Upsala Journal of Medical Sciences. 2013; 118: 196–198

informa
healthcare

CASE REPORT

Neoplastic pericarditis as the initial manifestation of a papillary thyroid carcinoma

NIKOLAOS TSOUKALAS[1,3], IOANNIS D. KOSTAKIS[2], STAMATINA DEMIRI[3], GEORGIOS KOUMAKIS[3], VASILEIOS BARBOUNIS[3], KALYPSO BARBATI[4] & ANNA EFREMIDIS[3]

[1]*Department of Medical Oncology, '401' General Military Hospital, Athens, Greece,* [2]*Second Department of Propedeutic Surgery, 'Laiko' General Hospital, National and Kapodistrian* University of Athens, Medical School, Athens, Greece, [3]*Second Department of Medical Oncology, 'Agios Savvas' Anticancer Hospital, Athens, Greece, and* [4]*Department of Pathology, Hellenic Red Cross Hospital 'Korgialeneio-Benakeio', Athens, Greece*

Abstract

Neoplastic pericarditis represents approximately 5%–7% of the cases with acute pericarditis and is rarely the initial manifestation of malignancy. The most common cause is lung cancer, followed by breast cancer, lymphomas, leukemia, and esophageal cancer. Neoplastic pericardial disease is extremely rare in thyroid cancer, especially as the first manifestation. Here, we present a papillary thyroid carcinoma that was manifested with pericarditis and cardiac tamponade in a 49-year-old female.

Key words: *Cardiac tamponade, neoplastic pericarditis, pericardial effusion, thyroid cancer*

Introduction

Neoplastic pericarditis represents approximately 5%–7% of the cases with acute pericarditis (1-4). Theoretically, any malignant tumor may cause pericarditis/pericardial effusion (1,2) through direct extension or metastasis via lymphatic or blood vessels into the pericardium (3,5). However, the most common malignancy causing pericarditis/pericardial effusion is lung cancer, followed by breast cancer, lymphomas, leukemia, and esophageal cancer. Primary neoplasms of the pericardium, such as mesothelioma, are very rare (1-3,5). Only few cases of neoplastic pericarditis in patients with thyroid cancer have been reported in the literature. Here, we present a case of papillary thyroid carcinoma that was manifested with pericarditis and cardiac tamponade.

Case report

A 49-year-old female, who was a heavy smoker, but with negligible previous medical history, was admitted to a hospital due to stridor, dyspnea, cough, and hoarseness. Physical examination revealed no pathological signs, blood tests were normal, and the patient was treated with corticosteroids without a definite diagnosis. Ten days later, she developed epigastric pain that radiated to the left scapula and the left supraclavicular fossa. She was admitted to a hospital, where an echocardiogram and a chest CT scan revealed the presence of pericardial effusion (Figure 1). During her hospitalization, she developed cardiac tamponade, for which she urgently underwent pericardiocentesis. Blind biopsies were taken from the pericardium and the upper lobe of the left lung, which showed malignant cells forming papillae and invading lymphatic and blood vessels (Figure 2A). However, it was not possible to identify the primary origin of the neoplasm, despite the thorough investigation with abdominal CT scan and technetium-99m-MDP bone scan. In addition, blood tests were normal, apart from the values of CEA (20.6 ng/mL (normal value: <4.7 ng/mL)) and CA-125 (341.4 IU/mL (normal

Correspondence: Nikolaos Tsoukalas, MD, MSc, Medical Oncologist, Department of Medical Oncology, '401' General Military Hospital, 10-12 Gennimata N. Street, 11524 Ampelokipi, Athens, Greece. Fax: +30 2107494095. E-mail: tsoukn@yahoo.gr

(Received 16 March 2013; accepted 29 April 2013)

ISSN 0300-9734 print/ISSN 2000-1967 online
DOI: 10.3109/03009734.2013.801541

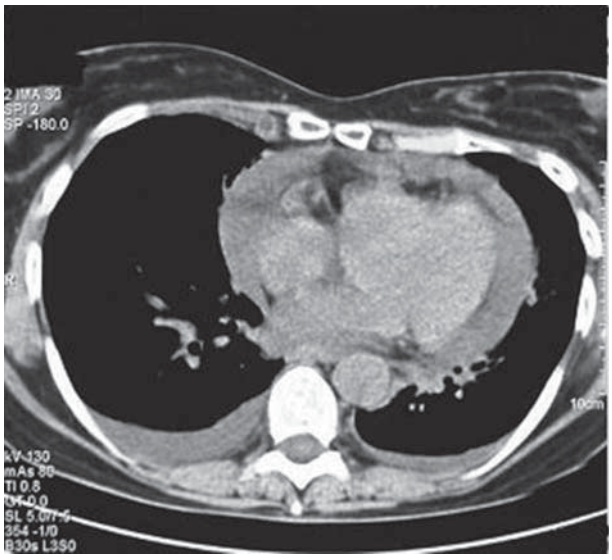

Figure 1. Chest CT scan in which the pericardial effusion is revealed.

value: <34 IU/mL)). The patient received one cycle of chemotherapy with carboplatin 5AUC, docetaxel 60 mg/m^2, and bevacizumab 5 mg/kg for a neoplasm of unknown primary origin, which improved her symptoms.

Afterwards, she was admitted to our department for further investigation and treatment. The physical examination revealed a palpable nodule of the right lobe of the thyroid gland, and the ultrasound demonstrated diffuse heterogeneity of the same lobe. Nevertheless, the ultrasound failed to reveal any specific suspicious area, and the serum concentration of thyroglobulin was normal (17.7 ng/mL (normal value: <78 ng/mL)). The cytological examination after a blind fine-needle aspiration biopsy of the right lobe of the thyroid gland revealed the presence of a papillary thyroid carcinoma. Subsequently, a cervical MRI was performed, demonstrating extensive lymphadenopathy. The patient underwent total thyroidectomy and bilateral lymph node dissection. The histological examination verified the presence of a stage IVC (T3N1bM1) papillary carcinoma with high-grade (grade III) malignancy and sporadic anaplastic changes, lymphovascular and perineural invasion, and metastatic infiltration of the cervical lymph nodes (Figure 2B). A reexamination of the pericardial fluid from the pericardiocentesis revealed the expression of thyroglobulin by the malignant cells. An I^{131} scan was also performed, but without demonstrating abnormal I^{131} uptake. The patient's treatment was continued with the use of the same chemotherapy regimen for a total of six cycles without any major adverse events and with excellent tolerance.

After the completion of chemotherapy, a FDG-PET scan was performed with negative results. Afterwards, the follow-up was based on physical examination, blood tests, and imaging examinations. Unfortunately, the disease relapsed six months later with a very aggressive clinical course due to lung metastases and cardiac tamponade. It was not possible to administer any anticancer treatment at that time, and she passed away due to respiratory and cardiac failure.

Discussion

As mentioned previously, approximately 5%–7% of pericardial effusions have a malignant origin (1-4). Most patients with neoplastic pericardial disease have an already diagnosed malignancy (3). Acute pericarditis or pericardial effusion is the initial manifestation of malignancy in about 4% of the cases with pericardial disease (1,3), but this percentage rises to approximately 20% in large, symptomatic effusions without obvious origin (1,5), as in our case. Risk factors for malignant etiology are cardiac tamponade at presentation, as in our case, recurrent or incessant pericarditis, no response to non-steroidal anti-inflammatory drugs, and a history of malignancy (1-3). Cytological examination of pericardial fluid or pericardial biopsy is required for a diagnosis to be made (1-3,5). However, pericardial effusion is detected in only

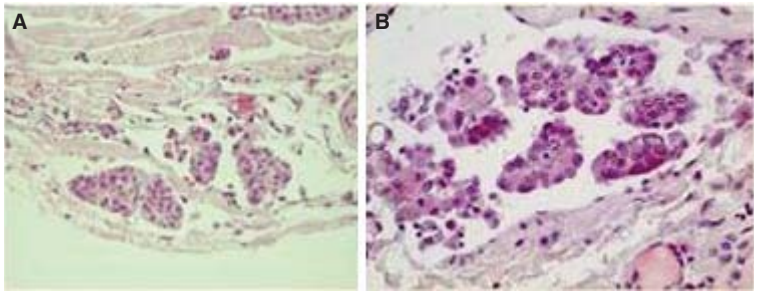

Figure 2. Histological images with malignant cells from the papillary thyroid carcinoma. A: Biopsy of the pericardium (hematoxylin and eosin stain, 100×); B: Histological examination of the thyroid gland (hematoxylin and eosin stain, 200×).

12%–25% of patients with metastasis to the pericardium, but cardiac tamponade, which developed in our patient, is relatively rare among them (5).

Neoplastic pericardial disease is extremely rare in thyroid cancer, especially as the initial manifestation. Several cases have been reported in the literature (6-16). Neoplastic pericarditis (6,9), massive pericardial effusion (13), or cardiac tamponade (7,8,10,12,16) have been reported as the first manifestation of a previously occult thyroid cancer. On the other hand, malignant pericardial effusion (14,15) or cardiac tamponade (11) have also been diagnosed in patients with already diagnosed thyroid cancer. Most cases have pertained to papillary carcinoma (7,9-11,14-16), as in our patient, whereas a follicular (13) and a mucin-producing carcinoma (8) have also been described as causes of neoplastic pericardial disease.

Conclusions

Neoplastic pericardial disease is most commonly caused by lung cancer, followed by breast cancer, lymphomas, leukemia, and esophageal cancer (1-3,5), and is rarely the first manifestation of malignancy (1,3). However, thyroid cancer, and especially papillary carcinoma, should be included in the differential diagnosis of pericarditis/pericardial effusion.

Declaration of interest: The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

References

1. Imazio M, Brucato A, Derosa FG, Lestuzzi C, Bombana E, Scipione F, et al. Aetiological diagnosis in acute and recurrent pericarditis: when and how. J Cardiovasc Med (Hagerstown). 2009;10:217–30.
2. Imazio M, Spodick DH, Brucato A, Trinchero R, Markel G, Adler Y. Diagnostic issues in the clinical management of pericarditis. Int J Clin Pract. 2010;64:1384–92.
3. Imazio M, Brucato A, Mayosi BM, Derosa FG, Lestuzzi C, Macor A, et al. Medical therapy of pericardial diseases: part II: Noninfectious pericarditis, pericardial effusion and constrictivepericarditis. J Cardiovasc Med (Hagerstown). 2010;11: 785–94.
4. Azam S, Hoit BD. Treatment of pericardial disease. Cardiovasc Ther. 2011;29:308–14.
5. Refaat MM, Katz WE. Neoplastic pericardial effusion. Clin Cardiol. 2011;34:593–8.
6. Nissimov R, Machtey I, Salomon M. Thyroid carcinoma with pericardial involvement simulating rheumatic heart disease. Harefuah. 1973;84:83–7.
7. Haskell RJ, French WJ. Cardiac tamponade as the initial presentation of malignancy. Chest. 1985;88:70–3.
8. Motoba Y, Fujita J, Miura A, Sakurai T, Ishikawa K, Kawai C, et al. A case of mucin-producing adenocarcinoma of the thyroid presented with cardiac tamponade as an initial manifestation. Nihon Naika Gakkai Zasshi. 1985;74: 1283–8.
9. Jancić-Zguricas M, Janković R. Occult papillary carcinoma of the thyroid gland revealed by cancer pericarditis. Pathol Res Pract. 1986;181:761–6.
10. Kovacs CS, Nguyen GK, Mullen JC, Crockford PM. Cardiac tamponade as the initial presentation of papillary thyroid carcinoma. Can J Cardiol. 1994;10:279–81.
11. Puigfel M, Falces C, Castellá M, Roig E. [Metastatic cardiac tamponade in a patient with papillary carcinoma of the thyroid]. Med Clin (Barc). 1996;107:197–8.
12. de la Gándara I, Espinosa E, Gómez Cerezo J, Feliu J, Garcia Girón C. Pericardial tamponade as the first manifestation of adenocarcinoma. Acta Oncol. 1997;36: 429–31.
13. Chiewvit S, Pusuwan P, Chiewvit P, Pleehachinda R, Attanatho V, Mongkharuk J. Metastatic follicular carcinoma of thyroid to pericardium. J Med Assoc Thai. 1998;81: 799–802.
14. Fukuda A, Saito T, Imai M, Ishii K, Miwa K. Metastatic cardiac papillary originating from the thyroid in both ventricles with a mobile right ventricular pedunculated tumor. Jpn Circ J. 2000;64:890–2.
15. Ignjatović M, Stanić V. [Multiple intrathoracic compression syndrome of thyroid etiology]. Vojnosanit Pregl. 2000;57: 709–16.
16. González Valverde FM, Gómez Ramos MJ, Moltó Aguado M, Balsalobre MD, Menarguez F, Mauri F, et al. Pericardial tamponade as initial presentation of papillary thyroid carcinoma. Eur J Surg Oncol. 2005;31:205–7.