Interactive Case Discussion

Elderly man with Hemoptysis

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A 76 year old man was admitted to our hospital with history of recurrent mild hemoptysis associated with cough for last 6 months. He also had gradual onset of hoarseness of voice for last 3 months. He had no throat pain, stridor or nasal symptoms. He did not give any history of breathlessness, fever, cough, sputum, chest pain or weight loss. He had no cardiac or gastro intestinal symptoms. He had no past history of hemoptysis, pulmonary tuberculosis, asthma or chronic obstructive pulmonary disease (COPD). He never smoked. He was diagnosed to have Rheumatoid arthritis 25 years back but was not on treatment. He had no symptoms of active Rheumatoid arthritis.

Question 1. Which of the following is least likely diagnosis in this patient? (Select any two options)

A Pulmonary Tuberculosis

B Bronchogenic carcinoma

C Bronchiectasis

D Rheumatoid Interstitial Lung Disease (ILD)

E Laryngeal carcinoma

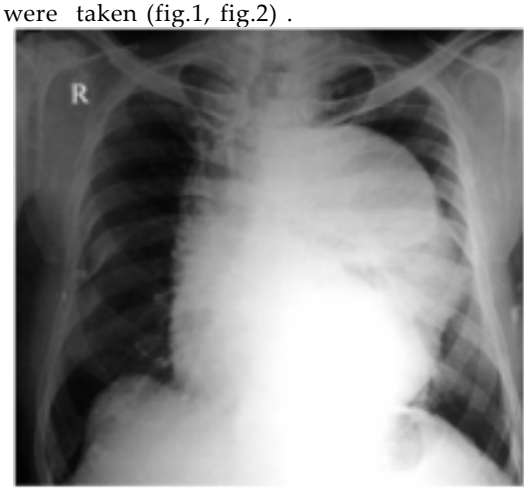
Answer: D and E

Pulmonary tuberculosis, bronchogenic carcinoma and bronchiectasis can present with the above symptoms. Recurrent Hemoptysis may be the sole symptom of pulmonary TB and bronchogenic carcinoma. Bronchiectasis of upper lobe can present with hemoptysis as the only symptom.

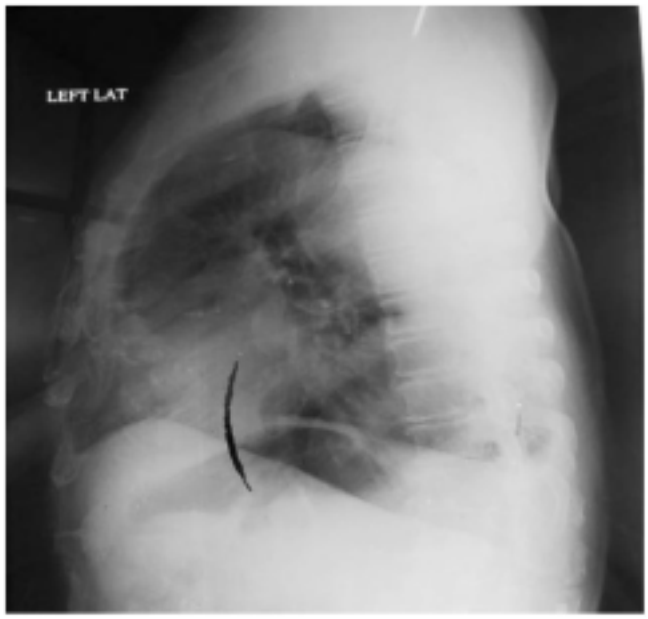
Hemoptysis as the only symptom in rheumatoid ILD and Laryngeal carcinoma is unlikely. Breathlessness is an essential symptom in rheumatoid ILD. Patients with laryngeal carcinoma develop early stridor and in them hemoptysis is unusual.

Physical examination

He had mild joint deformities due to rheumatoid arthritis. There were no signs or symptoms of active rheumatoid arthritis. He had no clubbing, lymphadenopathy or pallor. ENT examination revealed immobile left vocal cord. Respiratory system examination showed impaired percussion note in left infra clavicular area with slight decrease in the intensity of breath sounds. Cardiovascular system examination was normal. All peripheral pulses were felt. X-ray chest PA and left lateral view were taken (fig.1, fig.2) .



(Fig.1)



(Fig.2)

Question 2: What is the diagnosis from chest x-ray?

A Bronchogenic carcinoma

B Thymoma

C Intra thoracic goiter

D Lymphoma

E Fusiform Aortic aneurysm

Answer: E

Chest x ray shows a smooth well circumscribed opacity with smooth borders and in the lateral view it is clearly seen as dilatation of the lower part of arch and descending aorta which is diagnostic of aortic aneurysm.

Question 3: Which is a rare symptom in thoracic aortic aneurysm?

A Pressure symptoms

B Chronic cough

C Hemoptysis

D Chest pain

E Congestive cardiac failure

Answer: C

Hemoptysis is a rare symptom in thoracic aortic aneurysm. Most common symptom is vague non specific chest pain due pressure on adjacent structures. Chronic cough is due to pressure on airways. Compression of adjacent structures by aortic aneurysm can lead to hoarseness of voice, dysphagia, raised left dome and dyspnea. Superior venacava (SVC) obstruction and congestive cardiac failure can occur in ascending aortic aneurysm.

Question 4: Which of the following is the most important cause for descending thoracic aortic aneurysm?

A Cystic medial degeneration

B Marfan's syndrome

C Family history of thoracic aortic aneurysm

D Atherosclerosis

E Syphilis

Answer: D

All the other are causes for ascending aortic aneurysm.

Question 5: Which is a wrong statement?

A Larger the size greater the chance for rupture in aortic aneurysm

B Thoracic aortic aneurysm is more common than abdominal aortic aneurysm

C Descending thoracic aorta is the most common location of a thoracic aneurysm

D Aortic aneurysm is more common in elderly males

E Smokers have higher risk to develop aneurysm

Answer: B

Most common site for aortic aneurysm is abdominal aorta below the level of renal arteries. All patients diagnosed to have thoracic aortic aneurysm should undergo ultrasound examination of abdomen as sometimes they may have co-existent abdominal aortic aneurysm. Smoking, atherosclerosis and age are the most important risk factors to develop aortic aneurysm.

Question 6: Which is not a risk factor for aortic aneurysm?

A Infection

B Trauma

C Pulmonary Tuberculosis

D History of coronary artery disease

E Family history of aortic aneurysm

Answer: C

Pulmonary TB does not predispose to the development of aortic aneurysm

Further investigations

Blood routine investigations were normal. Sputum for AFB smear was negative. Serological tests for syphilis were negative. Rheumatoid factor was positive.

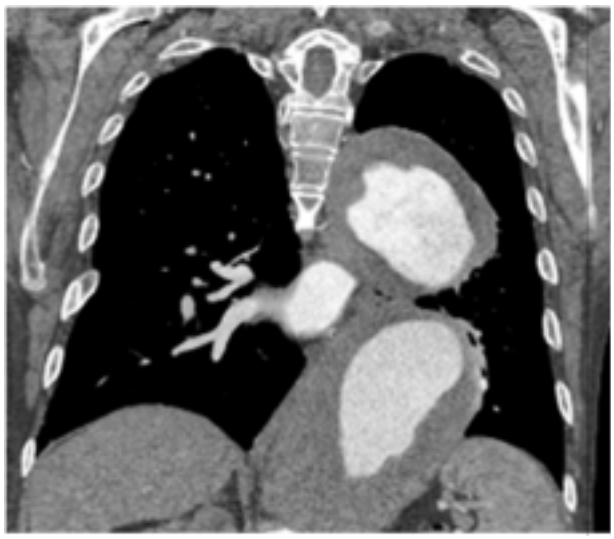
Question 7: What is the next diagnostic investigation?

A Thoracic CT angiogram
B Aortogram
C Echocardiography
D Pulmonary angiogram
E CECT thorax

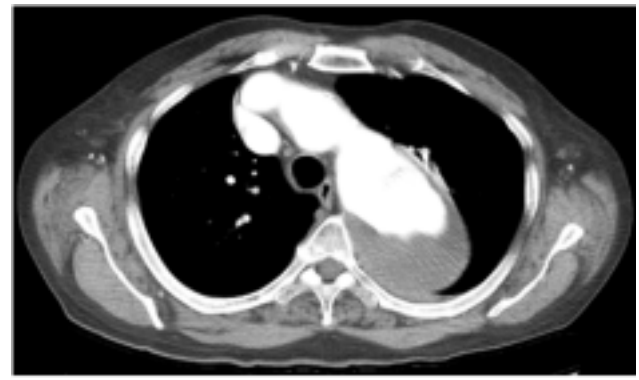
Answer: A

The diagnostic investigation in thoracic aortic aneurysm is thoracic CT angiogram although other investigations are also useful.

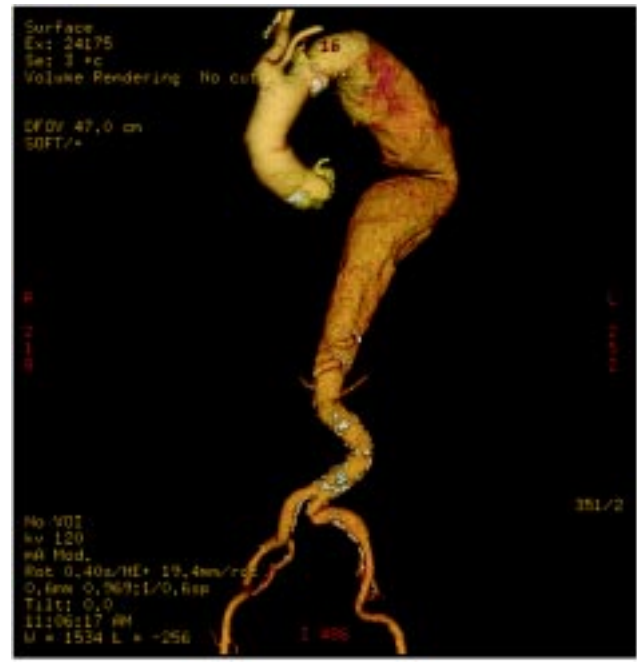
CT angiography showed (fig. 3,4,5) fusiform aneurysmal dilatation of the distal arch of aorta, descending thoracic aorta and abdominal aorta till the level of left renal arteries. Eccentric thrombus was seen in the distal arch of aorta and proximal descending thoracic aorta. Concentric thrombus was seen in the distal descending thoracic aorta and the suprarenal abdominal aorta. There was no evidence of dissection/peri aneurysmal leak or hematoma. There was no lung lesion or mediastinal adenopathy.



(fig.3)



(fig.4)



(fig.5)

Question 8: What is the most likely cause for hemoptysis in aortic aneurysm in this patient?

Answer: Leaking aneurysm (Aorto-bronchial fistula)

Aorto-bronchial fistula is a rare but dreaded complication of aortic aneurysm and is the cause for recurrent hemoptysis in these patients. It can lead to sudden death due to massive bleed. Bronchoscopy is contra indicated in these patients as it may lead to aortic rupture if the aneurysm is compressing the airways.

Question 9: Which of the following is not considered during plan for surgery in aortic aneurysm?

A Size greater than 5.5 to 6 centimeters
B Absence of symptoms
C Aneurysm growth rate 0.5 centimeters over a period

of six months to one year

D Presence of genetic disorders or familial history of thoracic aneurysms

E Patient's ability to tolerate the procedure

Answer: B

A large aneurysm should be treated by surgery even in the absence of symptoms as risk of rupture increases with size and rapidity of increase in size. All patients with symptomatic aneurysms also should be treated surgically irrespective of the size of the aneurysm.

Question 10: Which is a wrong statement regarding Aortic aneurysm due to rheumatoid arthritis?

A Occurs due to rheumatoid vasculitis.

B It is rare

C These patients high titers of rheumatoid factor

D Usually affects descending aorta.

E These patients usually have severe rheumatoid arthritis.

Answer: D

It usually affects ascending aorta.

Due to age, poor general condition and large size of the aneurysm extending from distal arch of aorta to the level of left renal arteries surgery was not done, as operative risk was high.Medical management of aortic aneurysm includes control of hypertension if patient is hypertensive and regular follow up to monitor the rate of increase in size of the aneurysm.

Final call came one evening. He was rushed to hospital with massive hemoptysis but breathed his last before he could reach the hospital.

Learning points

Aortic aneurysm can present with a variety of respiratory symptoms. When there is a benign looking mass in chest x-ray on the left side consider aortic aneurysm as one of the differential diagnosis. Definitive treatment for aortic aneurysm is surgery.

References:

1. Aneurysm. National Heart, Lung and Blood Institute. http://www.nhlbi.nih.gov.
2. Hiratzka LF, et al. 2010 ACCF/AHA/AATS/ACR/ASA/SCA/SCAI/SIR/STS/SVM guidelines for the diagnosis and management of patients with thoracic aortic disease: Executive summary. Journal of the American College of Cardiology. 2010;55:27.
3. Aortic aneurysms. The Society of Thoracic Surgeons. http://www.sts.org/patient-information/aneurysm-surgery/aortic-aneurysms.
4. Marfan syndrome. National Heart, Lung and Blood Institute. http://www.nhlbi.nih.gov/health.
5. Booher AM, et al. Diagnosis and management issues in thoracic aortic aneurysm. American Heart Journal. 2011;162:38.
6. Jondeau G, et al. Genetics of thoracic aortic aneurysms. Current Atherosclerosis Report. 2012;14:219.
7. Shah AA, et al. Results of thoracic endovascular aortic repair 6 years after United States Food and Drug Administration approval. Annals of Thoracic Surgery. 2012;94:1394.
8. Grogan M (expert opinion). Mayo Clinic, Rochester, Minn. Feb. 18, 2013.