

## PAPER DETAILS

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PAGES: 33-38

ORIGINAL PDF URL: <https://dergipark.org.tr/tr/download/article-file/708917>

# Aortic Dissection in Different Clinical Findings : Case Series

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## Abstract

Aortic dissection occurs as a result of the rupture of the internal wall of the aorta, and it is an emergency. We aimed to present 5 cases diagnosed with Aortic dissection that visited us with typical/atypical symptoms which have very high mortality rates in cases where the diagnosis is not made. The ages of the patients who were all male were in the range of 49-66. Two patients were brought due to complaints of chest pain, two were brought for syncope and one was brought for abdominal pain. Additionally, there was a clinical case of stroke in one of the patients who was brought for chest pain. All the patients were hospitalized in the department of CVS for their monitoring and treatment. Our provisional diagnosis must definitely consider acute Aortic dissection which has a high mortality rate especially when patients with uncontrolled or newly diagnosed hypertension visit emergency services with complaints of severe chest, back and/or abdominal pain, and when there is an incidence of atypical syncope or stroke.

**Keywords:** Aortic dissection, stroke, abdominal pain, syncope

## Introduction

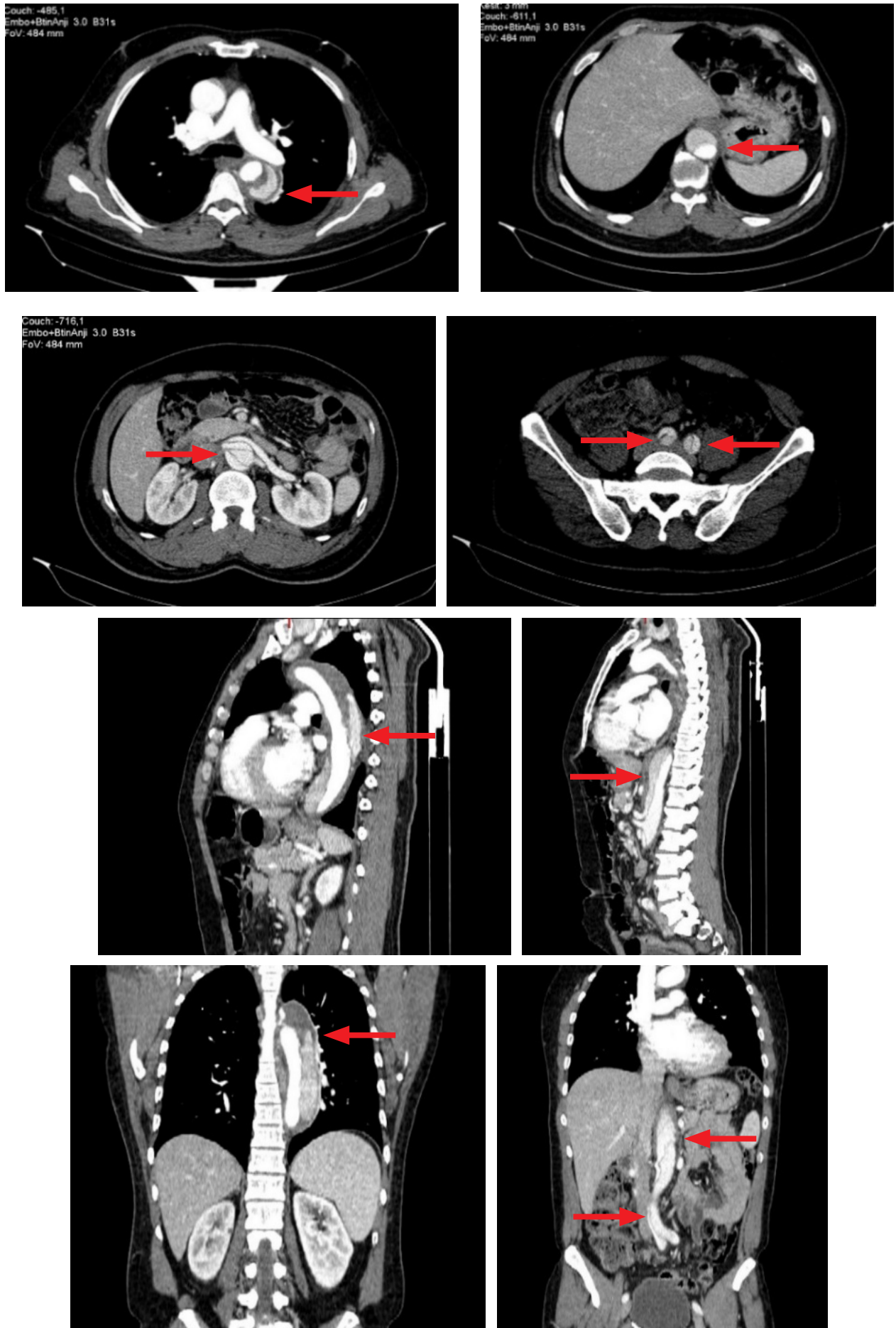
Both acute Aortic dissection and ruptured aorta aneurysm are prominent causes of death in cardiovascular diseases. This situation, which threatens life, was recently classified as an acute aortic syndrome. Acute aortic syndromes are defined as an emergency in the clinic and they may be listed as Aortic dissection, intramural hematoma without intimal rupture, penetrant atherosclerotic ulcer and ruptured or almost ruptured an aorta aneurysm<sup>1</sup>. We aimed to present cases diagnosed with Aortic dissection that visited us with typical/atypical symptoms which have very high mortality rates in cases where diagnosis is not made.

## Cases

### Case-1

The male patient who was at the age of 49 visited the emergency services with the complaint of abdominal pain. There was no history in the part of the patient. The patient had complaints of abdominal pain and no additional complaints. In the physical examination of the patient, the abdomen was aching and sensitive, and there was no defense or rebound. The peripheral pulse of the patient was clear. The vital parameters

of the patient were as temperature: 36 °C, heart rate 76/min, BP: 125/80 mmHg, respiratory rate 21/min. The hemogram measurements of the patient were normal, biochemical values showed creatinine as 1.4 mg/dL (normal range 0.72-1.25), alanine aminotransferase as 105 U/L (normal range <55), aspartate aminotransferase as 55 (normal range 5-34) and lactate dehydrogenase as 263 U/L (normal range 125-243), while the other biochemical parameters were normal. There was normal sinus rhythm in the ECG of the patient and the troponin value was negative. As a result of the physical examination, the radiological tests of the patient were requested. There was no sign in the lung radiography and standing direct abdomen radiography of the patient. The abdominal ultrasonography of the patient was reported as “abdominal aorta lumen diameter increased, and the manifestation is in agreement with the echogenic flap that pulsates in the lumen (dissection?).” After this, dynamic thorax-abdomen tomography was requested for the patient, and we observed a manifestation that was in agreement with dissection that started with the middle level of the aortic arch and extended through the thoracic aorta, abdominal aorta, both main iliac arteries and external iliac arteries (DeBakey Type-3, Stanford Type B) (Figure-1). Cardiovascular surgery consultation was requested for the patient and the patient was hospitalized at the cardiovascular surgery intensive care unit.



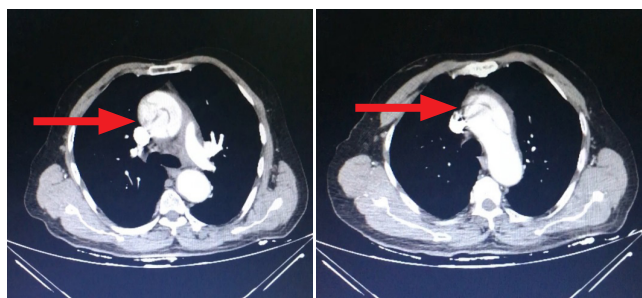
**Figure 1.** The manifestation of the patient that is compliant with Aortic dissection in his 3D dynamic thorax-abdomen CT



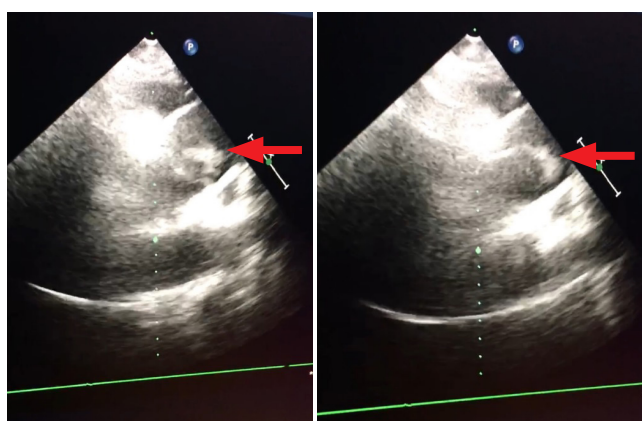
## Case-2

The male patient who was at the age of 66 visited an external center's emergency services with syncope. The patient was examined at the external center and diagnosed with Aortic dissection. While correspondence was going on about transferring him from the external center to our center, the patient was inappropriately directed to us as an outpatient. As a result of the anamnesis received from the patient and his relatives, it was confirmed that he visited the external center as a result of syncope. The patient had a history of hypertension. There was no sign in the physical examination of the patient. The vital parameters of the patient were as, temperature 36.5°C, heart rate: 118/min, BP: 169/92 mmHg, respiratory rate: 22/min. The hemogram and biochemistry values of the patient in his blood tests were normal, while the d-dimer value was 11.54 mg/L (normal range: 0-0.55).

The patient's ECG sinus tachycardia and troponin value were negative. The external center had taken the dynamic thorax + abdomen CT scan of the patient, the scan's CD was brought by the relatives of the patient to the emergency services after he arrived. The CT of the patient was examined, and there was a manifestation that was in compliance with dissection in the ascending aorta and the aortic arch (DeBakey Type-2, Stanford Type A) (Figure-2). Cardiovascular surgery consultation was requested for the patient. The patient was given echocardiography and the observed manifestation was in compliance with a dissection flap in the ascending aorta (Figure-3). The patient was hospitalized at the cardiovascular surgery intensive care unit to be taken into surgery.



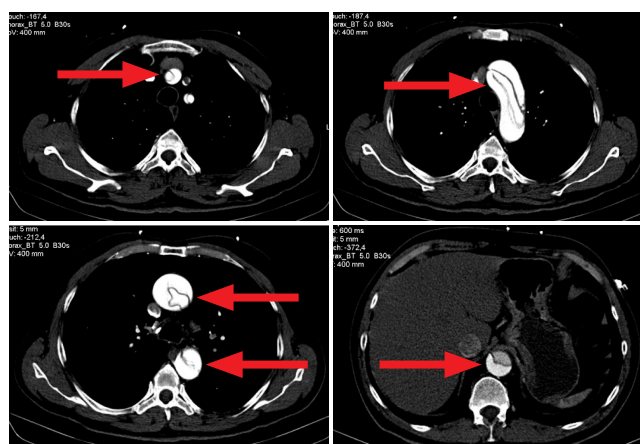
**Figure 2.** The manifestation of the patient that is compliant with aortic arch dissection in his dynamic thorax-abdomen CT



**Figure 3.** The manifestation that is compliant with dissection on flap at the ascending aorta in the echocardiography

## Case-3

The 55-year-old male patient visited the emergency services with complaints of chest pain that started 2 hours ago, as well as numbing and loss of strength in the left side of the body. The patient had a history of hypertension. In the physical examination of the patient, the muscle strength in the left side of the body was 4/5. Other system examinations provided normal results. The vital parameters of the patient were as, temperature: 36°C, heart rate: 60/min, BP: 85/40 mmHg, respiratory rate 24/min. The patient's ECG was normal sinus rhythm and troponin negative. The hemogram and biochemistry values of the patient in his blood tests were normal, while the d-dimer value was 17402 ng/ml (normal range: 0-230). As there was numbing in the left side of the patient's body, he was given unenhanced brain CT for intracranial pathology, which was followed by dynamic thorax + abdomen CT for Aortic dissection. There was no pathology of the patient's brain CT. The CT of the patient showed a manifestation that was in compliance with dissection in the descending and ascending aorta, and the aortic arch (DeBakey Type-1, Stanford Type A) (Figure-4). The patient was consulted with cardiovascular surgery and neurology. The patient, for whom neurology did not consider any pathology, was hospitalized at the cardiovascular surgery intensive care unit.



**Figure 4.** The manifestation of the patient that is compliant with ascending aorta, descending aorta and aortic arch dissection in his dynamic thorax-abdomen CT

## Case-4

The 42-year-old male patient had crashed a wall with his car 10 minutes ago at location that is close to our emergency services, he was found unconscious in his car and directed to us. We took the patient to the emergency services. The patient had confusion and was in generally bad shape. A clear anamnesis was not possible. The vital parameters of the patient were as, temperature: 36 °C, heart rate: 38/min, BP: 114/74 mmHg, respiratory rate: 20/min. The ECG of the patient was in complete compliance with complete AV block and this troponin was negative. The hemogram and biochemistry values



**Figure 5.** The manifestation of the patient that is compliant with ascending aorta aneurysm and dissection in the ascending aorta and aortic arch in his dynamic thorax-abdomen CT

of the patient were normal. 1 mg atropine was administered to the patient with the complete AV block.

Echocardiography was applied to the patient and a manifestation was observed in compliance with a 6.4 cm of aneurysm in the ascending aorta, and a dissection flap in the ascending aorta. Unenhanced brain CT and dynamic thorax-abdomen CT were taken. The brain CT of the patient was normal. The CT of the patient showed a manifestation that was in compliance with aneurysm in the ascending aorta, and dissection in the ascending aorta and the aortic arch (DeBakey Type-2, Stanford Type A) (Figure-5). Consultation was requested for the patient from neurology for syncope and cardiovascular surgery for acute Aortic dissection. The patient was hospitalized at the cardiovascular surgery intensive care unit.

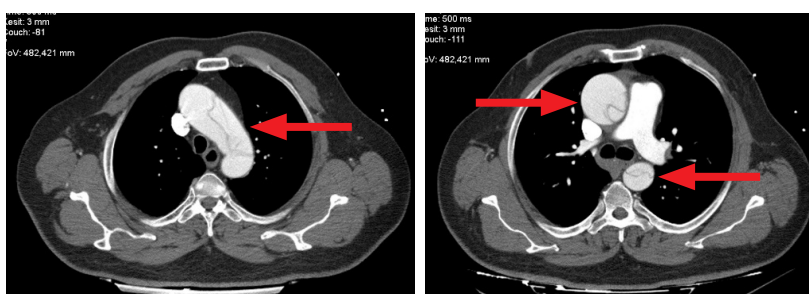
#### Case-5

The 62-year-old male patient visited the emergency services with complaints of chest pain. The patient had a history of thoracic aorta aneurysm. The vital parameters of the patient were as, temperature: 36°C, heart rate: 75/min, BP: 125/75 mmHg, respiratory rate: 18/min. There was no sign in the physical examination of the patient. The patient's ECG was normal sinus rhythm and troponin value was negative. The hemogram and biochemistry values of the patient were normal. The echocardiography of the patient revealed a manifestation that is in compliance with ascending aorta aneurysm and dissection flap starting from the ascending aorta. Dynamic thorax-abdomen CT was taken, and the manifestation was in compliance with ascending aorta aneurysm and dissection in the ascending aorta, aortic arch and descending aorta (DeBakey Type-1, Stanford Type A) (Figure-6). Cardiovascular

surgery consultation was requested for the patient. He was hospitalized at the cardiovascular surgery intensive care unit.

#### Discussion

Dissections are caused by rupturing of the intima-medial entry which creates potential for distributing antegrade or retrograde blood flow. Acute Aortic dissection is defined as dissection that takes place 2 weeks after the beginning of pain<sup>2</sup>. Those that start in the 2<sup>nd</sup> to 6<sup>th</sup> week are called subacute, and those that occur later than 6 weeks are called chronic dissections<sup>2</sup>. Isolated dissection of the abdominal aorta is a rare case<sup>3</sup>, and this is why the vast majority of dissections that include the abdominal aorta represent the progressing of dissection that occurs in the thoracic aorta. There are two classifications that are used the most frequently for dissection. The DeBakey classification was divided into three types (Type-1, 2 and 3) based on the starting point of dissection<sup>4</sup>. The Stanford classification has two types (Types A and B) based on the involvement of the ascending aorta<sup>5</sup>. The most frequent risk factor for Aortic dissection is uncontrolled hypertension (65-75% with history of hypertension)<sup>1, 6</sup>. Other risk factors include age, male sex, smoking, previous aortic diseases or aortic valve disease, direct blunt trauma, family history, history of cardiac surgery and usage of intravenous drugs (cocaine or amphetamines)<sup>1, 2, 7</sup>. The most typical symptom is the sudden start of severe chest or back pain. The pain may be sharp, and in the form of tearing or stabbing feelings, and typically different from other reasons for chest pain. Patients typically visit with complaints of



**Figure 6.** The manifestation of the patient that is compliant with ascending aorta aneurysm and dissection in the ascending aorta, aortic arch, and descending aorta in his dynamic thorax-abdomen CT

tearing chest and back pain, while they may visit with atypical clinical pictures we mentioned in our cases such as abdominal pain, syncope, stroke. Various complications may be seen in connection to dissection in other organs. Cardiac complications are seen most frequently in Type A dissections, while these are aorta deficiency, myocardial ischemia or infarction and tamponade. Sensory loss may also be seen in patients, and this is a neurological symptom which may extend from falling asleep to deep coma. The neurological state is based on the extent of reduction in blood flow due to brain cerebral circulatory disruption, hypotension or distal thromboembolism. Other than these, a different picture like mesenteric ischemia is seen in 5% of both Type A and Type B Aortic dissection patients<sup>8</sup>. As it is seen here, Aortic dissection may appear with highly variable clinical pictures.

## Conclusion

An acute aortic syndrome which includes acute Aortic dissection and ruptured aorta aneurysm is one of the main causes of death in cardiovascular diseases. Our provisional diagnosis must definitely consider acute Aortic dissection which has a high mortality rate especially when patients with uncontrolled or newly diagnosed hypertension visit emergency services with complaints of severe chest, back and/or abdominal pain, and when there is an incidence of atypical syncope or stroke.

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