Case Report

UNDIAGONSED CASE OF RUPTURE OF DISSECTING ANEURYSM OF AORTA
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Case Report

UNDIAGONSED CASE OF RUPTURE OF DISSECTING ANEURYSM OF AORTA
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Abstract:
According to WHO, “Death is said to be sudden or unexpected when a person not known to have been suffering from any dangerous disease, injury or poisoning is found dead or dies within 24 hours after the onset of terminal illness”.

In such cases of Sudden Natural Deaths (SND), cardiac causes contributes almost >50% of all cases of which aortic dissection is rare one but causing significant morbidity & mortality. Global incidence of aortic dissection is 3 cases per lakh population, most commonly affecting 60 to 80 years of age group & mainly dominated by males (M:F, 3:1). We hereby present a case of 70 years old man who was a k/c/o HTN & COPD and came with complaint of sudden onset of chest pain in casualty GMCH, Aurangabad. He was treated as a case of acute coronary event and was admitted to MICU. On admission patient’s blood pressure was 180/100 mmHg which suddenly dropped down to 60/40 mmHg and patient succumbed within 12 hrs of admission. On autopsy deceased was found to have ruptured dissecting aneurysm of thoracic aorta.

Key Words: Sudden Natural Death (SND), Cardiac causes, Aortic dissection.

Introduction:
Forensic experts deal not only with criminal, accidental and suicidal deaths, but also with wide range of natural deaths especially if they had occurred suddenly in apparently healthy individuals. In case of Sudden Natural Deaths, cardiac causes contributes almost >50% of all cases, followed by central nervous system & respiratory system. Atherosclerotic coronary disease is the leading cause among all cardiac causes. Aortic dissection, though rare one but important and usually undiagnosed or hidden or lately diagnosed condition leading to significant morbidity & mortality. Aortic dissection is an acute event where blood enters the aortic wall through a tear in the tunica intima followed by extravasation of blood into the tunica media. In such cases death may occur with dramatic suddenness without any prior alarming signs or warning under varieties of circumstances i.e. during sleep, rest, ordinary activity, labour, sexual intercourse, emotional/physical stress.

Case Report:
A 70yrs old, male, a k/c/o HTN, COPD & chronic alcoholic on medication came to Govt. medical college and hospital, Aurangabad with c/o chest pain, breathlessness, vomiting while resting at his residence in evening hours, with h/o dry cough since 1 month. By the time he was admitted in MICU on 04/01/2013 at 8.47 PM. Family history was unremarkable/not significant. On examination his blood pressure was 180/100mmHg with pulse rate 64/min and SPo2 85%. He was being treated symptomatically. Clinically this case was diagnosed as a case of hypertension with left ventricular failure.

Subsequently his general condition became poor with B.P. dropping down to 60/40 mmHg and pulse rate 60/min and end tracheal intubated later on. But ultimately he
succumbed on 5/01/2013 at 4.30 am within 12 hrs of admission. Body sent to mortuary for autopsy.

**Autopsy Findings:**

External findings: Body of deceased was thin built and nourished, his height was 166cm and weight was 59kgs. Rigor mortis was well marked all over body, and post mortem lividity present over back of body except pressure areas and was fixed. Evidence of treatment in the form of chest leads & defibrillator marks was seen over chest. There was no any evidence surface injury.

Internal findings: All organs were intact and pale. Thoracic cavity was full of blood and blood clots (2.5 lit). Heart weighing 450gms was having fat deposits over its external surface. There was a tear over inner aspect of posterior wall in the form of ruptured dissecting aneurysm of descending thoracic aorta, oblique, 2.2 x 0.3cm in size, layer deep with blood clots present in it along with another intact aneurismal dilatation over proximal part of descending aorta measuring 4x3cm was seen. Atherosclerotic plaques were also seen in aortic lumen at its origin. Coronaries were thickened & cord like. LAD coronary was found to be narrowed >40%; right coronary was patent. Left circumflex coronary was also patent. Left ventricular wall thickness was 2.2cm. Organ pieces like brain, heart, lungs, spleen, liver, kidneys and descending thoracic aorta were preserved. On histopathological report of tear of aorta showed ulcerated endothelium with areas of hemorrhage, congestion and mixed inflammatory infiltration of polymorphs cells.
The final cause of death was finalized as “Shock and hemorrhage due to rupture of dissecting aneurysm of aorta”

Discussion:
Rupture of aortic aneurysm is a rare but important cause of SNDs, as it usually remains undiagnosed in most of the cases until the terminal event occurs, which may be due to lack of an early eye of suspicion in such cases. The first complete publication including autopsy findings was described in 1981.[6]. Since then, only limited cases have been documented as case reports. The clinical onset of this disease is often associated with intense chest pain that migrates back along the aorta with the distal progression of the lesion. The location of the pain often indicates which aortic segments are involved; chest pain suggests a proximal aortic involvement, while back and abdominal pain usually indicates involvement of the distal segment. When dissection involves the proximal aorta, an involvement of the aortic valve or coronary artery at the level of ostia is also possible.[3] The basic pathophysiology behind aortic dissection is degeneration of collagen & elastin component of vessel wall causing tear in tunica intima and weakening of tunica media which leads to collection of blood in wall space. Sometimes distal tear occurs in intima creating parallel blood column (false lumen) to the aortic luminal flow; condition known as ‘Double Barrel Aorta’.
Aortic dissection is mainly classified by Stanford as type 1 & 2, involving ascending and descending aorta respectively. It is also classified under Debakey classification as type 1 involving ascending aorta along with part of distal aorta, type 2 confined only to the ascending aorta & type 3 involving descending aorta only. (Table-1)

Classification of Aortic Dissection:
Cause of dissecting aneurysm of aorta is mainly attributed to hypertension & old age (60-80yrs). According to Dr. Mohammed Ziyauddin G. Saiyed et al 72 to 80% of individuals who present with an aortic dissection have a previous history of hypertension. M:F ratio is 3:1. Half of dissections in females before age 40 occur during pregnancy (typically in the 3rd trimester or early postpartum period).[1] Connective tissue disorders, pregnancy (3rd tri), smoking, congenital heart diseases, infections like syphilis, drugs like cocaine are also the risk factors.
Risk Factors:
• Systemic HTN (present in 70-90%)
• Connective Tissue disorders (Ehlers-Danlos; Marfan’s; Lupus; Giant Cell Arteritis; Cystic Medial Necrosis)
• Pregnancy (3rd Trimester)
• Congenital Heart Disease (bicuspid aortic valve; coarctation)
• Turner’s
• Trauma
• Aortic Valve Stenosis
• ID: Syphilis, endocarditis
• Drug: Tobacco; Cocaine; Methamphetamine

About 96% of individuals with aortic dissection present with severe pain that has a sudden onset. It may be described as tearing in nature or stabbing or sharp in character.[5] Typically, the clinical signs and symptoms that suggest presence of an aortic dissection include severe pain in chest and abdomen, dysphagia, hoarseness, dyspnoea, low systolic
blood pressure, abnormal chest radiographs, systolic murmurs audible at back, different blood pressure in two upper extremities and decreased pulses in lower extremities. The characteristic ECG changes are left axis deviation, left ventricular hypertrophy, ischemic changes and dysrhythmia. Aortic dissection usually results in cardiac insufficiency in the form of left ventricular dysfunction & aortic valve incompetence which ultimately leads to distal propagation of aortic dissection. Aortic dissections resulting in rupture have an 80% mortality rate and 50% of patients die before they even reach the hospital. The vast majority of aortic dissections originate with an intimal tear in either the ascending aorta (65%), the aortic arch (10%), or just distal to the ligamentum arteriosum in the descending thoracic aorta (20%). Although rare, in a young patient with sudden onset of retroperitoneal hemorrhage with shock, especially in those with predisposing factors, possibility of aortic dissection should always be listed as differential diagnosis. In this case, early diagnosis would have allowed early intervention which would have prevented the death of the patient, although he did not present a striking clinical situation.

Investigations for diagnosing the aortic dissection include X-ray, CT, MRI, Transthoracic echocardiography (TTE), Transesophageal echocardiography (TOE). CT scan is useful for detection of type of dissection whereas TOE is specific for detecting exact site of tear as well as associated conditions like aortic incompetence, wall motion abnormalities etc. MRI is also having excellent sensitivity and specificity, but it is useful in relatively stable patient only. Acute dissections involving the ascending aorta are considered surgical emergencies whereas dissections confined to the descending aorta are treated medically. During pregnancy surgery following caesarean section after 30wks of gestation should be performed. IV Beta blockers propanolol, labetalol, CCBs – Verapamil, diltiazem, nitroprusside are preferred for medical treatment. Excision of the intimal tear, obliteration of blood entry into the false lumen proximally and reconstitution of the aorta with interposition of a synthetic vascular graft; these are the available surgical treatment modalities.

Conclusions:
In this case, early diagnosis would have allowed early intervention which might have prevented the death of the patient.
Under these circumstances, it is clearly of utmost importance not to underestimate seemingly trivial symptoms that may conceal unexpected fatal clinical situations.

References:
1. Dr. Mohammed Ziyauddin G. Saiyed et al; A rare case of sudden death due to aortic dissecting aneurismal rupture