# Coronary stent implantation in Behcet's disease

# H. Tezcan, S. Yavuz, A.S. Fak, Ü. Aker<sup>1</sup>, H. Direskeneli

Division of Rheumatology, Department of Internal Medicine, Marmara University School of Medicine, Istanbul; <sup>1</sup>Division of Invasive Cardiology, Admiral Bristol Hospital, Istanbul, Turkey.

Please address correspondence to: Hakan Tezcan, MD, P.K.40 81020 Acibadem, Istanbul, Turkey. E-mail: haktezcan@hotmail.com

Received on December 14, 2001; accepted in revised form on May 27, 2002. © Copyright CLINICAL AND

EXPERIMENTAL RHEUMATOLOGY 2002.

**Key words:** Behçet's disease, coronary artery, stent.

Behçet's disease (BD) is a systemic vasculitis that rarely involves the coro nary arteries. Coronary arteritis may lead to myocardial infarction and death, and the management of coro nary lesions due to BD has been described only in a small number of patients. The outcome of a young patient with BD is reported who was admitted with acute coronary syn drome and underwent balloon angio plasty and coronary stent implanta tion. Coronary stent implantation is an alternative treatment for coronary artery lesions of BD but careful moni toring is mandatory due to the progres sive vasculitis.

## Introduction

Behçet's disease is a systemic vasculitis of unknown cause involving the veins, arteries and capillaries (1-3). Although vascular involvement is common, coronary artery disease due to BD has rarely been described. In addition there are only a few reports regarding the management of coronary artery lesions in BD. Coronary artery bypass graft surgery (CABG) and percutaneous transluminal coronary angioplasty (PTCA) have been performed only in a small number of patients (4-6) and coronary stent implantation has never been reported. Here we present the outcome of a patient who developed acute coronary syndrome with severe left anterior descending artery (LAD) stenosis and was managed with PTCA and stent implantation.

### **Case report**

A 32-year-old male patient who was known to have had BD for 10 years was admitted to the coronary care unit with angina at rest. He was diagnosed with oral ulcer, thrombophlebitis, pulmonary arterial aneursym, patergy and HLA-B51 positivity.

He developed pseudo-tumor cerebri 5 years ago, and a lumboperitoneal shunt had to be inserted. He has been on maintanence oral immunosupressive therapy (azathioprine 50 mg/day, pred-nisolone 5 mg/day), but stopped using his medications for the last two months. The patient is non-smoker and has

mildly elevated cholesterol levels (total cholesterol: 245 mg/dl, LDL: 155 mg/ dl. On admission his physical examination was normal except for an audible fourth heart sound. ECG showed horizontal ST segment depression on leads D1, aVL, V1 to V6, which resolved completely after chest pain subsided. Serum analysis revealed CRP: ++, ESR: 30 mm/hr, WBC: 10,000/mm<sup>3</sup>. No elevation in cardiac enzymes (CK-MB, Troponin T) was detected. Echocardiography showed no cardiac anatomic or functional abnormality. He was stabilized with aspirin, I.V. nitroglycerin, calcium antagonist and heparin. Antilipidemic treatment was also added.

Cardiac catheterization was carried out on day four and showed severe stenosis (90%) of the proximal LAD; no significant lesions were seen in the other coronary arteries. Aortography showed no aortic disease. Elective intervention was planned for the LAD lesion. Pulmonary angiography, which was performed due to the history of hemoptysis, revealed normal pulmonary arteries and pressures. The week after the diagnostic study, angiography showed worsening of the LAD lesion with diminished distal flow (Fig. 1a). The stenotic segment was dilated with balloon angioplasty repeatedly.

Because of the suboptimal result (residual stenosis >30%), a heparin-coated stent was deployed successfully (Fig. 1b). No residual stenosis was seen. The post-operative course was uneventful and the patient was discharged on low dose aspirin, calcium antagonist and a statin. Immunosupressive therapy was also continued (azathioprine 100 mg/ day, prednisolone 5 mg/day). The patient was asymptomatic during the follow-up. Control angiography at the sixth month showed mild restenosis at the stented segment and a markedly enlarged aneurysm (Fig.1c). Due to the increased likelihood of rupture of the aneurysm, bypass surgery was planned. The aneurysmal segment was plicated and a left internal mammary artery was successfully grafted to the distal segment. No complication was seen in the post-operative period. The patient was followed for one year and

#### Coronary stent in Behçet's disease / H. Tezcan et al.

CASE REPORT



Fig. 1. (a) Coronary angiogram of a left coronary artery showing tight stenosis in the proximal LAD (arrow); (b) after successful coronary stent implantation; (c) six months later, in-stent restenosis and aneurysm formation (arrows).

was totally asymptomatic in terms of coronary artery disease and perfusion scintigraphy showed no signs of ischemia.

(**c**)

# Discussion

Arterial lesions are seen as a late complication of BD and frequently involve the large arteries (2). Histologic studies show arteritis, and the active vasculitis stage is characterized by intense infiltration with inflammatory cells, particularly involving the media and adventitia (2). The vascular injuries are superimposed on the hypercoagulability that is also characteristic of BD and that may be due in part to activated endothelial cells and activated platelets (7). Arterial involvement takes the form of occlusion or aneurysm formation. Occlusions may cause infarction and organ failure, whereas the rupture of aneurysms may be fatal (7).

Coronary artery involvement is rare in BD. Most of the reported cases of myocardial infarctions have been severe and due to proximal occlusions of the LAD artery or rupture of a coronary aneurysm. Schiff *et al*. reported a case of fatal anterior myocardial infarction due to LAD occlusion (8). Kaseda *et al*. presented a case with a false aneurysm due to rupture of the right coronary

#### CASE REPORT

artery (9). The proper treatment for coronary artery lesions in BD is not well defined. Since the process of the disease is inflammatory and the vessels are fragile, surgery may sometimes be problematic. CABG using the aortic no-touch technique (10) and coronary anastomosis carried out on the beating heart (11) have been reported in cases involving LAD. Cavozza et al. suggested coronary artery aneurysmectomy during the bypass grafting procedure (12). The reduction of coronary artery stenosis by balloon dilatation may cause acute relief of chest pain and limit infarction with preservation of left ventricular function. but the rate of restenosis and the clinical outcome after PTCA has not been demonstrated. Drobinski et al. reported successful emergency PTCA during myocardial infarction in a patient with LAD stenosis and two aneurysms (4). Cardiac surgery was performed in that patient to avoid possible relapse or aneurysmal rupture.

Coronary stent implantation has been described in other types of vasculitides (13,14), but its use has not been demonstrated in BD. In our patient after unsuccessful PTCA a heparin–coated stent was deployed with the expectation of a lower rate of restenosis. Angiography at six months showed proximal in-stent restenosis and a distal coronary aneurysm. These findings showed the inflammatory and progressive nature of the disease. Since such aneur-

ysms might have a poor prognosis, left internal mammary artery grafting to the distal LAD was performed with plication of the aneurysm. Surgery revealed a thrombosed LAD aneurysm with macroscopically confirmed destructive arteritis. It is generally accepted that surgery is indicated if coronary aneurysms are of increasing size or symptomatic (2, 4). The outcome of coronary stent deployment needs to be determined by more cases with a considerable follow-up period. The addition of immunosupressive treatment is also mandatory in the treatment of active vasculitis and to prevent relapses. Despite the increased likelihood of restenosis, PTCA and stent implantation may be performed for acute coronary occlusions due to BD. Stent implantation may help to defer surgery and can also offer an alternative treatment in those who are not surgical candidates. Patients who present with aneurysm formation should undergo surgical intervention immediately.

#### References

- BEHÇET H: Über rezidivierende, aphtöse, durch ein Virus verursachte Geschwüre am Mund, am Auge und an den Genitalen. *Der matol Wochenschr* 1937; 105: 11552-7.
- 2 HUONG DU LE THI, WECHSLER B, PAPO T et al.:Arterial lesions in Behçet's disease. A study in 25 patients. *J Rheumatol* 1995; 22: 2103-13.
- 3 LAKHANPAL S, TANI K,LIE JT,KATOH K,ISHIGATSUBOY, OHOKUBO T: Pathologic features of Behçet's syndrome: A review of Japanese autopsy registry data. *Hum Pathol* 1985; 16: 790-5.

### Coronary stent in Behçet's disease / H. Tezcan et al.

- 4 DROBINSKI G, WECHSLER B, PAVIE A et al. Emergency percutaneous coronary dilatation for acute myocardial infarction in Behçet's disease. Eur Heart Journal 1987; 8: 1133-6.
- 5 HIROSE H, TAKAGI M, NOGUCHI M et al.: Coronary revascularization and abdominal aortic aneurysm repair in a patient with Behçet's disease. J Cardiovasc Surg 1998; 39: 751-5.
- 6 PACCAGNELLA A,TUROLLA LM, ZANARDO G et al.: Fatal progression of Behçet's disease after cardiac surgery. *Thorac Cardio* vasc Surg 1989; 37: 320-1.
- SAKANE T, TAKENO M, SUZUKI N, INABA
  G: Behçet's disease. New Engl J Med 1999; 341: 1284-91.
- 8 SCHIFF S, MOFFATT R, MANDEL WJ, RUBIN SA: Acute myocardial infarction and recurrent ventricular arrhythmias in Behçet's syndrome. *Am Heart J* 1982; 103: 438-40.
- 9 KASEDA S, KOIWAYA Y, TAJIMI T *et al.* Huge false aneurysm due to rupture of the right coronary artery in Behçet's syndrome. *Am Heart J* 1982; 103: 569-71.
- 10 MORI H, OKAMURA Y, SUGITA Y, MOCHI-ZUKI Y, IIDA H, SHIMADA K: A case of impending rupture of coronary aneurysm after rapid growth within a month. *Nippon Ky obu Geka Gakkai Zasshi* 1997; 45: 1848-53.
- 11 MIHALJEVIC T, TONZ M, VON SEGESSER LK, TURINA MI: Combined coronary artery bypass grafting and repair of aneurysm of the descending aorta. *Ann Thorac Surg* 1999; 67: 1497-9.
- 12 CAVOZZA C, BARBOSO G, FRAGNITO C, SPAGGIARI I, BEGHI C, AURIER E: Surgical treatment of saccular aneurysm of the left anterior descending corornary artery. Acta Biomed Ateneo Parmense 1995; 66:191-4.
- 13 HASHMI A, LAZZAM C, MCCRINDLE BW, BENSON LN: Stenting of coronary artery stenosis in Kawasaki disease. *Cath and Car*diovasc Interventions 1999; 46: 333-36.
- 14 SON JW, KOH KK, DANG Q, CHOI IS, SHIN EK: Recurrent restenosis following stent and rotational atherectomy of coronary artery stenosis in Takayasu's arteritis. *Int J Cardi* ology 1998; 65: 295-300.