

AORTIC ANEURYSM DEATHS

Aort Anevrizmasına Bağlı Ölüm Vakalarına Bakış

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ABSTRACT

While Cardiovascular System Diseases constitute a large part in sudden unexpected suspicious deaths, acute aortic dissection (AAD) is the most common pathology in sudden death among aortic diseases. True diagnosis is the best strategy to avoid malpractice. The diagnosis of aortic dissection remains clinically challenging and the outcomes from this disease are often fatal. For this reason, it was aimed to emphasize to 3 cases that were autopsied by us, applied to health institutions with different symptoms, and the cause of death, bypassing the Acute Aortic Dissection, which died as a result of misdiagnosis and treatment, AAD can be difficult to recognize, diagnosis is therefore sometimes delayed or missed. Physicians who didn't think that probability in their differential diagnosis will be always accused about malpractice.

Keywords: *Aortic Aneurysm; Forensic Autopsy; Sudden Death*

ÖZET

Kardiyovasküler Sistem Hastalıkları aniden beklenmedik şüpheli ölümlerde büyük rol oynarken, akut aort diseksiyonu (AAD) aort orjinli hastalıklar arasında ani ölümden en sık görülen patolojidir. Tıp gibi karmaşık bilimlerde tanı ve tedavi hatalarını önlemek oldukça zordur. Doğru tanının belirlenmesi, malpraktisten kaçınmak için en iyi stratejidir. Aort diseksiyonu tanısı klinik olarak zorlayıcıdır ve sonuçları genellikle ölümcül olabilmektedir. Bu nedenle, otopsisini yaptığımız, farklı belirtilerle sağlık kurumlarına başvuran, yanlış tanı ve tedavi nedeniyle hayatını kaybeden 3 olgu üzerinden doğru tanı koymanın malpraktisten kaçınmak için ne kadar önemli olduğunun vurgulanması amaçlanmıştır. Tanı koyulması bazen gecikebilir veya tanı gözden kaçabilir. Ani şiddetli sırt, göğüs ve karın ağrısı şikayetleri ile olan başvurularda aort diseksiyonu tanısı akla gelmeli ve tanı için gerekli tetkikler yapılmalıdır.

Anahtar Kelimeler: *Malpraktis; Aort Anevrizması; Otopsi; Ani Ölüm*

INTRODUCTION

Sudden deaths constitute an important part of forensic medicine daily practice, the biggest part of these deaths are formed by cardiovascular system originated deaths (1). Calculate the incidence of aortic dissection is difficult because many cases are diagnosed only after death (may be attributed to another cause) and are often misdiagnosed initially. Aortic dissection calculates 2.0-3.5 persons per 100,000. Studies from Sweden show an increased incidence of aortic dissection (2). Men are affected more frequently than women: 65% of all people with aortic dissection are men. The mean age at diagnosis was 63 years. In women, half of the aortic dissections occur during pregnancy before the age of 40 (usually in the early postnatal period or in the third trimester) (3). Dissection occurs approximately in 0.6% of pregnancies (4). Cardiovascular diseases and coronary heart diseases include cerebrovascular diseases, hypertension, peripheral arterial disease, rheumatic heart diseases, congenital heart diseases, heart failure and cardiomyopathies. In the development of cardiovascular diseases tobacco behavior, physical inactivity, unhealthy diet, which can lead to obesity, as well as diseases such as diabetes, hypertension, dyslipidemia are the main reasons. Aorta is known as widest vessel of body which carries oxygenated blood from the heart to the other parts of body. It consists of three parts anatomically as

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Geliş tarihi/Received: 27.05.2020
Kabul tarihi/Accepted: 30.09.2020
DOI: 10.16919/bozoktip.743572

Bozok Tıp Derg 2020;10(4):123-126
Bozok Med J 2020;10(4):123-126

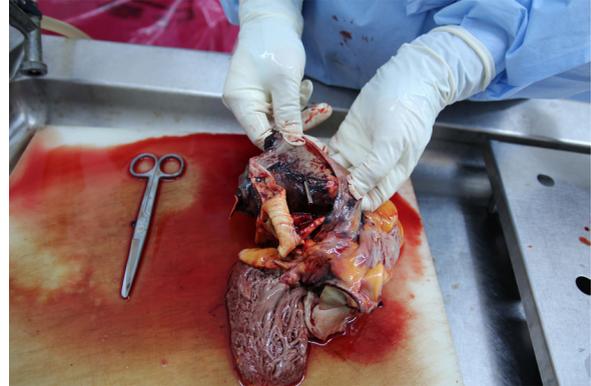
ascending aorta, transverse aorta and descending aorta (5). It is defined that, aortic dissection occurs by rupture of intima layer and passing of blood to middle and outer 2/3 part of media. This situation mainly occurs at ascending aorta and usually navigates transversely. Aortic dissection is a life threatening disease characterized by sudden chest and/or back pain. The disease is much more frequent in men compared to women and usually seen above the age of 50 (6). Dissection and rupture aortic aneurysm can be detected at early phase with contrast enhanced computed tomography (CT) and magnetic resonance angiography (MRA). CT, echocardiography, transesophageal echocardiography (TEE) and magnetic resonance imaging (MRI), can observe dilatation of aorta with pericardial effusion. Predisposing factors for aortic aneurysm rupture are atherosclerotic vessel diseases and hypertension, genetic diseases of connective tissue like Marfan Syndrome, Ehler Danlos Syndrome and congenital disorders like aort coarctation, bicuspid aortic valve. This study was conducted to take attention to aortic dissection cases. In such cases, misdiagnosis and wrong treatment often appear as medical malpractice lawsuits. World Medical Association defines the malpractice as "Damage done by physician via not practicing standard current approach, skill deficit of physician or not giving the treatment to patient." (7). Medical malpractice occurs when a hospital, doctor or other health care professional causes an injury to a patient with a negligent act or omission. The negligence might be the result of errors in diagnosis, treatment, aftercare or health management.

CASES

Case 1

31 years old male patient, 1.79 m, 70-75 kg. It's defined that: "He felt unwell after exercise and he went to the private hospital. He was treated. After one day he got worse at work and was taken to a private hospital again and death was diagnosed on the arrival. He was taken to autopsy and free fluid wasn't observed at chest, lungs were found pale at cross sections, pericardium was full of partially coagulated 400 cc blood, heart weight wasn't calculated, 5 cm aneurysm dissection and 1 cm rupture detected at the near to aortic knob. It's said that patient has died from pericardial tamponade which arose from dissecting aortic aneurysm rupture."

Case 1. 5 cm aneurysm dissection detected at the near to aortic knob and 1 cm rupture. It's said that patient has died from pericardial tamponade which arose from dissecting aortic aneurysm rupture.



CASE 2

20 years old male patient, 185cm, 75 kg, without any known diseases. It's defined that: "He applied to state hospital before three-four days of his death with complaint of stomach-intestine disturbance (abdominal pain) and he also had pressure sensation at his chest. He was diagnosed as intestine inflammation, was prescribed a medicine, and was discharged from hospital. At his autopsy, pericardium was filled with 700 cc partially coagulated blood, there was no pathologic sign at myocardium cross sections macroscopically, heart weight couldn't be calculated, coronary vessels were plugged moderately, 8x5 cm² dissection area was observed at aorta. At this area 0.6 cm full rupture was detected at the 3 cm beyond heart exit. At the histopathology there was diffuse edema at lungs and vascular distention, fresh bleeding areas at parenchyma, coronary arteries were plugged nearly 70-80%, there were some areas of hypoxic alterations at myocardial fibers. He died because of pericardial tamponade which caused by bleeding from full aorta rupture and aortic dissection.

CASE 3

10 years old male patient, 136 cm, 20-25 kg, without any known disease. It's defined that: "Scream was heard while the child was playing at the garden of their houses, after asking what's the problem he defined severe pain at his back during jumping. He was taken to the private hospital for treatment. After examination back graphy was taken, analgesic was prescribed, they rubbed his back with analgesic cream. The child was

Case 2. He died because of pericardial tamponade which caused by bleeding from full aortic rupture and aortic dissection.



Case 3. There was 600-700 cc blood at her left thoracic cavity, both lungs were free, and child has died due to thoracic aorta rupture and internal bleeding and its complications.



extremely fatigue but without any pain, he asked for a glass of water and then went to sleep. After five minutes they observed child with a seizure. They went to private hospital he was interfered here, but child died here. Because of the suspicious death autopsy had done, there was 600-700 cc blood at her left thoracic cavity, both lungs were free, left lung was 250 g and right lung was 290 g, any macroscopic pathological difference wasn't observed at the surface and cross sections of lung, there was wide bleeding around thoracic aorta and complete dissection at the level of T7-8. Pericardium and heart was normal, heart was 150g, entrance and exit vessels found as normal, valve structures and ostiums were normal, there wasn't any macroscopic pathologic difference at the surface and cross sections of myocardium, there was no pathology at abdomen examination. At the histopathology, there were no specific findings at coronary arteries. Hemosiderin loaded macrophages at alveol lumens and acute swelling areas were observed at lungs, congestion areas were observed at brain, cerebellum, liver, heart, kidneys and spleen. Child has died due to thoracic aorta rupture and internal bleeding and its complications."

DISCUSSION

It's believed that clinical signs of aneurysms are usually occurs due to four events. If aneurysm grows it may create pressure around it, clot which is formed in aneurysm can turn to an embolism, fistulas can arise

(arterio-venous) or most common seen one it can cause bleedings. Aortic dissection can lead to serious complications such as heart attack, renal failure, stroke, paralysis and obstruction of blood vessels to the intestines. It may also cause lower extremity ischemia or blockage of the blood vessels of the legs (8). Aneurysm bleedings are associated with diameter and location of it and usually they cause sudden death. Dissected aortic aneurysms end up mostly with death of patient unless diagnosed in a short time and intervened surgically (9). Aortic dissection is the most common disasters of the aorta, two or three times more common than abdominal aortic rupture. When not treated in time approximately 33% of patients die within the first 24 hours and 50% die within 48 hours. Approximately 75% of patients who died due to aortic dissection could not be diagnosed within two weeks (10). Every hour delay of aortic dissection diagnosis increases mortality about 1%. With fast diagnosis and treatment mortality rates decreases below the 50% (11). Advanced imaging methods must be used at diagnosis with the physical examination. CT and MRI are recommended because they are noninvasive and have high sensitivity and specificity (9). If an aortic dissection is suspected, CT angiography, MRI or, transesophageal echocardiography (TEE) may be used (12).

Several different classification systems have been used to describe aortic dissections. The commonly used classification system is based on chronicity and indicate aortic dissections as hyperacute (<24 hours),

acute (2-7 days), subacute (8-30 days), and chronic (> 30 days) (13). Commonly used systems in the clinic are based on the anatomy of the dissection or onset of symptoms before presentation. The Stanford system is now more widely used because it is more suitable for patient management.

In our study, both of the three cases applied to hospitals and after telling their compliance, we see that diagnostic tools which have high specificity and sensitivity like CT and MRI are not used. Although these are applications that need to be done, maybe it won't change the results and that's polemical situation.

Physicians have to think about aortic dissection in their differential diagnosis if the patients apply to them with the complaints of sudden severe back pain, chest and abdominal pain and they must use diagnostic tools to eliminate that diagnosis. Physicians who didn't think that probability in their differential diagnosis will be always accused about malpractice.

CONCLUSION

Physicians have to show enough care and attention to their patients at all phases of diagnosis and treatment, they are also obligated to make use to all tools of developed medicine. However, they can't be responsible from unpredictable and unpreventable situations.

The possibility of doctor's malpractice is directly related not only with their clinical knowledge but also with their working conditions and with the medical equipment. In both three cases, due to the facts which were mentioned before we think that there are deficiencies in the diagnostic process.

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