Case Report

Unusual presentation of pericardial effusion

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Abstract

Cough syncope is classically described in patients with chronic obstructive pulmonary disease, and it is quite rare to find a treatable condition for the same. However, it is extremely rare to have cough syncope due to pericardial effusion. We present a case of pericardial effusion who presented to the intensive care with cough syncope.

Keywords: Cardiac tamponade, cough syncope, pericardial effusion

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Introduction

The exaggerated valsalva induced by cough is classically described in patients suffering from chronic obstructive pulmonary disease. Constrictive pericarditis (called as the "heart of stone" in the bible) and pericardial effusion can present with cough. Tussive syncope has been well described in literature pertaining to constrictive pericarditis. However, it is extremely rare to have cough syncope in a case of pericardial effusion. We describe a case of tussive syncope in an elderly gentleman with pericardial effusion elucidating the basic pathophysiology of this interesting syncopal syndrome.

Case Report

64-years-old male, chronic alcoholic since last 30 years and ex-smoker (9 pack years), hypertensive on tab amlodipine 2.5 mg od, presented with a 15 days history of cough associated with mucopurulent expectoration and 3-4 episodes per day of unconsciousness associated with cough since the last 2 days The syncopal episodes lasted for 30 seconds to 1 minute with complete recovery after syncope. During one of the syncopal event, he had a fall, which was associated with scalp injury and epistaxis. No vomiting or seizure was reported during the syncopal event. On admission to hospital, he was normotensive, with a pulse rate of 80/min, with a blood pressure of 110/70 mm of hg. On physical examination, he was found to have palpable right supraclavicular lymph node, which was firm to hard, mobile, and non-tender, and JVP was not raised. Breath sounds were decreased in the lower right hemithorax. The hemoglobin level was 13.4 g/dL, leukocyte count of 11000/cmm. The chest x-ray showed right hilar prominence. A high-resolution contrast-enhanced CT scan of the chest was performed, which showed a concentric thickening of tracheobronchial tree, which was more pronounced in the lower lobe of the right lung with distal consolidation and ground-glass opacities. Moderate bilateral pleural effusions and a moderate pericardial effusion were also seen. Fine needle aspiration of right supraclavicular lymph node showed Metastatic Non-Small Cell Carcinoma.

Transthoracic echocardiography revealed moderate pericardial effusion with 2 cm of fluid behind the posterior wall of the left ventricle [Figure 1], no diastolic collapse of the ventricles. The IVC did not collapse with respiration. The heart valves and left ventricular systolic function were normal, with an ejection fraction of 60%.

An episode of cough syncope was witnessed in the ICU, during which the systolic blood pressure showed

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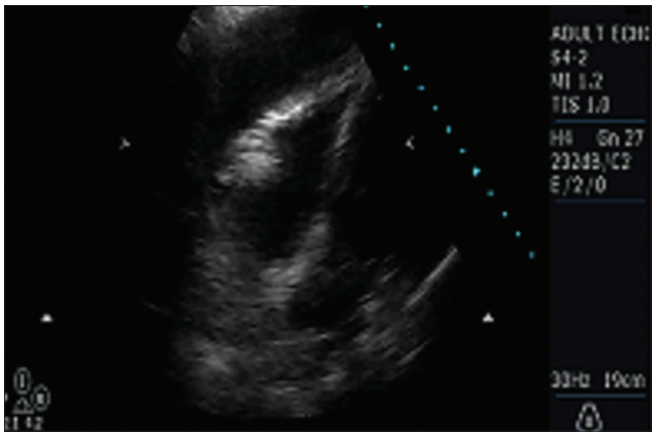

Figure 1: Echocardiographic picture of pericardial effusion

a 60 mm drop, along with tachycardia. After recovery from this episode, an echocardiogram was repeated, which showed evidence of tamponade in the form of early diastolic collapse of right ventricle, late diastolic right atrial inversion with abnormal movement of the septum when the patient coughed, which disappeared when he stopped coughing.

Pericardiocentesis was performed, 500 ml of hemorrhagic fluid was drained, and a pigtail catheter was placed for further drainage of fluid. After drainage of the pericardial fluid, the patient did not experience any further episodes of cough syncope.

The pericardial fluid too showed numerous mesothelial cells and clusters of atypical cells, which were identified as metastatic Non-Small Cell Carcinoma.

Discussion

Cough syncope is well recognized but uncommon phenomenon where increased intra-thoracic pressure leads to decreased cardiac output, increased intracranial pressure, cardiac arrhythmias, stimulation of a hypersensitive carotid sinus, neural reflex-mediated hypotension-bradycardia, laryngospasm, and left ventricular outflow obstruction leading to decreased cerebral blood flow.

Cardiac tamponade due to pericardial effusion too may cause syncope by compromising cardiac output. These patients generally have tachycardia, distended neck veins, muffled heart sounds, and pulsus paradoxus.[1] The characteristic feature seen on echocardiography is the invagination of the right ventricular free wall in early diastole with further invagination of the right atrial wall at end diastole as pericardial pressure prevents adequate diastolic filling of the cardiac chambers.[2,3] Our patient did not exhibit any of these signs, except during bouts of coughing.

It is likely that our patient was in a "pre-tamponade" state where the amount of pericardial fluid was just below the limit of pericardial reserve, beyond which cardiac output gets compromised.[4] The true filling pressure of the heart is the transmural pressure, which is the difference between the intracardiac pressure and the external pressure, which is the sum of the pericardial pressure and the intrathoracic pressure. In most patients with syncope, it is either the pericardial pressure or the intrathorarcic pressure that compromises venous return. Occurrence of cough syncope in our patient is probably due to cardiac tamponade, which manifested only during bouts of cough where raised intrathoracic pressure resulted in cardiac tamponade.

A review of literature revealed a few cases of cough syncope with pericardial diseases like constrictive pericarditis[5-9] and cardiac tamponade.[10,11] In patients with large pericardial effusions, who do not have signs of cardiac tamponade, it should be appreciated that cardiac output may drop drastically during bouts of cough, sometimes leading to syncope, which responds readily to drainage of the pericardial fluid.

Conclusion

Till date, only one such case has been reported in English literature.[12] Our case is the second one and the first one from India of the rare case of cough-induced syncope in a case of pericardial effusion with complete cessation of symptoms post- pericardiocentesis. Thus, we believe that any case of cough-induced syncope needs a low threshold for investigations and a strong consideration to pericardial effusion, which may require drainage though the patient does not show tell-tale signs of cardiac tamponade.

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