Case Report

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Unexpected Acute Aorta Dissection with Ischemic Stroke: A Case Report

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Abstract

Introduction: Both acute aorta dissection and ruptured aorta aneurism are prominent causes of death in cardiovascular diseases. The frequency of developing neurological complications in aortic dissections is reported to be between 2 to 8%. Stroke is more common in dissections involving the proximal aorta, but paraparesis is more common in distal aortic dissections due to circulatory impairment in the spinal arteries.

Case: The 70-year-old male patient was referred to our emergency service from an external center with diagnosis of acute ischemic stroke. The patient had experienced loss of strength on his left side and had syncope one hour before. After his physical examination, the patient received computerized brain tomography and diffusion MR imaging with the pre-diagnosis of acute stroke. For the patient who had an appearance of acute diffusion restriction in the right parietal region in the diffusion MRI and had a chance of thrombolytic treatment, thrombolytic treatment was planned. However, the general status of the patient was worsened in this checkup examination, and his GCS score regressed down to 7. The poor current condition of the patient could not be explained by the acute ischemic stroke in the right parietal region. Aorta dissection, which may progress with clinical signs of stroke, was considered for the patient, and as an advanced test, dynamic thorax CT angiography was taken. In the dynamic thorax CT angiography of the patient, aneurism in the ascending aorta, dissection and fluid around the pericardium and left lung (hemorrhage?) were observed. The echocardiography of the patient revealed that the fluid around the pericardium caused tamponade.

Discussion: Cardiovascular system diseases are the most common cause of natural sudden deaths and are mostly seen in middle and older ages. Acute myocardial infarction and coronary artery disease are the most common cardiovascular diseases, however, sudden deaths due to aortic dissection and rupture have been reported less frequently. The most typical symptom is the sudden start of severe chest or back pain. Patients typically visit with complaints of tearing chest and back pain, while they may visit with atypical clinical pictures wementioned in our cases such as abdominal pain, syncope, stroke. Sensory loss may also be seen in patients, and this is a neurological symptom which may extend from falling as leep to deep coma.

Conclusion: Patients who visit emergency services with symptoms that are not expected for aorta dissection such as syncope, altered consciousness, hypotension, atypical abdominal pain and loss of strength in the extremities.

Key Words: Syncope, ischemic stroke, aorta dissection

Introduction

Both acute aorta dissection and ruptured aorta aneurism are prominent causes of death in cardiovascular diseases. This situation, which threatens life, was recently classified as acute aortic syndrome. Acute aortic syndromes are defined as an emergency in the clinic and they may be listed as aorta dissection, intramural hematoma without intimal rupture, penetrant atherosclerotic ulcer and ruptured or almost ruptured aorta aneurism[1]. The frequency of developing neurological complications in aortic dissections is reported to be between 2 to 8%[2]. Stroke is more common in dissections involving the proximal aorta, but paraparesis is more common in distal aortic dissections due to circulatory impairment in the spinal arteries[2]. In our study, we found it worth presenting a case of acute aorta dissection in the ascending aorta that arrived without chest and/or back pain and atypically with left hemiplegia and syncope and caused ischemic stroke.

Case

The 70-year-old male patient was referred to our emergency service from an external center with diagnosis of acute ischemic stroke. The patient had experienced loss of strength on his left side and had syncope one hour before. He had a history of hypertension. In the examination of the patient at the external center, his general status was moderate, the Glasgow Coma Scale score was 10, and the left side of the patient was hemiplegic. After his physical examination, the patient

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received computerized brain tomography and diffusion MR imaging with the pre-diagnosis of acute stroke. For the patient who had an appearance of acute diffusion restriction in the right parietal region in the diffusion MRI (Figure-1) and had a chance of thrombolytic treatment, thrombolytic treatment was planned. However, the general status of the patient was worsened in this checkup examination, and his GCS score regressed down to 7. This blood pressure decreased down to 80/60mmHg. The patient was electively intubated and started with positive inotropic treatment. For the patient with a high score of NIH Stroke Scale, thrombolytic treatment was found not appropriate, and thus, not provided. The patient was brought to our emergency service in an intubated position by 112 (emergency services in Turkey). The vital parameters of the patient were as temperature: 36 °C, pulse: 120/min, BP: 80/50 mmHg and respiratory rate: 16/min. In the hemogram of the patient that was obtained at the time, his hemoglobin value was found as 10.4 g/dL, while his biochemical parameters were considered normal. In the ECG of the patient, sinus tachycardia and troponin values were negative. The poor current condition of the patient could not be explained by the acute ischemic stroke in the right parietal region. Aorta dissection, which may progress with clinical signs of stroke, was considered for the patient, and as an advanced test, dynamic thorax CT angiography was taken. In the dynamic thorax CT angiography of the patient, aneurism in the ascending aorta, dissection and fluid around the pericardium and left lung (hemorrhage?) were observed (Figure-2). The echocardiography of the patient revealed that the fluid around the pericardium caused tamponade. While cardiology and cardiovascular surgery consultation was being planned for the patient, the patient had cardiac arrest. Active cardiopulmonary resuscitation was applied for the patient for 45 min. The patient, whose heart movements did not come back for 45, was accepted as exitus.

Discussion

Cardiovascular system diseases are the most common cause of natural sudden deaths and are mostly seen in middle and older ages. Acute myocardial infarction and coronary artery disease are the most common cardiovascular diseases, however, sudden deaths due to aortic dissection and rupture have been reported less frequently[3].

Aorta dissection is accumulation of blood in the aorta wall with a rupture that occurs in the aorta intima as a result of high blood pressure and the structural anomalies of the aorta wall[4]. In diagnosis, aortography, magnetic resonance imaging, transthoracic or transesophageal echocardiography and dynamic computerized tomography are utilized. The diagnosis of aorta dissection is suspected if measurement of the aorta diameter in ECHO reveals valve anomalies, detection of intimal flap and real and pseudo lumens with the dissection membrane. There are two classifications that are used the most frequently for dissection. The DeBakey classification was divided in to three types (Type-1, 2 and 3) based on the starting point of dissection. The Stanford classification has two types (Types A and B) based on the involvement of the ascending aorta[5]. The most frequent risk factor for aortic dissection is uncontrolled hypertension (65-75% with history of hypertension). 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)[1].

The most typical symptom is the sudden start of severe chest or back pain. The painmay 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 tearing chest and back pain, while they may visit with atypical clinical pictures wementioned in our cas-

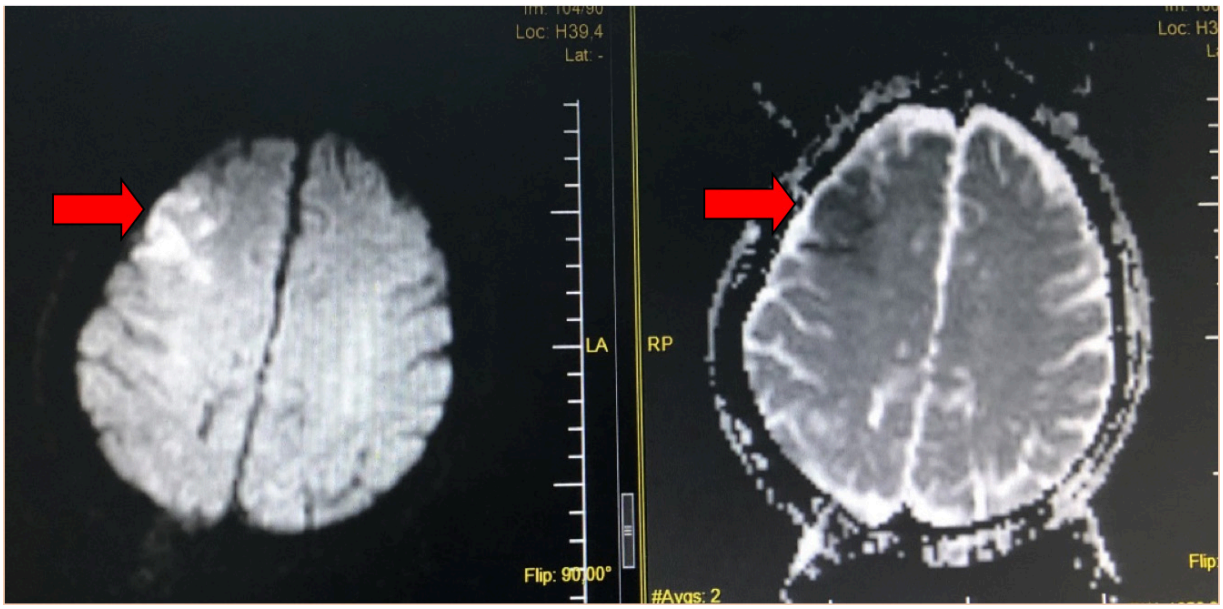

Figure 1: Acute diffusion restriction in the right parietal region in diffusion MR

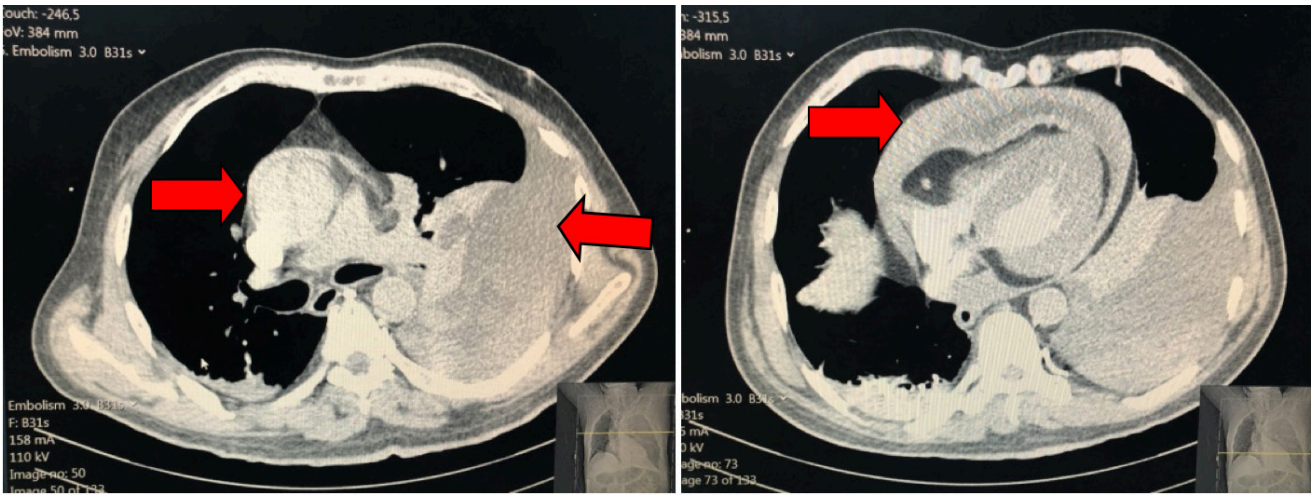

Figure-2: Aneurism in the ascending aorta, dissection, fluid around the pericardium and the left lung (hemorrhage?) in dynamic thorax CT angiography

es such as abdominal pain, syncope, stroke. Sensory loss may also be seen in patients, and this is a neurological symptom which may extend from falling as leep to deep coma. In studies, neurological complications have been reported as 17% in Stanford type A and 5% in Stanford type B[5].

In a review where Suzuki et al. examined type B aorta dissection cases, among the 384 cases, there was spinal cord ischemia in 10 (3%) and ischemic peripheral neuropathy in 8 (2%). It was reported that one patient died in each group[6]. In a review where Stewart Collins et al. examined type A aorta dissection cases, among the 617 cases, there was a neurological complication in 171 (29%). While there was a history of cardiac surgery in 23 of these cases, there was none in 148[7]. Stroke especially arises in proximal aorta lesions, while paraplegia emerges with involvement of spinal arteries in cases with distal lesions (by 2-8%). Cerebral infarction may be seen in cases of aorta dissection by 5-10%[8]. 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[9]. As it is seen here, Aortic dissection may appear with highly variable clinical pictures. In agreement with the literature, there was also dissection in the proximal aorta (DeBakey type-2, Stanford type-A) in our patient, which led to stroke.

In our case, the patient did not have chest and/or back pain. The arrival of the patient with left hemiplegia and syncope led us to acute ischemic stroke as a pre-diagnosis. However, when the poor clinical status of the patient could not be explained by acute ischemic stroke, we considered aorta dissection by a clinical picture of stroke as the pre-diagnosis. As seen here, we may encounter aorta dissection with several different clinical issues that are impossible to consider at first.

Conclusion

Keeping dissection in mind is the most important factor in the diagnosis of acute aorta dissection. The clinical signs of our cases at the time of admission did not include the typical clinical signs of aorta dissection. The patient did not have chest and/or back pain. This is why appropriate examinations should be carried out by keeping the diagnosis of aorta dissection in mind in patients who visit emergency services with symptoms that are not expected for aorta dissection such as syncope, altered consciousness, hypotension, atypical abdominal pain and loss of strength in the extremities.

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