after attempting eximer laser angioplasty for in-stent restenosis.

Key Words : In-stent restenosis, Coronary artery dissection, Surgical treatment.

INTRODUCTION

Intracoronary artery stent placement is an effective treatment for patients with coronary artery disease (1). However, angiographic and clinical restenosis after stenting develops in 15% to 54% of the cases and constitutes a major limitation to the effectiveness of this technique (1,2). Optimal treatment of in-stent restenosis has not been determined so far. Balloon angioplasty, repeat stenting, directional coronary atherectomy, eximer laser angioplasty or high frequency rotablation are considered as therapeutic options of choice at present (3). Severe coronary artery dissection is a rare but serious complication of these percutaneous interventions for the treatment of in-stent restenosis (ISR) (4). Here, we present a case of severe coronary artery dissection during eximer laser angioplasty for the treatmet of ISR and successful surgical treatment by long segment internal mammary artery bypass graft.

CASE REPORT

A 37-year-old man was admitted due to exertional angina for one month. Cardiac catheterization demonstrated nearly a total occlusion of proximal left anterior descending (LAD) coronary artery. Stenosis was dilated by 2.5x12 mm Jomed flex stent (JOMED International, Helsingborg, Germany) successfully. But his symptoms recurred 2 months after intracoronary stent placement. Coronary angiography was repeated and 80%

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stenosis in the stent was detected. Eximer laser percutenous transluminal coronary angioplasty (PTCA) was planned to treat ISR. But during eximer laser angioplasty, severe coronary dissection developed (Fig 1). Guidewire went forward to the apex in the false lumen accidentally. Due to the extend of dissection and inability to move the guidewire back into the true lumen, the patient was referred for urgent surgery. During the operation, bluish hemorrhage and fresh thrombus was noted between intima and media of mid-distal LAD coronary artery. A large arteriotomy to the LAD up to the apex was performed. Dissection was extended to the apex of the heart and there were three different fenestrations in the intima. A long segment internal mammary artery anastomosis to the LAD coronary stenting was performed incorporating true and false lumina together as patchplasty to reestablish flow in the true lumen. He was discharged on the sixth post-operative day without any problem. A follow-up angiogram one month post-operatively demonstrated good flow in the LAD coronary artery (Fig 2).

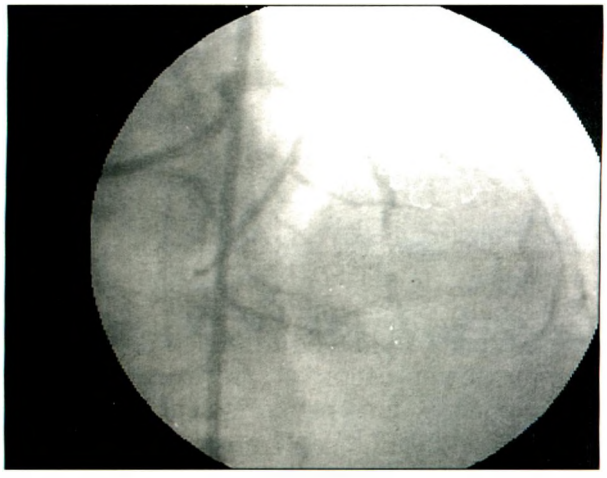

Fig.1: Beginnig point of dissection. Dissection extends to the apex of the LAD coronary artery.

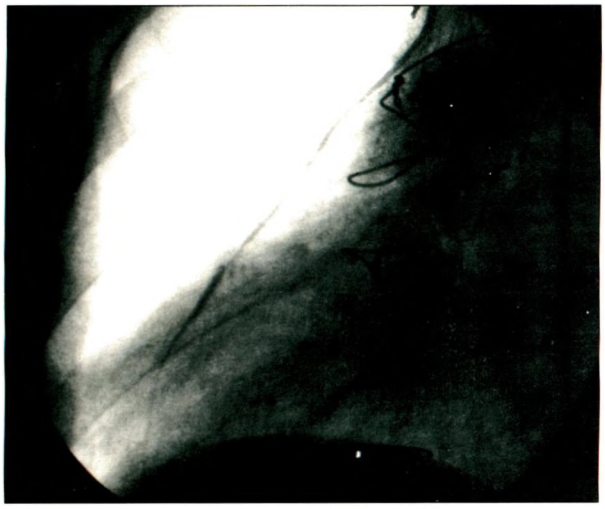

Fig.2: Postoperative angiogram shows good flow in both the internal mammary artery and the LAD coronary artery.

DISCUSSION

ISR has become a significant problem for interventional cardiologists. Due to different pathogenic causes it remains unclear whether a uniform therapeutic regimen is appropriate. Several studies have shown variable results using balloon angioplasty alone, repeat stenting, directional atherectomy, eximer laser angioplasty, and, more recently, intracoronary radiation therapy (5-9). But it is still unclear which one, if any, will provide the most favorable outcome.

Redilatation has predominantly been used for the treatment of in-stent restenosis. However, in long and diffuse restenotic stents it is reported to be poor, and recurrent restenosis is likely (10). Any intervention has diverse complication such as coronary artery dissection, distal embolisation, small perforation depending on the type of procedure (11). Cardiologists planned to perform eximer laser angioplasty to treat ISR in this case. But at the beginning of the procedure severe iatrogenic coronary dissection developed probably because of the nature of restenotic plaque. Postangioplasty dissections have been associated with acute vessel closure and are frequent cause for re-stent deployment, but severe dissections cannot be managed interventionally. Because of the multiple intimal fenestrations, the guidewire may not go forward back into the true lumen which is essential to perform reintervention, as in this case.

Surgery is generally accepted as the last choice for the treatment of ISR. But patients who underwent coronary artery bypass graft (CABG) surgery for the treatment of ISR had significantly better outcomes than those who underwent percutaneous interventions (12). Results of surgery for complications of percutaneous interventions are also good. In this case quality of