

# Aortic dissection in a renal transplant patient presenting with gastroenteritis: case report

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## ABSTRACT

Acute aortic dissection is a true cardiovascular emergency whose diagnosis and treatment process is very difficult for the patient and the physician, with a mortality rate of 50% in some cases if not intervened within the first 48 hours. Aortic dissection is classified according to the anatomical region of the aorta affected. Class 1 De Bakey dissection involves the ascending aorta, arcus aorta and descending aorta. Class 2 De Bakey is limited to the ascending aorta, while class 3 De Bakey starts from the descending aorta. According to the Stanford classification, dissection type is divided into A and B. The most common complaints at presentation are predatory chest pain in type A dissection and low back pain or abdominal pain in type B dissection.

## INTRODUCTION

Acute aortic dissection (AD) is a true cardiovascular emergency whose diagnosis and treatment process is very difficult for the patient and the physician, with a mortality rate of 50% in some cases if not intervened within the first 48 hours.<sup>1</sup> AD is often associated with genetic connective tissue disorders and hypertension.<sup>2</sup> AD is classified according to the anatomical region of the aorta affected. Class 1 De Bakey dissection involves the ascending aorta, arcus aorta and descending aorta. Class 2 De Bakey is limited to the ascending aorta, while class 3 De Bakey starts from the descending aorta. According to the Stanford classification, dissection type is divided into A and B (Figure 1).<sup>3</sup>

International Registry of Acute Aortic Dissection (IRAD) was established to evaluate aortic dissection cases with data from multiple centers. In the comprehensive study conducted by IRAD, 67% of patients were classified as type A.<sup>4</sup> The most common complaints at presentation are predatory chest pain in type A dissection and low back pain or abdominal pain in type B dissection. Patients presenting with atypical complaints other than the classical symptoms have a higher mortality and morbidity rate as the diagnosis becomes more difficult.<sup>5</sup> Multi-organw ischemia, cardiac tamponade, hemorrhage, shock and sudden death may occur undiagnosed in some patients.<sup>6</sup>

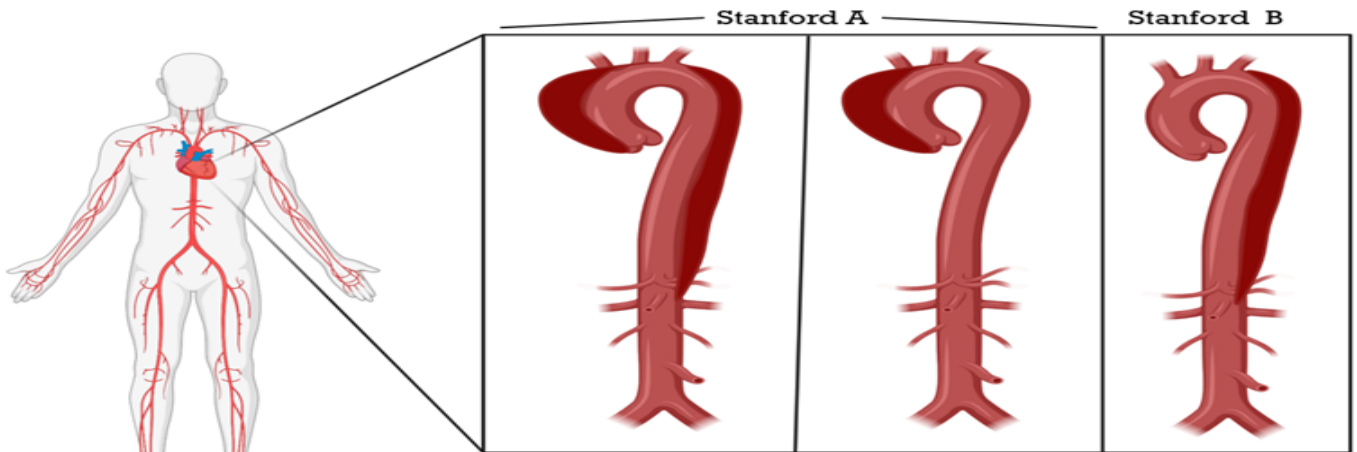
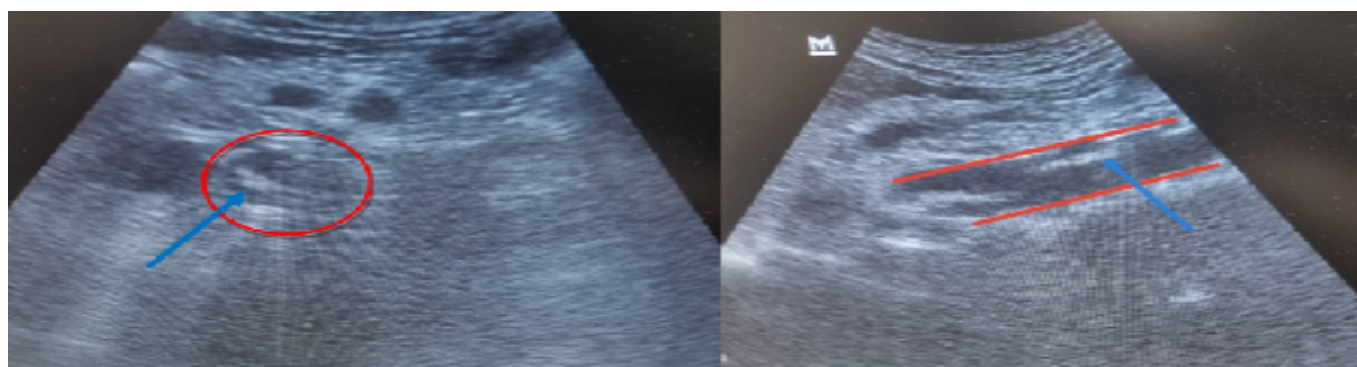


Figure 1. Classification of aortic dissection

## CASE

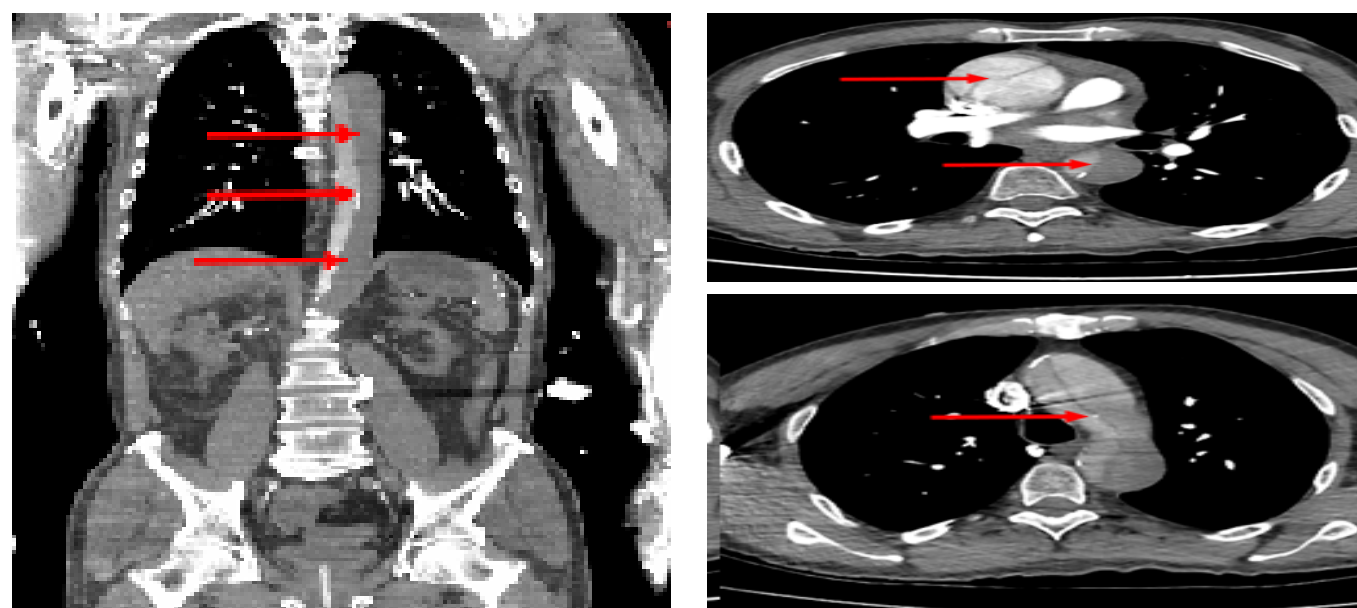
A 57-year-old man presented to the emergency department with sudden onset of nausea, vomiting and diarrhea. He reported colicky abdominal pain and no chest pain or back pain. His past medical history revealed hypertension and renal transplantation three years ago. In the vital signs checked; blood pressure: 100/60 mmHg, pulse rate: 78/min, temperature: 36.7°C, SpO<sub>2</sub> 94%. It was observed that the patient had a fistula in his left arm from the time he was on hemodialysis. On physical examination, general condition was moderate, consciousness was clear, oriented and coherent. His skin was moist, neurologic examination and respiratory system examination were normal. Diffuse abdominal tenderness and hyperactive bowel sounds were detected. It was learned that diarrhea was bloodless, watery and normal stool color. Electrocardiography (ECG) showed no acute ischemic changes. Symptomatic treatment and fluid replacement were initiated and the patient stated that his complaints regressed. In blood tests; WBC: 11900 /mm<sup>3</sup>, Hb: 14.6 g/dl, platelets: 256000/mm<sup>3</sup>, troponin: 16.7 ng/L

(normal range: 14-42.9), BUN: 15.5 (normal range:6-20), serum creatinine: 1.08 (normal range: 0.6-1.3). After fluid replacement, the patient's blood pressure improved, but it started to drop again during follow-up, the patient stated that he had cramp-like abdominal pain and left leg pain, which was not present at the first admission, started during follow-up. On examination for this complaint, equal pulsation was obtained in both femoral pulses. Blood pressure difference between extremities could not be monitored because of the fistula in the left arm. Contrast-enhanced imaging was planned to rule out possible cardiovascular pathology in a patient with a sweaty, toxic, agitated appearance that could not be explained by gastroenteritis only; however, considering that contrast may cause harm instead of benefit due to the fact that the patient had only one kidney, that kidney was "valuable" because it was a trans kidney, and the current creatinine value was at the upper limit, it was decided to evaluate the aorta with bedside ultrasonography (USG) first. USG showed a flap image in the abdominal aorta ([Figure 2](#)).



**Figure 2.** Red lines are aortic borders. Blue arrows are dissection flaps

The patient was consulted with cardiovascular surgery (CVS). Computed tomography (CT) angiography was recommended for preoperative classification and surgical technique planning. CT angiography revealed De Bakey type 1 aortic dissection ([Figure 3](#)) and the patient was transferred to the CVS clinic.



**Figure 3.** Arrows show flap views in the ascending aorta, descending aorta and arcus aorta

## DISCUSSION

Cardiovascular complications are the most common complications in renal transplant patients and are the most common cause of death. While hypertension is the most common disease, aortic dissection is a rare condition.<sup>7-8</sup> In the majority of AD cases, blood pressure is found to be elevated at presentation, while hypotensive patients are accompanied by clinical conditions such as neurological findings, altered consciousness, myocardial infarction, mesenteric ischemia, and limb ischemia.<sup>9</sup> In our case, hypotension was present at presentation but none of the mentioned symptoms were present. On follow-up, ischemic pain in the left leg started.

Routine laboratory tests are not very helpful in the diagnosis, and ECG changes may be seen in some cases. Magnetic resonance imaging (MRI) or contrast-enhanced CT can be used to confirm the diagnosis. MRI is disadvantageous in that it takes a long time, is not easily accessible and cannot be used in patients with metal implants. On the other hand, although CT angiography is highly effective in definitive diagnosis, caution should be exercised in patients with impaired renal function tests in terms of contrast nephropathy.<sup>10</sup> Transthoracic echocardiography or bedside ultrasonography is a practical diagnostic method that can be performed without additional contrast load on the patient.<sup>11</sup> In our case, since there were no classical symptoms suggestive of aortic dissection such as tearing chest pain, back pain, pulselessness, difference in blood pressure in both arms, the main presenting complaint was nausea, vomiting and diarrhea, the patient was a renal transplant recipient and the creatinine value was at the upper limit, we thought that performing contrast-enhanced tomography would mean exposing the trans kidney to the risk of contrast nephropathy. However, ischemic left leg pain developed during follow-up and bedside ultrasound was performed and a dissection flap was seen in the aorta at the level of the abdominal aorta. Contrast-enhanced tomography was then performed for dissection classification and surgical planning.

## CONCLUSION

Aortic dissection may present to emergency departments with very different complaints. Even in patients with classical symptoms, it takes a certain amount of time to make a differential diagnosis and to make a definitive diagnosis, and each passing hour increases the mortality rate of the patient. However, it is much more difficult for the patient and the physician to consider dissection and make a diagnosis in patients with atypical presentation as in this case. Moreover, administering contrast media in patients with impaired renal function or renal transplantation leads to serious dilemmas for physicians considering a possible negative diagnosis. Therefore, every emergency physician should have the ability to visualize the aorta with basic ultrasound techniques even if they cannot perform advanced echocardiography.

## ETHICAL DECLARATIONS

### Informed Consent

The patient signed and free and informed consent form.

### Referee Evaluation Process

Externally peer-reviewed.

### Conflict of Interest Statement

The authors have no conflicts of interest to declare.

### Financial Disclosure

The authors declared that this study has received no financial support.

### Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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