

The Importance of Suspicion for Aortocaval Fistula in a Patient Who Has Abdominal Aortic Aneurysm: Case Report

Abdominal Aort Anevrizması Olan Hastada Aortokaval Fistülden Şüphelenmenin Önemi

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ABSTRACT Aortocaval fistula (ACF) is a rare complication that presents with signs of right heart failure. Renal and hepatic impairments which increase surgical risk may be associated with this condition. The decision of timing for intervention is important for reducing mortality. In this case, we aim to share our experience of an urgent surgical approach to an ACF.

Key Words: Arteriovenous fistula; abdominal aorta; inferior vena cava; aortocaval fistula

ÖZET Aortokaval fistül (AKF) sağ kalp yetmezliği belirtileri ile ortaya çıkabilen nadir bir komplikasyondur. Cerrahi riski arttıran hepatik ve renal fonksiyonlardaki bozulmalar bu durumla birlikte bulunabilir. Mortaliteyi engellemede müdahale zamanlamasına karar vermek önem kazanmaktadır. Bu vakada, bir AKF olgusunda acil cerrahi yaklaşım deneyimimizi paylaşmayı amaçladık.

Anahtar Kelimeler: Arteriyovenöz fistül; abdominal aorta; vena kava inferior; aortokaval fistül

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Aortocaval fistula (ACF) is a rare complication of abdominal aortic aneurysms (AAAs). Typical clinical evidence of right heart failure can be seen in these patients involving decreased hepatic and renal functions. It is known that hepatic or renal functional impairments increase the post-interventional mortality in AAAs. However, if these impairments occur as a complication of AAA, interventional treatment should not be deferred anymore. A computerized tomography angiography (CTA) can be used to diagnose the possible complications such as ACF, which causes this condition. Therefore, the treatment strategy may be planned accurately. However sometimes, further investigations can be restrained by any difficulties associated with patient and/or environment. In these circumstances, the clinical experiences and prediction of some diagnoses enable the physicians to decide whether an urgent operation should be performed. Otherwise, the intervention can be delayed with support therapy to allow patient some time for improvement. In this case, we would like to share our experience of an

urgent surgical approach to a patient who had acute impaired hepatic and renal functions caused by an ACF, as a complication of a giant AAA.

CASE REPORT

A 67-year-old male patient with a history of smoking and an uncared abdominal mass was admitted to a clinic with dyspnea and stomach ache. After clinical investigations, an AAA was determined, and the patient was directed to our clinic. He was hemodynamically stable (heart rate 110/min, blood pressure 135/85 mmHg), but had dyspnea and orthopnea. The anuric patient's laboratory results showed that there was an acute impairment in hepatic and renal functions (Table 1). His echocardiography did not show any significant pathologies. On thoracoabdominal computerized tomography (CT), the diameter of abdominal aorta was measured as 12 cm, without any signs of retroperitoneal rupture (Figure 1). An urgent open repair was decided. The operation was performed under general anesthesia. Laparotomy was made with a median incision, and the giant AAA was explored with transperitoneal approach (Figure 2). The aorta was clamped under the level of renal arteries. After opening the aneurysm sac, a 2x2 cm ACF was determined. Bleeding from this fistula was controlled by manual compression to inferior vena cava, then the fistula was repaired with porcine pericardial patch (Vascutek, Scotland). Then, a conventional aorto-biiliac bypass was performed with a 16/8 Dacron graft (Figure 3). As shown in the table, laboratory values dramatically normalized to nearly normal ranges on the

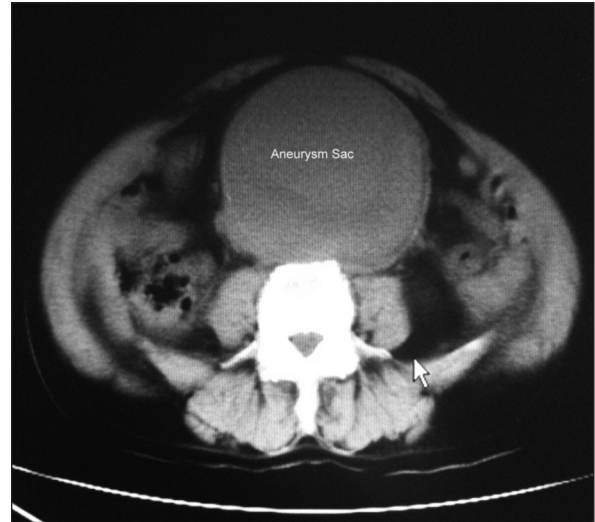


FIGURE 1: Thoracoabdominal computerized tomography image.

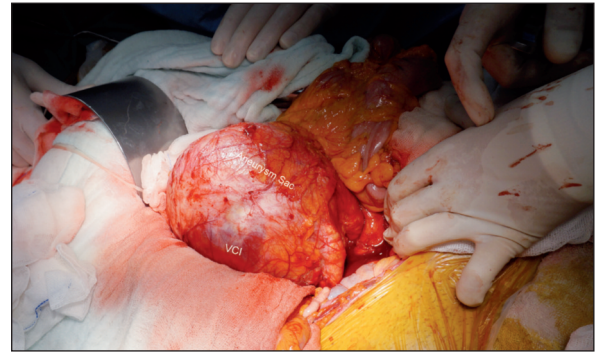


FIGURE 2: Operative view of the aneurysm sac.

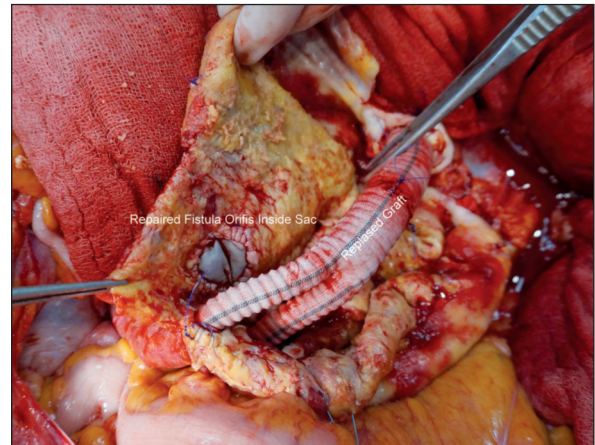


FIGURE 3: The appearance after fistula repair and graft implantation.

TABLE 1: Laboratory changes in early postoperative period.

	Preoperative		Postoperative	
		Day 0	Day 1	Day 2
Leukocyte	12300	9080	8850	8570
Hematocrit (%)	32.6	36.4	36.3	36.9
Hemoglobin (g/dl)	11	12.4	12.3	12.6
Aspartate aminotransferase (U/L)	1013	771	169	98
Alanine aminotransferase (U/L)	1070	911	408	142
Lactate dehydrogenase (U/L)	1361	642	324	343
Urea (mg/dl)	202	191	130	82
Creatinine (mg/dl)	2.86	2.2	1.49	1.04

postoperative day 2. The patient was extubated at the fifth postoperative hour, and discharged from intensive care unit on the postoperative day 6.

DISCUSSION

AAAs are usually diagnosed incidentally. The symptoms are often associated with complications. ACF is an unusual complication of AAA, and can be diagnosed with CTA sensitively.¹ Most of ruptured AAAs cause hemodynamic deterioration in a very short time. However ACF as a kind of ruptured AAA can be silent until decompensated right heart failure occurs.²

Treatment strategies involve closure of fistula and repair of aneurysm via a conventional or an endovascular approach. Although elective treatment of AAAs can be successfully performed, an emergent operation carries a high risk for mortality.³ There are associated comorbid factors for mortality and morbidity in elective surgical repair. Older age, higher serum creatinine level, and respiratory dysfunction increase the incidence of postoperative mortality.^{4,5}

Our patient had severely increased hepatic enzyme and urea/creatinine levels, pleural effusion, low extremity edema, and anuria. Thus, a surgical procedure in this clinical condition had higher risk for mortality. We could give patient some time for improvement of hepatic, renal and respiratory functions, and make some further investigation to confirm the diagnosis, and the risk might be reduced. However, we thought that fur-

ther clinical investigations such as coronary angiography and contrast-enhanced CT could cause worsening of the situation. Acute worsening of renal functions and physical examination (systolic thrill on the abdominal mass) made us suspect of ACF.^{6,7} In addition to this, the dimensions of the aneurysm provided us to opt for an urgent operation.

Endovascular and conventional open treatment strategies have been published in the literature.⁸⁻¹¹ Endovascular approaches have included stent graft implantation and/or embolization of fistula.^{8,10} These techniques are more frequently preferred by cardiovascular surgeons in anatomically suitable patients, and particularly in the ones with co-morbid risks, since they are less invasive than the open repair.^{8,10} However, since we could not obtain an appropriate stent graft immediately and we did not have CTA images, we preferred to perform a conventional open repair.

In conclusion, if a patient admits to clinic with the right heart failure signs and an abdominal aortic mass, ACF should be kept in mind. Then, an urgent treatment may be performed via any method, taking the experiences of clinic into consideration.

Conflict of Interest

Authors declared no conflict of interest or financial support.

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