Radiology Quiz

Mediastinal widening: An interesting quiz

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CASE HISTORY

A 60-year-old non-smoker obese female and a known diabetic was admitted to a tertiary care hospital with altered sensorium. She complained of fatigue, nausea, polydypsia, polyuria and shortness of breath. She was awake but confused; her speech, vision and deglutition reflexes were normal. Her pulse rate was 110/minute, regular with good volume, BP 102/72 mmHg, respiratory rate 24/minute and oxygen saturation of 97% on room air. Respiratory and cardiac examinations did not reveal any abnormality. Overall, she was clinically stable. There were no engorged neck veins, tender hepatomegaly, dependent edema, distended superficial veins, or other evidences of cardiac or hepatic disease. Also, there was absence of headache, epistaxis, visual disturbances, hoarseness of voice, tongue swelling, hemetemesis or hemoptysis. Blood analysis (including a hemogram, differential cell count, hepatic and renal functions) was within normal limits. ECG showed regular tracings. USG abdomen did not show any organomegaly or fluid in serous membranes. Her random blood sugar was 440 mg%; pH 7.3, pCO₂ 32 mmHg and HCO₃⁻ was 18 meq/L. Ketone bodies were positive on urine exam. She was managed on the lines of DKA with IV insulin infusion @ 8 IU/hour, 2 liters of saline in first 2 hours followed by remaining 2 liters in 24 hours along with potassium supplementation and recovered completely. Incidentally, however, her routine chest radiograph showed right mediastinal opacity with widening of the mediastinum mimicking a mediastinal tumor [Figure 1].

QUESTION

What is the diagnosis?

Figure 1: X-Ray Chest showing mediastinal widening

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ANSWER

Idiopathic aneurysm of azygos vein.

DISCUSSION

Echo-cardiography was done which showed normal myocardial contractility with normal valves and chambers and asymptomatic azygos vein ectasia at azygos-SVC junction giving rise to suspicion of an azygos vein anomaly. We ordered a contrast enhanced computed tomography of the chest which revealed normal hilar and mediastinal lymph nodes but gross aneurysm of the azygos vein (maximum transverse diameter of 23 mm just before its entry into the SVC) with no other abnormalities of the SVC or IVC [Figure 2]. The opacity had similar density to other great vessels of the mediastinum and accentuated during the venous phase, suggesting its vascular origin.

Common causes of mediastinal widening in the 60’s age group are enlarged lymph nodes because of sarcoidosis, tuberculosis or primary or secondary malignancies including lymphoma, para-spiinal abscess, portal hypertension with collateral circulation and congenital and acquired abnormalities of both superior and inferior cavae.

A mediastinal shadow simulating a right upper mediastinal tumor seen on routine X-ray chest calls for an appropriate differential diagnosis. Important causes for dilatation of azygos vein are azygos continuation of the inferior vena cava (IVC), agenesis of the inferior vena cava, IVC obstruction, IVC interruption, aorto-azygos fistula, SVC thrombosis, congenital SVC interruption (distal to azygos entry), SVC obstruction, congestive heart failure (CHF), constrictive pericarditis, congenital pericardial effusion, right ventricular strain, portal hypertension and lastly, idiopathic.

Previously, venography was the gold standard to diagnose venous anomalies.[4] Nowadays, interventional techniques are being increasingly replaced by non-invasive techniques for the assessment of vascular abnormalities.[5,6]

Idiopathic enlargement of azygos vein has been reported before in the form of azygos vein aneurysm.[6,7] Even today, azygos vein aneurysm is rarely seen and reported occasionally.[5,6] Non-invasive techniques for diagnosis of enlargement of azygos vein are becoming common and need for interventional approaches is declining.[5,7]

Age is no bar for the diagnosis of azygos vein aneurysm and recently it has been reported in an eighty three year old lady in Arkansas, USA.[8] In our patient, the idiopathic aneurysm appears to have developed slowly, because if the pathology develops suddenly, there is no time for collaterals to develop and patients develop symptoms and signs which makes the diagnosis early and easy, but if the process is insidious, then it may go undiagnosed for long time. Also, the azygos vein aneurysm are benign and there are no reports of the aneurysm leading to rupture or hemorrhage.[9]

This is a case of idiopathic aneurysm of azygos vein which was asymptomatic and was diagnosed only incidentally on routine chest radiograph. Although rare, idiopathic dilatation of azygos vein should be taken into consideration as an important cause of upper mediastinal widening. Previously, venography used to be gold standard to diagnose vascular disorders, but with the advent of contrast enhanced CT scanning, non-interventional techniques have gained popularity to arrive at the appropriate diagnosis.

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Conflicts of interest
There are no conflicts of interest.

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