



Rupture of dissected ascending aorta in redo patients also happens and has manifestations like pulmonary embolism

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Abstract

Most physicians believe that ascending aortic dissection in Redo cases never rupture because of adhesion and its relatively not emergent case but it seems not so. We report a case of 65-year-old woman who underwent CABG 5 years ago and came to emergency room with signs of dyspnea, tachypnea, tachycardia, chest pain. Because of adhesion Rupture of redo cases happens in posterior wall of aorta and compress the pulmonary artery to cause uncommon pulmonary embolism like signs which had never reported before and that clinicians should be aware of.

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Introduction

A 65-year-old woman brought to emergency of our hospital with fatigue, chest pain, dyspnea, tachypnea, tachycardia, and discomfort for 5 hours; her symptoms were progressively worse during any movement then also at rest. She had a history of hypertension for 10 years with blood pressure of 160/90 mm Hg, and Coronary artery bypass graft 5 years before. Her arterial blood gases referred to respiratory acidosis.

The patient's temperature was 36.8C, pulse was 108beats/min, respiratory rate was 36 breaths/min, and blood pressure was 95/50 mm Hg. Slightly lower breath sounds were heard in the right lung. Two hours after hospitalization, tachypnea and dyspnea increased and the patient intubated electively in the CCU unit. The lactate was high and the D.dimer test was positive and high, also the ABG refers to acidosis. then the chest computed



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tomography angiography showed that the ascending aorta and aortic arch have intimal dissection flap and there was mass in the space between ascending aorta and pulmonary trunk which compress the main pulmonary trunk and right pulmonary artery. Figure-1A [1-6].

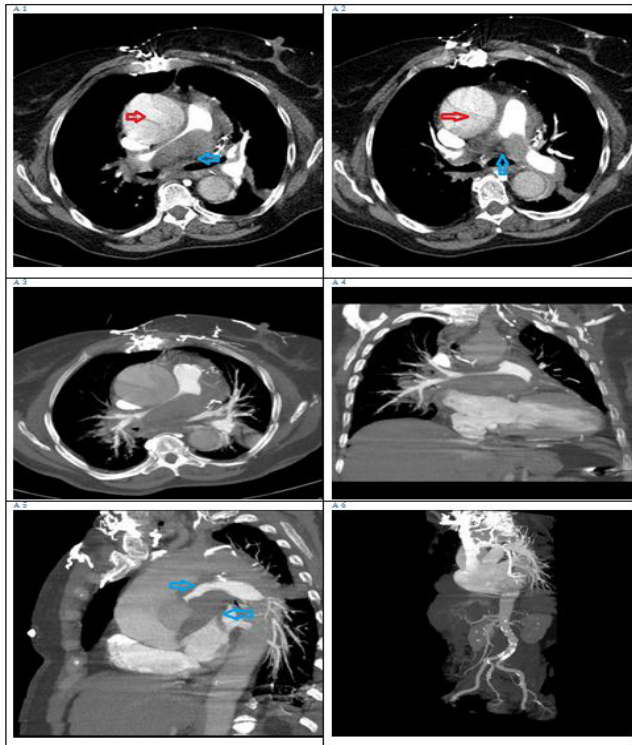


Figure 1: CT angiography for the patient reveals the Ascending aorta dissection (red arrow) and the hematoma with compress the pulmonary artery (blue arrow).

Lab findings before surgery:

Pro BNP			
Test	Result	Unit	Reference Value
Pro BNP	5287	pg/ml	Age < 75 Years: <125 -Age >= 75 Years: <450
D- Dimer Test			
Test	Result	Unit	Reference Value
D Dimer Result: 7.7	H	µg/ml	0-0.5
ABG			
PH			7.31
PO ₂			84
O ₂ Saturation			95
PCO ₂			38
HCO ₃			19
Total Co ₂			20
B.E>		-6	
Na	135 mEq/l		
K	4.3 mEq/l	Lactate	7.1 mmol/L

Management

According to the patient’s medical history, imaging manifestations, and acute reduction of lung function, rupture of acute thoracic aortic dissection with retro aortic hematoma and the compress of the right pulmonary artery was diagnosed. The patient’s family, concerned with the patient’s emergent situation and high risk of surgery and they accept the surgery. The patient transferred to operation room and operated.

In surgical ICU the patient was stable and in the third day extubated

Trans thoracic echo was in normal and acceptable surgical results Figure (2) in the 4th day the patient developed respiratory distress and chest X-Ray and Ct scan revealed right lower lobe collapse and atelectasis.

Sonography was done to see the diaphragm movement which reveals normal movements in tow side of the diaphragm the patient re-intubated for another 72 hours then extubated again with normal chest X-ray and normal blood gases.

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Report

Echo findings: **Diagnosis:**

Normal LV size with moderately systolic dysfunction (LVEF=30-35%), moderate LVH, antroseptal and anterior and lateral wall hypokinesia, moderate LVH
 -Normal RV size with moderately reduced systolic function
 -Normal MVLs, no MS, mild MR
 -Mechanical bileaflet prosthetic AV with normal hemodynamic study , small hematoma anterior of aortic root (0.9cm),no significant paravalvular regurgitation, tube graft could not be precisely assessed due to poor echo view and patient's position
 PS, mild PI
 -Repaired TVLs, acceptable hemodynamic study (MG=2mmHg), mild to moderate TR, TRG=20mmHg

Figure 2: Trans thoracic post operation echocardiography report reveal the acceptable correction for ascending Aorta dissection and tricuspid valve repair without any injury for the L.V function.

PORTABLE SONOGRAPHY OF DIAPHRAGM

By trans thoracic approach with 3.5 MHZ probe;

Both hemi diaphragms have normal movement.

there is no evidence of diaphragmatic paresis.

Two days later transferred to ward and After 2 weeks of ongoing medical and physiotherapy she discharged to home with normal parameters. The patient’s general situation was improved. At 2 months follow-up, the patient had no chest discomfort. Chest computed tomography showed normal exists and the pulmonary artery was open. Figure 3B [1-6].

Discussion

Most physicians believe that ascending aortic dissection in Redo patients never rupture because of adhesion and because of that mostly these patients operated as urgent list or as soon as possible patient more than emergency cases [1,2]. The rupture of aortic dissection in previously operated patients (redo cases) and compressing the pulmonary artery didn’t reported before but some articles speak about fistulas between aorta and pulmonary artery or right atrium or rarely pericardium in chronic dissection or late managed cases in patients with previous cardiac surgery[1,2].

Many studies talk about conservative nonsurgical treatment for patients who had dissection after previous cardiac surgery [1,2,4].

In this case, because of previous CABG a lot of adherent around the aorta helped to prevent wide rupture and the rupture was limited to retro aortic free space. Surgical intervention

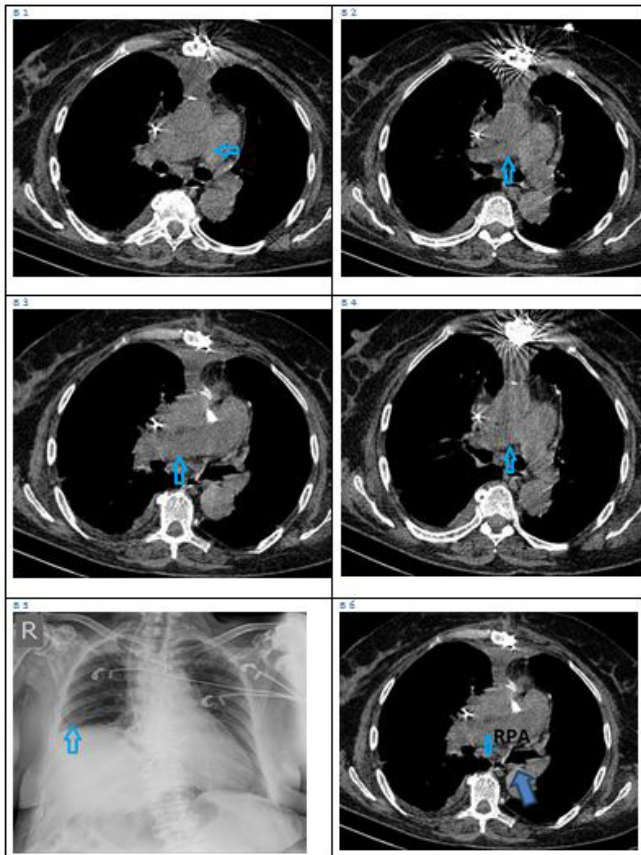


Figure 3: post operation CT scan (B1,2,3,4,6)reveals that the compression of pulmonary artery removed by correcting the aortic dissection, and CXR (B5) in which we can see collapse in the right plural field.

know if there is relationship between this and the compression over the right pulmonary artery before operation.

Operation technique

Intra operation Trans esophageal echocardiography revealed ascending aorta dissection with severe tricuspid valve regurgitation and low Ejection fraction and moderate right ventricle dysfunction Figure 4.

with femoral cannulation the sternotomy was done on Bypass ascending aorta was dilated, superior vena cava was cannulated and used tapping around SVC, IVC , during hypothermic time the tricuspid valve was explored on beating heart and repaired up to DeVega technique.

Retro grade cannula inserted directly to the coronary sinus for giving cardioplegic solution. The ascending aorta was closed and opened to see very big ruptured in the ascending aorta intima and the posterior wall of aorta was ruptured and a 10*10 cm hematoma was seen compress the pulmonary artery. After giving cardioplegia directly in coronary ostiums retrograde. The hematoma which consists of new clots removed. The previous two vein grafts were isolated as two small bottoms. Aortic valve replaced with mechanical St-jude 23 aortic valve then the ascending aorta replaced supracoronary with Dacron tube graft 30mm.

The pulmonary artery was opened and check for clots but it was clean so it's closed.

At 20° degree total circulatory arrest was done aortic clamp removed and tow cannulas was advanced to the innominate and left carotid arteries to perfuse the brain with 600CC of blood per minutes.

Hemi arch replacement was done. All suture lines were supported with felt strep and new media technique was achieved to close false lumen.

Conclusion

Redo ascending aortic dissection is emergency operation and must operate promptly like primary cases. Because of adhesion Rupture of redo cases happens in posterior wall and compress the pulmonary artery to cause uncommon pulmonary embolism like signs that clinicians should be aware of.

References

- Norton EL, Rosati CM, Kim KM, Wu X, Patel HJ, et al. Is Previous Cardiac Surgery A Risk Factor for Open Repair of Acute Type a Aortic Dissection? The Journal of Thoracic and Cardiovascular Surgery. 2019.
- Estrera AL, Miller CC, Kaneko T, Lee TY, Walkes JC, et al. Outcomes of acute type A aortic dissection after previous cardiac surgery. AnnThorac Surg. 2010; 89: 1467-1474.
- Klodell CT, Karimi A, Beaver TM, Hess PJ, Martin TD. Outcomes for acute type A aortic dissection: effects of previous cardiac surgery. Ann Thorac Surg. 2012; 93: 1206-1212.
- Elizabeth L, Norton MS, Rosati CM, Kim KM, Wu X, et al, Mich; Is previous cardiac surgery a risk factor for open repair of acute type A aortic dissection? The Journal of Thoracic and Cardiovascular Surgery, 10.1016 jtcvs.2019.07.093
- Hostiuc S, Dermengiu D, Ceaus UM, Capatina ACO, Lacramioara Luca , Mihaela Hostiuc c Sudden death due to dissection of the thoracic aorta associated with dissection and rup-

was performed promptly as in primary aortic dissection type A [2,4,5].

The exact mechanism involved in the post operation pulmonary collapse is not clear as the sonography revealed normal diaphragm movements and there was no foreign body in the bronchus endoscopy and no signs of infection. Clearly we don't

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IO TEE Report

Echo findings: Diagnosis:
 **Prepump IOTEE,BP:130/65,HR:77bpm
 **Post CABG 1393
 -Normal LV size with severe systolic dysfunction(EF:30%), base to mid of posterior, anterolateral and anterior akinetic with preserved tissue, no LV clot
 -Mild to moderate RV enlargement(3.9cm) with moderate RV dysfunction
 -Mild biatrial enlargement
 -All PVs drainage to LA,S<D
 -LA and LAA free of clot and SEC,LAA velocity:44cm/s
 -Normal MV with mild MR, no MS
 -Mild thickened and tricuspid AV with no AS, moderate AI, AV annulus:1.9cm, ascending aorta:5.6cm, flap of dissection originated from ST junction and extends to proximal of aortic arch
 -Normal TV with moderate to severe TR(TR:4.3mmHg) , no TS
 -Normal PV with mild PI, no PS
 -Trivial PE
 -IAS redundant,small PFO

Figure 4: Trans esophageal echocardiography intra-op pre pump reveals the poor L.V dysfunction before operation and ascending Aorta dissection with severe T.V regurgitation.

ture of the pulmonary artery: Report of two cases, S. Hostiuc et al. / *Forensic Science International*. 2014; 236: e9–e13.

6. Hirose H, Svensson LG, Lytle BW, Blackstone EH, Rajeswaran J, et al. Aortic Dissection After Previous Cardiovascular Surgery, *Ann Thorac Surg*. 2004; 78: 2099-2105.