A rare case of hypothyroidism presenting as massive pericardial effusion with cardiac tamponade

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ABSTRACT

Cardiovascular signs and sympotms are one of most underdiagnosed part of thyroid disorders. On the basis of the knowledge of the cellular mechanisms of thyroid hormone on the heart and cardiovascular system, it is easy to understand changes in cardiac output, cardiac contractility, blood pressure, vascular resistance, and rhythm disturbances that result from thyroid dysfunction. Considering high prevalance of thyroid disease, high degree of suspicion is mandatory while dealing with cardiac menifestations of thyroid disease.The fact that,cardiac changes are completely reversible at least in initial stages of the disease, it makes sense to have suspicion of thyroid disrders in cardiac cases.

Keywords: Hypothyroiditis , pericardial effusion, cardiac tamponade

INTRODUCTION

Hypothyroidism is commonest pathological hormone deficiency[1]. It is more common in women and its incidence increases with age. Worldwide, the most common cause of hypothyroidism is iodine deficiency. Manifestations of hypothyroidism can range from asymptomatic to frank myxedema, which is rarely seen due to widespread screening for thyroid disease.The manifestations of hypothyroidism result from hypometabolism and include many organ systems . Common signs and symptoms include lethargy, cold intolerance, weight gain, constipation, coarse dry skin, hair loss, hoarse voice, bradycardia, and psychomotor retardation. The onset of signs and symptoms may be subtle.The most extreme form of hypothyroidism is myxedema coma, a dangerous complication of longstanding hypothyroidism that is characterized by coma with extreme hypothermia, areflexia, bradycardia, and respiratory depression with hypercapnia. We present a rare case of hypothyroidism in which initial presentation was with pericardial effusion with cardiac tamponade.

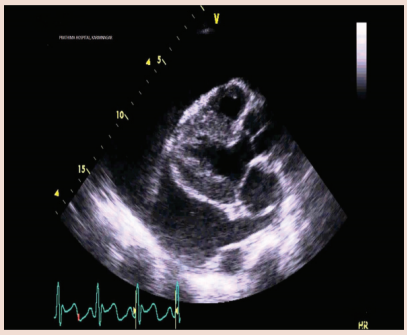
CASE REPORT

A 40 year old female presented in emergency department of tertiary care hospital based in rural area with complaints of dyspnea on routine work. Initially she had dyspnea on heavy work which progressed gradually to grade IV in last one month. On examination, she was conscious, coherent, obeying verbal commands. Vital data showed pulse rate of 140/minute, blood pressure of 90/60 mm Hg in right arm. Respiratory rate of 20/minute. On auscultation, distant heart sounds were heard. Pulse oxymetry showed saturation of 100% without oxygen.Electrocardiogram showed low voltage ECG complexes. Restof physical examination was inconclusive. Immediate ABG and X ray was ordered. Chest X-ray showed marked cardiomegaly with normal lung field with typical " water bottle " configuration.ABG was within normal limit. 2 D echocardiogram showed massive pericardial effusion with signs of cardiac tamponade including collapse of right ventricle in diastole.

Patient was immediately taken to cardiac cath lab for pericardiocentesis after noninvasive monitereing (NIBP, Pulseoxymetry, and continuous electrocardiogram 5 lead) was in place, patient was placed in 45 degrees elevation with pillows. pericardiocentesis was done with all aseptic precautions.around 1 litre of straw colored pericardial fluid was tapped.pigtail catheter was placed in situ. Immediately after tapping the fluid, patient showed dramatic recovery with pulse rate dropping to 70 /minute, blood pressure improving to 130/70 mm Hg and resolving dyspnea. 2D echocardiogram showed immediate resolving of cardiac tamponade and minimal pleural effusion. On 2nd day again 1000 ml of fluid was tapped and pigtail catheter was removed.

All routine tests were performed to assess the cause of pericardial effusion which included complete blood count, erythrocyte sedimentation rate, C reactive protein, Anti-nuclear antibodies and QuantiFERON-TB assay test. After all routine causes of pericardial effusion were ruled out; thyroid

function test was ordered as patient's mother was having history of thyroid dysfunction. Thyroid function tests were grossly abnormal which included free T4 0.30 ng/dl, free T3 160 ng/dl, and TSH levels of 228mIU/l which was indicative of primary hypothyroidism. Patient was treated with levothyroxine 100 microgram/day. Patient felt symptomatically better. Analysis of pleural fluid showed exudative in nature. Repeat thyroid function testing after 3 months showed normal thyroid function tests and patient stabilized with the same doses of levothyroxine. Patient is coming to followup and fine till now 6 months post event.



DISCUSSION

Cardiovascular manifestations in hypothyroidism are dyspnea and decreased exercise tolerance. Bradycardia, diastolic hypertension, muffled heart sounds, cardiomegaly, and non-pitting or pitting peripheral edema may be seen on physical examination[2,3]. Mild pericardial effusion is common in hypothyroid states and generally asymptomatic in nature. But massive pericardial effusion presenting primarily as a sign of hypothyroidism is rare, though few cases have been mentioned in literature in indian as well as western scenarios [5-9].

The accumulation of fluid takes long time along with distensibility of the pericardial sac, the signs and symptoms appear late. Many of the patients belong to endemic areas in India and high incidence of primary thyroid dysfunction compared to western population, the disease burden may be quite high in rural population , though diagnostic and treatment facilities needed are quite high end in this particular disorder.

The pathophysiologic changes leading to the collection of fluid in the serous cavities of hypothyroid patients are probably increased systemic capillary permeability and disturbances in electrolyte metabolism. Other hypothesis includes extravasation of albumin and inadequate lymphatic drainage, accounts for the exudative nature of the accumulated fluid in this disorder.

Although essentially treatment remains similar to other kind of pericardial effusion with tamponade,identifying the primary disorder in a patient where other causes cannot be found out is very difficult.So high degree of suspicion is necessary in which hypothyroidism is endemic so as to give long lasting cure for the patient from this reversible but uncommon entity.

CONCLUSION

Hypothyroidism is common problem in India. Though pericardial effusion and tamponade secondary to thyroid dysfunction are rare in western scenarios, in India we do get cases because of high burden of primary disease. As diagnostic and therapeutic modalities are sophisticated in nature, including primary hypothyroidism as a differential diagnosis of pericardial effusion and cardiac tamponade looks essential in India.

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