Eur J Vasc Endovasc Surg **35**, 173–180 (2008)
doi:10.1016/j.ejvs.2007.08.013, available online at http://www.sciencedirect.com on ScienceDirect

Surgical Treatment Result of Abdominal Aortic Aneurysm in Behçet's Disease

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Objective. *We report our surgical treatment results of abdominal aortic aneurysm (AAA) in Behçet's disease patient.*
Materials and methods. *Between September 1998 and June 2006, the authors have performed 21 procedures for AAA in 12 patients with Behçet's disease. Male to female sex ratio was 3:1 and mean age was 34 years old. Behçet's disease was diagnosed clinically using criteria of International Study Group for Behçet's Disease (1990). Retrospective analysis was made.*
Results. *There were six infrarenal, five suprarenal, and one double (suprarenal and infrarenal)AAA. Six graft interposition, six patch closure, and one stent-graft insertion were performed (one graft interposition and one patch closure were simultaneously performed for double AAA). Eight recurrent aneurysms were noted in six (50%) patients. Four stent-graft insertion, two patch closures, one graft interposition and one explothoracotomy only were performed for recurrent aneurysms. Overall recurrence rate of 21 procedures was 38.1%; 14.3% for graft interposition, 62.5% for patch closure, and 40% for stent-graft insertion.*
Conclusion. *Though the resection and graft interposition is technically difficult in many occasions, it should be considered as the procedure of choice for abdominal aortic aneurysm in Behçet's disease. Endovascular interventions may be one of the treatment modality but the result needs further long-term follow-up.*

Keywords: Behçet's disease; Vasculitis; Abdominal aorta; Aneurysm; Endovascular surgery.

Introduction

Because of high rupture rate, aneurysm of Behçet's disease should be repaired. However, recurrent aneurysm is frequently seen following surgical treatment. Many attempts have been tried to prevent recurrence including stent-graft treatment, but the recurrence or puncture site aneurysm can be problematic.[1–5] There is still no definite medical treatment or widely accepted way of assessing disease activity.[6–8]

We have treated twelve Behçet's disease patients with abdominal aortic aneurysm by various treatment modalities and herein, report our surgical treatment results.

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Materials and Methods

Between September 1998 and June 2006, the authors have treated twelve patients with Behçet's disease, who had abdominal aortic aneurysm (AAA). Male to female sex ratio was 3:1 and median age was 33.5 years old. The diagnosis of Behçet's disease was made clinically using criteria of International Study Group for Behçet's Disease (1990). Median follow-up period was 45.5 (4–98) months.

Abdominal aortic aneurysm was diagnosed on abdominopelvic CT (computerized tomographic) scan. All patients were followed and monitored by one of the authors (Bin Yu) regularly with one to three months interval postoperatively. Parameters used for the disease activity were relapsing symptoms, CRP(C reactive protein) and ESR (Erythrocyte sedimentation rate). As for imaging study, we used aortic dissection CT scan regularly for 6 months interval following surgery. Retrospective analyses of the clinical

1078–5884/000173 + 08 $34.00/0

manifestations, treatment modalities, and outcome on these patients are reported.

Results

The symptoms and signs of the patients that might be clue in diagnosis of Behçet's disease were recurrent oral ulcer (100%), skin lesion (83.3%), recurrent genital ulcer (50%), and positive Pathergy test (50%), and eye lesion (33.3%), history of arterial surgery (25%), deep vein thrombosis (25%), and arthritis (25%). The elevation of erythrocyte sedimentation rate (ESR) or C-reactive protein (CRP) was observed in all but one patient (91.7%). Leukocytosis was noted in 8(66.7%). Among the 12 patients, two patients (16.7%) developed abdominal aortic aneurysm while on immunosuppressive medication for Behçet's disease and the other ten patients came without diagnosis of Behçet's disease. As for previous arterial lesions, there were three femoral artery aneurysms which had been treated by resection and interposition graft using prosthetic graft (Table 1).

All aneurysms were saccular in shape with median 40 mm of maximal diameter and median 15 mm of neck diameter on preoperative CT scan (Fig. 1). Infrarenal AAA was noted in 6 patients (50%) and suprarenal AAA was noted in 5 patients (41.7%). One patient (8.3%) had suprarenal and infrarenal abdominal aortic aneurysms (Fig. 2). Contained rupture was the most common manifestation of the aneurysm and noted in nine out of 12 patients (75%), followed by free rupture in 2 (16.7%), and occlusion of iliac artery in one patient (8.3%).

Because of urgency, all patients except one who had AAA and iliac artery occlusion were treated on emergency base. As for infrarenal AAA, four resection and aorto-iliac graft interposition, one stent graft, and one patch closure were performed. As for suprarenal AAA, four patch closure and one resection and graft interposition with visceral artery reimplantation were performed. In a patient with double AAA, patch closure for suprarenal AAA and resection and aortoiliac graft interposition for infrarenal AAA were performed simultaneously.

We have performed prosthetic wrapping on the proximal aortic anastomotic site in every cases of graft interposition to prevent anastomotic aneurysm. Omental wrapping was performed in recent two patients, who had infrarenal AAA and double aneurysms.

Systemic immunosuppressive medication including steroid, colchicines, azathioprine, or cyclophosphamide was given to all patients, postoperatively. Dosage and combination of the medicine were individually tailored.

There was no operative mortality. Mechanical ileus during immediate postoperative period requiring operative treatment occurred in two patients (16.7%). Two patients died during the follow-up period. Ruptured recurrent aneurysm was the cause of death in one patient four months after patch closure for suprarenal AAA and sepsis following necrotizing fasciatis was the cause of death in other patient at 21 months after graft interposition for infrarenal AAA. Recurrent aneurysm was noted in six (50%) patients. As for location of aneurysm, there were two recurrences out of seven (28.6%) infrarenal AAA and four recurrences out of six (66.7%) suprarenal AAA. Regarding the procedures, there was one recurrence out of six interposition graft (16.7%), four out of six patch closures (66.7%), and one stent graft insertion (100%).

There were 8 recurrences in 6 patients. Each patient had one recurrence except one who had multiple recurrences (three times). Median recurrence interval was 19(4–98) months.

Table 1. Patient's profile at the first presentation

Patient $N = 12$	Sex	Age	Oral ulcer	Skin lesion	Genital ulcer	Pathergy test	Eye lesion	DVT	Arterial disease	Arthritis	Prior immuno suppressant
1	M	38	Y	Y		+		Iliac V			
2	M	30	Y	Y	Y	+		Iliac V			
3	M	50	Y	Y		−	Y	Iliac V	FA		
4	F	16	Y	Y	Y	−					
5	M	44	Y	Y		−	Y		FA		Y
6	M	35	Y	Y		+				Y	
7	M	34	Y	Y		−	Y				
8	M	38	Y		Y	+					
9	F	26	Y	Y	Y	−					
10	M	31	Y			+	Y			Y	
11	F	33	Y	Y	Y	−					
12	M	34	Y	Y	Y	+			FA	Y	Y
	M:F = 3:1	34*	100%	83.3%	50%	50%	33.3%	25%	25%	25%	16.7%

DVT: Deep vein thrombosis; Y: Positive history; *: Mean age; V: Vein; FA: Previous femoral artery aneurysm.