

Aortic Dissection In Case with Chronic Kidney Disease

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ABSTRACT

Aortic dissection is an urgent clinical problem that rapid diagnosis and appropriate treatment is life-saving. Hypertension is one of the major risk factors. In this paper, a 56 years old female patient with hypertension and renal failure was presented. In this case after clinical suspicion, aortic dissection was diagnosed with imaging studies. Endovascular aortic repair was performed but after surgery, patient died because of possible hemorrhage complication. In aortic dissection, diagnosis and treatment could be fast. In chronic kidney disease the prognosis of patients is adversely affected. Despite proper surgical intervention accompanying medical problems like chronic kidney disease have negative effects on survival.

Keywords: Aortic dissection, hypertension, chronic kidney disease

Introduction

Aortic dissection is the presence of blood between the layers of the aortic wall. Multiple risk factors are responsible for this condition. Among these factors, hypertension is the most important one because of its incidence (1). This study presents the case of a patient with aortic dissection (AD) with hypertension and renal failure.

Case Presentation

A 56-year-old female patient was admitted with complaints of nausea, vomiting, shortness of breath, swelling on the feet, and back pain. She had hypertension known for 5 years, and her complaints had begun 15 days ago. In the physical examination, her blood pressure was 160/90 mmHg and no difference was observed between the extremities. No pathology was found in other system examinations. The initial laboratory values of the patient are given in Table 1.

The patient was hospitalized because of the diagnoses of hypertension and acute renal failure. During follow-up, severe pain developed in her back and abdomen. In the computed tomography (CT) and CT angiography, aortic dissection extending from the thoracic level in the descending aorta to the iliac artery was observed (Figure 1). The patient, who did not have diuresis in the follow-up, underwent hemodialysis. For dissection, endovascular aortic repair (EVAR) was performed by the department of cardiovascular surgery and the patient was followed up (Figure 2, 3).

The echocardiography did not reveal any valve anomaly, whereas renal scintigraphy demonstrated findings consistent with chronic renal failure and chronic hemodialysis program was planned. While the general condition of the patient was stable, sudden deterioration occurred in the hemodynamics. She died due to abundant bleeding under medical support.

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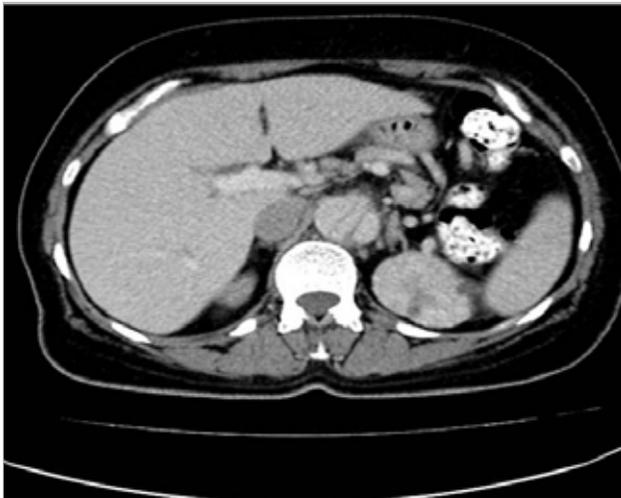
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Table 1. Laboratory data of patient

	Observed value	Normal value
Glucose (mg/dL)	247	70–110
Sodium (mmol/L)	130	135–145
Potassium (mmol/L)	5.0	3.5–5.5
BUN (mg/dL)	107	5–23
Creatinine (mg/dL)	12.4	0.6–1.2
ALT (U/L)	25	0–55
AST (U/L)	49	5–35
LDH (U/L)	2049	210–425
Leukocyte	18000	4–10000/mm ³
HCT	22.7%	35%–45%
Hb (g/dL)	7.8	11.5–15
Platelet	71000	150–400000/mm ³
CK (U/L)	168	30–135

BUN: blood urea nitrogen, ALT: alanine aminotransferase, AST: aspartate aminotransferase, LDH: lactate dehydrogenase, HCT: hematocrit, Hb: hemoglobin, CK: creatine kinase

**Figure 1.** View of aortic dissection before the procedure through helical computed tomography

Discussion

Aortic dissection is the separation of the tunica media due to rupture in the aortic intima and the filling of the aortic wall with blood. It is more frequent in men between the 4th and 7th decades. The risk factors include hypertension, congenital heart diseases, advanced atherosclerosis, vasculitis, trauma, pregnancy, familial history, and genetic reasons. Hypertension, which was seen in our patient, is the most common factor. Moreover, age and renal failure are also additional risk factors. Destruction in the aortic media, a decrease in the elastin and collagen fibrolamellar unit, intimal tear, and rupture develop (2).

Dissection is evaluated with the DeBakey and Stanford classification systems (3, 4). According to the DeBakey system,

**Figure 2.** Horizontal imaging after endovascular aortic repair procedure**Figure 3.** Sagittal imaging after endovascular aortic repair procedure

type I originates in the proximal aorta and involves the whole aorta, type II involves only the ascending aorta, and type III involves only the descending aorta. In the Stanford classification system, type A is limited to the ascending aorta and type B involves the descending aorta. Our patient had type III and type B AD.

The most frequently encountered clinical symptom is the sudden onset of severe pain in the chest, back, or lower back. In physical examinations, hyper or hypotension, tachycardia, newly developed murmur of aortic insufficiency, tamponade findings, pulse deficit, and syncope can be detected and this condition can rarely present without pain. Our patient had severe pain in her back and abdomen. No abnormality was detected, except minimally increased blood pressure.

Aortography, helical CT, CT angiography, and transesophageal echocardiography are used for the diagnosis of AD (5). However, helical CT is more preferred currently (5). In our case, the diagnosis of our patient was confirmed through this technique. The treatment of AD is surgical intervention and it can be required once the diagnosis is established. Currently, the preferred technique is the EVAR procedure, which has a lower risk for the development of complications compared with open surgery. The protection of renal perfusion is very important in these patients. Decreased dose of contrast agent and monitorization of renal function positively affect renal and cardiac insufficiency (6). In a meta-analysis including 42 non-randomized studies, the rates of early mortality, paraplegia, renal failure, need for transfusion, postoperative bleeding, cardiac complications, pneumonia, and hospitalization were reported to be lower in this technique than in open surgery (7). As in our case, leakage and defects associated with the process have an important place among the causes of mortality after EVAR.

Informed consent for this case report could not be received from the patient because her general condition suddenly deteriorated while she was stable and emergency intervention was required.

Conclusion

Aortic dissection is a clinical condition that has a high mortality and requires early treatment. The important risk factors include hypertension and renal failure. With appropriate surgical intervention, a decrease in the morbidity and mortality rates can be observed.

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