

## A Case of Acute Complete Thrombosis of Abdominal Aortic Aneurysm

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**Summary:** This report describes a successful case and verified the effectiveness of surgical intervention adopted for this patient. The patient was a 65-year-old woman with a 16-year history of non-insulin-dependent diabetes mellitus. Sudden complete thrombosis of an abdominal aortic aneurysm occurred when bedridden and under treatment for a myocardial infarction two and a half months previously. During the operation, an aneurysm of 6 cm in diameter was completely thrombosed and replaced with a bifurcated artificial graft. In conclusion, we had satisfactory results, and the early precise diagnosis and proper surgical treatment seem to be factors in the successful outcome. ( J. Vasc. Surg., 10: 627-629, 2001 )

**Key words:** Abdominal aortic aneurysm, Thrombosis, Complete occlusion

### Introduction

Among the usual complications of an infra-abdominal aneurysm, rupture with subsequent hemorrhage has been well documented, however, sudden complete thrombosis of an aneurysm of the abdominal aorta is uncommon. While acute complete occlusion associated with an abdominal aortic aneurysm is very rare, the mortality is also very high, as is the rate of rupture of the aortic aneurysm. We present here a very rare case which combined acute complete thrombotic occlusion in an abdominal aortic aneurysm associated with ASO.

### Case

A 65-year-old woman, with non-insulin-dependent diabetes mellitus from the age of 49, had received regular medical treatment since 1994. The patient sometimes had complained of pain in inferior limbs when walking. She had been hospi-

talized for the treatment of low grade fever in February 1998. In March, she had a sudden attack of acute myocardial infarction ( inferior wall ) Severe arrhythmia, such as ventricular fibrillation and heart arrest also occurred temporarily, and cardiopulmonary resuscitation was performed, however, her bedridden condition continued with a level 100 grade of consciousness. The general condition and hemodynamics of the patient gradually stabilized, however, a mottled-gray cyanosis and a cold sensation suddenly occurred from the thigh to the region below the knee on both sides after about 10 weeks of acute myocardial infarction. On physical examinations, the pulses of the femoral, popliteal and dorsalis pedis arteries of both sides were completely absent. The findings of an MRA are shown in Fig. 1. The upper part of the aneurysm was enhanced and complete occlusion below the aneurysm was seen. Anticoagulant therapy was started immediately, but the ischemia of the lower extremities of both sides did not improve, and in addition, cyanosis had deteriorated further. Table 1 shows the laboratory examination findings before the operation. The hemostatic molecular markers, including D-dimer and TAT level, revealed a hypercoagulability which might have induced the growth of the thrombus.

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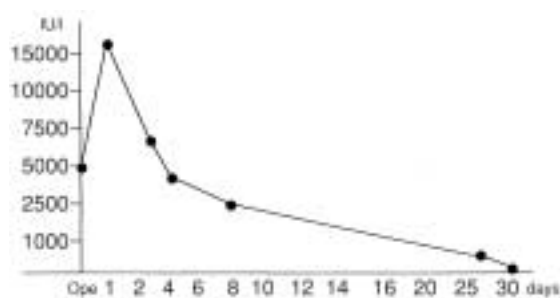
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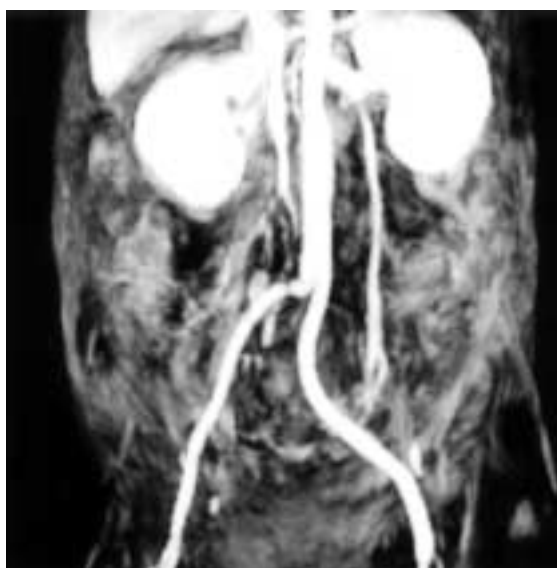
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**Fig. 1** MRA revealing complete occlusion of the abdominal aortic aneurysm



**Fig. 2** Changes of the serum CK level after operation



**Fig. 3** The postoperative MRA showing complete exclusion of the aneurysm and good flow through the graft

**Table 1** Laboratory data before operation

Hematology	Na	131 mEq/l	
WBC	10.400/μl	K	4.2 mEq/l
RBC	327×10 <sup>4</sup> /μl	Cl	90 mEq/l
Hb	8.8 g/dl	D-dimer	1876 (<150 ng/ml)
Plt	34.1×10 <sup>4</sup> /μl	Thrombin-antithrombin III	
Blood chemistry		complex	51.8 (<3.0 ng/ml)
T.P	6.1 g/dl	Fib	596 mg/dl
Albumin	2.6 g/dl	CK	5090 IU/l
GOT	128 IU/l	CK-MB	47 IU/l
GPT	55 IU/l	BUN	14.0 mg/dl
LDH	1133 IU/l	CRE	0.5 mg/dl
T-bil	0.2 mg/dl	CRP	8.6 mg/dl

The total urine volume in one day decreased from 1,200 ml to 600 ml with general pyrexia, and this condition continued for several days. An emergency operation was done for the purpose of aneurysmectomy and reconstruction 8 hours after being transferred to the surgical ward. The blood flow was interrupted by filling of the aneurysm with atherosclerotic plaque and fresh thrombus. The aneurysm was replaced with a bifurcated artificial graft which was inserted from the aorta to the right common iliac artery and the left common femoral artery. Fig. 2 shows the changes in the serum CK level after the operation. The postoperative MRA finding is shown in Fig. 3. After the patient's general condition stabilized, she transferred to the medical ward.

#### Discussion

Though the rupture of an abdominal aortic aneurysm is not rare, acute thrombotic complete occlusion is very uncommon. There is a report of 2 cases among 254 abdominal aortic aneurysm operations below the renal artery by Olcott et al.,<sup>1)</sup> and also a report of 7 cases among 275 operations by Johnson et al.<sup>2)</sup> The frequency is very low (0.8-2.5%) but the mortality is very high (50-59%)<sup>3,4)</sup> Jannetta and Roberts<sup>5)</sup> reported the first successful case of operation in 1961. In this paper, we also describe a successful case of acute thrombotic complete occlusion of an abdominal aneurysm. The characteristic symptoms of the disease are lower abdominal pain, ischemic signs in both legs and motor nerve disorder.<sup>2,6)</sup> Some causes for the thrombotic complete occlusion of the aortic aneurysm are thrombi in the aortic aneurysm, transfer-

ring mural thrombosis, injury, retrograde thrombi of distant artery embolism, dehydration, hypercoagulability, operative procedures, and atrial fibrillation.<sup>3,6)</sup> In the present case, the patient had a predisposition to dehydration due to general pyrexia and water restriction after the myocardial infarction. It is considered that this causes hypercoagulability by an increase of D-dimer and TAT-complex values which might have induced the acute thrombosis. Enomoto et al.<sup>7)</sup> reported a case of acute thrombotic occlusion in the mycotic abdominal aneurysm and indicated the cause of occlusion to be mural thrombosis in the aneurysm. Yamamoto et al.<sup>8)</sup> demonstrated by two-dimensional echography that the rapid growth of a thrombus in an abdominal aortic aneurysm can be induced by atherosclerotic ulceration, laceration of the thrombus or swirling blood flow. With regard to the aneurysmal size, it was recorded in 22 patients in the literature. The diameter of the aneurysm in 13 (59%) of these cases was 6 cm or smaller, which is small for aortic aneurysms.<sup>2,3,6,7,9)</sup> There was also a report associated with severe ASO<sup>2</sup> which recommended that even small aneurysms could be resected if there were concomitant occlusive atherosclerosis. As for the surgical procedures, aneurysmectomy and reconstruction are fundamentally the best treatment when the operative risk is not high. On the other hand, extra-anatomical bypass is also acceptable if the general condition of the patient is poor.<sup>6)</sup> Patel et al.<sup>6)</sup> reported four successful cases of the operation, and indicated that the appropriate operative method and diagnosis leads to successful treatment. In the present case, we also had satisfactory results, and in conclusion, early precise diagnosis and proper surgical treatment seem to be factors in the successful outcome.

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