



ORIGINAL RESEARCH PAPER	General Medicine
MANAGEMENT OF PERICARDIAL EFFUSION IN A CASE OF SQUAMOUS CELL CARCINOMA OF THE BUCCAL MUCOSA: ROLE OF THYROID HORMONE THERAPY	KEY WORDS:

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ABSTRACT	Introduction and Importance: Pericardial effusion is an uncommon yet significant cardiac manifestation of hypothyroidism, often underrecognized, particularly in cancer patients. This case report highlights a rare instance of pericardial effusion caused by hypothyroidism, emphasizing the importance of considering this reversible etiology in clinical practice. The report provides insights into the patient's presentation, diagnostic workup, and management, underscoring the necessity of a thorough evaluation to promptly identify hypothyroidism as a potential underlying cause of pericardial effusion. Case Presentation A 36-year-old male presented with a 6-month history of left cheek swelling and generalized fatigability. Two-dimensional echocardiography revealed mild pericardial effusion accompanied by depressed ventricular function. The patient was referred for further evaluation and management of pericardial effusion. Given the rarity of metastatic pericardial effusion in carcinoma of the buccal mucosa, a systemic cause was considered. Laboratory investigations revealed elevated thyroid-stimulating hormone (TSH) levels, along with decreased triiodothyronine (T3) and tetraiodothyronine (T4) levels, confirming hypothyroidism. An electrocardiogram demonstrated normal sinus rhythm. The patient was started on thyroxine therapy, which led to gradual resolution of both his symptoms and the pericardial effusion. Clinical discussion: Pericardial effusion in hypothyroidism arises from increased capillary permeability, expansion of the albumin distribution volume, and impaired lymphatic drainage in the pericardial cavity. While pericardial effusion is a recognized complication of hypothyroidism, it is often underdiagnosed. If left untreated, it can progress to life-threatening cardiac tamponade, underscoring the importance of early recognition and prompt management. Conclusion: With timely cardiac assessment and appropriate thyroid replacement therapy, pericardial effusion due to hypothyroidism can be effectively reversed in its early stages. It is essential to investigate all cases of pericardial effusion for underlying hypothyroidism. Thyroid hormone replacement has proven to be beneficial, particularly in patients with heart failure and low levels of triiodothyronine (T3).
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INTRODUCTION Hypothyroidism is a common endocrine disorder with diverse symptoms and multiorgan involvement [1]. Among its various complications, pericardial effusion is notable, often associated with long-standing hypothyroidism but rare in mild cases. In exceptional instances, pericardial effusion may be the initial presentation of hypothyroidism [2,3,4]. This case report describes the case of a 36-year-old male diagnosed with mild pericardial effusion secondary to primary hypothyroidism. This case underscores the fact that pericardial effusion can manifest even in mild cases of hypothyroidism at initial presentation. Furthermore, it highlights that with early cardiac assessment and timely thyroid replacement therapy, pericardial effusion in hypothyroidism can be effectively reversed at an early stage. CASE PRESENTATION A 36-year-old male from Panvel, Maharashtra, with a history of guthka chewing for 10–12 years (10–15 times daily) but reformed for the past 4 years, presented with a six-month history of growth over the left cheek region and complaints of fatigability. The patient had no significant medical comorbidities. At a local facility, a diagnosis of squamous cell carcinoma was made, and he was referred to ACTREC for further cancer management. There was no history of facial puffiness, cold intolerance, hoarseness of voice, shortness of breath, chest pain, palpitations, drug use, prior surgeries, or a family history of similar illnesses. On examination, the pulse was 80 beats per minute, regular, and normal in volume. Blood pressure was 110/60 mmHg, respiratory rate was 16 per minute, and the patient was afebrile. No edema, facial puffiness, hoarseness of voice, or neck	swelling was observed. Systemic examinations were unremarkable. As part of the routine preoperative protocol, a CT thorax was performed, revealing pericardial effusion. Routine blood investigations showed bicytopenia (anemia and thrombocytopenia) and mild hyperbilirubinemia. A 2D echocardiogram confirmed mild pericardial effusion (echo-free space of 6–7 mm around the heart) with an ejection fraction (EF) of 45–50%, mildly depressed left ventricular systolic function, and global left ventricular hypokinesia. Electrocardiograms performed during hospitalization showed normal sinus rhythm, on three occasions. Preoperative consultation in the physician outpatient department for pericardial effusion led to an evaluation of thyroid function, which revealed a TSH level of 83.0, consistent with primary hypothyroidism. Treatment with thyroxine (200 mcg) was initiated. A repeat 2D echocardiogram conducted 14 days after starting thyroxine therapy showed improved pericardial effusion, an EF of 50%, and fair left ventricular systolic function. Repeat thyroid function tests demonstrated normalization of T3 and T4 levels. The patient's symptoms improved, with no complaints of dyspnea on exertion, palpitations, or cough. The thyroxine dose was subsequently reduced to 100 mcg, and the patient was deemed fit for surgery. DISCUSSION: Hypothyroidism is a widespread endocrine disorder, with an incidence of 6.2% among males in India. It may present asymptotically or with a broad spectrum of nonspecific symptoms, which can delay diagnosis despite its straightforward confirmation through simple laboratory tests [1]. Pericardial effusion is a notable complication of
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hypothyroidism, with its incidence ranging from 3% in early stages to as high as 80% in cases of severe, long-standing, or congenital hypothyroidism [6]. The pathogenesis of pericardial effusion in hypothyroidism is attributed to increased capillary permeability, expanded albumin distribution volume, and impaired lymphatic drainage in the pericardial cavity [1,8].

Over time, accumulation of significant fluid volumes can lead to cardiac tamponade, resulting in alarming symptoms [1,3].

Low-voltage QRS complexes on electrocardiograms may occur in hypothyroidism, influenced by factors such as advancing age, thyroid hormone deficiency, or the presence of pericardial effusion [8].

Given the potential complications, early identification and management of hypothyroidism are essential [7].

Pericardial effusion, like other symptoms of hypothyroidism, is reversible with thyroid hormone replacement therapy [5]. Thus, thyroid function evaluation is crucial in cases of pericardial effusion, and vice versa. Proper assessment and timely management of pericardial effusion in hypothyroidism are vital to prevent life-threatening complications such as cardiac tamponade and hemodynamic instability [8].

Thyroid hormone replacement has proven effective, particularly in patients with heart failure and low levels of triiodothyronine (T3) [9].

CONCLUSION

This case highlights the critical importance of early diagnosis and management of hypothyroidism to prevent complications such as pericardial effusion.

Prompt initiation of thyroid hormone replacement therapy can result in complete resolution of the condition, eliminating the need for invasive interventions.

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