

Metastatic Pericardial Effusion And Cardiac Tamponade Due To Parotid Adenocarcinoma

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Citation

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Abstract

Metastatic malignancy presenting as cardiac tamponade is not uncommon; however, hematogenous spread from carcinoma is rare. There are only three previously reported cases of parotid malignancy with pericardial metastasis. We report a case of parotid adenocarcinoma leading to cardiac tamponade in a 61-year old man. The patient presented with signs and symptoms of cardiac tamponade. The diagnosis was confirmed by echocardiography and computed tomography followed by pericardiocentesis. Cytological examination showed metastatic adenocarcinoma from parotid gland. This case illustrates hematogenous spread of parotid adenocarcinoma to pericardium leading to cardiac tamponade.

INTRODUCTION

Care for patients with malignant disease has improved significantly along with the recent advances in medical imaging, which offer quick and very clear pictures that helped to establish a reliable diagnosis [1] and even performing certain procedures under imaging guidance, such as the life-saving pericardiocentesis for cardiac tamponade [2]. Pericardial and even cardiac metastasis in patients with advanced cancer is not an unusual outcome. Occasionally pericardial metastatic involvement may lead to a cardiac-tamponade, which could be fatal [3]. Pericardial deposits of metastatic malignancy is not an uncommon occurrence; many of these cases present with cardiac tamponade requiring urgent pericardiocentesis. The common malignancies which metastasize to pericardium are bronchogenic carcinoma, breast adenocarcinoma, leukemia, Hodgkin's and non Hodgkin's lymphoma, gastrointestinal malignancies, and sarcomas [4]. Echocardiography and magnetic resonance imaging (MRI) used to confirm the diagnosis. Metastatic involvement of the pericardium may occur from either direct invasion by an adjacent primary tumor or by lymphatic or hematogenous spread. Quaua et al have recently reported a case of pericardial metastasis from adenocarcinoma of unknown origin [3]. Although pericardiocentesis was performed upon the patient's admission, but she died 3 days later of cardiac tamponade. Hepatocellular carcinoma has been reported to metastasize to the myocardium itself, and when studied by radionuclide angiography showed a large photogenic area separating the

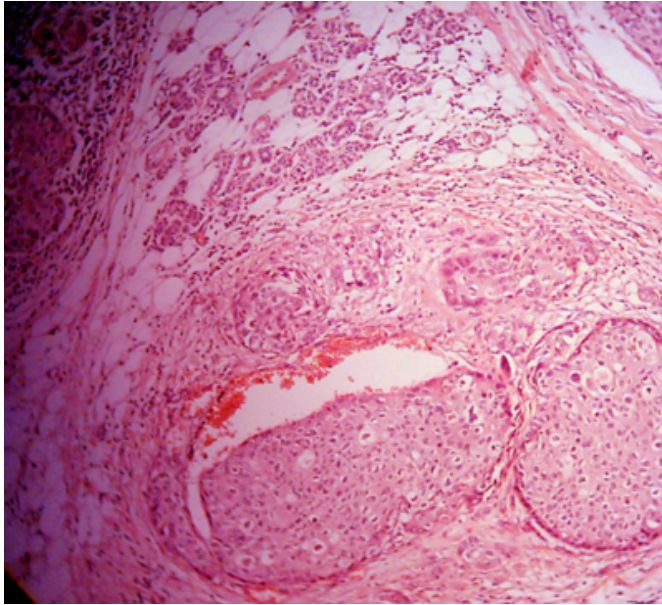
heart from the liver, and lung blood pools mimicking a large pericardial effusion, which when studied by echocardiography and MRI was found to be an extensive tumor infiltration of the myocardium of both ventricles [5]. Metastatic involvement of the pericardium may occur from either direct invasion by an adjacent primary tumor or by lymphatic or hematogenous spread. Hematogenous metastasis of parotid adenocarcinoma to the cardiac tissue is extremely rare. There were only 3 studies reported this association in the medical literature [2,6,7]. We report here the fourth case of this rare association.

CASE REPORT

A 61-year old male presented with a 2-week history of exertional dyspnoea, dry cough, chest pain, and lower extremity edema; symptoms had worsened during the last 2 days. The patient had a history of parotid adenocarcinoma (Fig. 1), for which he underwent a parotidectomy 6 months ago, followed by 3 cycles of chemotherapy.

Figure 1

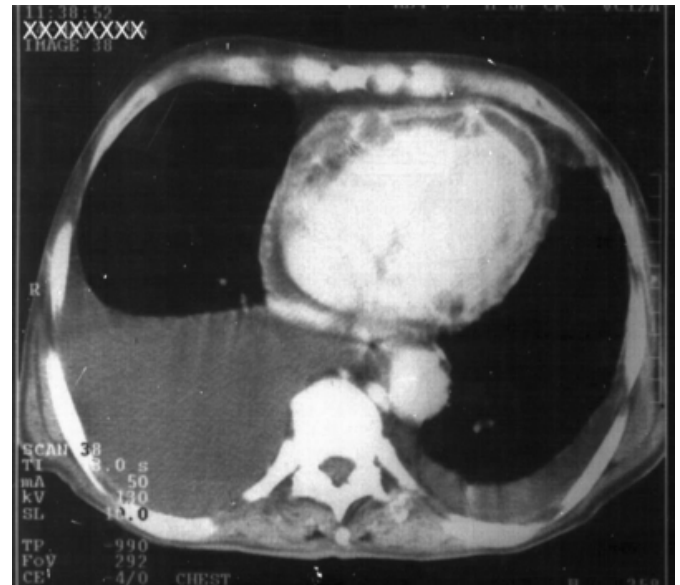
Figure 1: Histopathology of the parotid adenocarcinoma.



Physical examination revealed facial plethora, peripheral cyanosis, tachypnea, orthopnea, jugular venous distention, distant heart sounds and bilateral decreased breath. Plain chest X ray revealed signs of pulmonary vein hypertension. The electrocardiogram revealed sinus tachycardia and low QRS voltage. Echocardiography revealed a massive pericardial effusion, thick pericardium and bilateral pleural effusion. Computed tomography (Fig.2) confirmed the pleural and pericardial effusion with diffuse nodular thickening of pericardium and mediastinal lymphadenopathy.

Figure 2

Figure 2: Axial Chest CT scan revealed diffuse nodular thickening of the pericardial sheath, mild pericardial effusion and bilateral pleural effusion more on the right sided.



Evacuatve pericardiocentesis was carried out using a spinal needle connected to an ECG line, draining 560 ml of yellowish fluid. A pericardial catheter was left in situ. Cytological examination showed inflammatory and malignant cells having features of adenocarcinoma. The patient tolerated the procedure very well and immediate symptomatic relief was observed. The daily pericardial fluid accumulation was monitored until it reached 20 ml (at the 4th day) at which time 30 mg of cisplatin was instilled into the pericardial cavity and the pericardial catheter was removed. Postprocedural chest X-rays and echocardiography revealed no pericardial effusion. The patient's condition improved and he was discharged in a good general condition. Four months later, the patient died of multiple metastasis.

DISCUSSION

Pericardial effusion in patients with advanced cancer is not uncommon and when it occurs, is a devastating problem. Metastatic tumor obstructing the mediastinal lymph nodes draining the pericardium is the common pathologic finding; consequently the tumors most frequently causing pericardial effusion are lung and breast cancers, with melanoma, lymphoma and leukemia as less common causes [4]. The pericardial effusion is more frequent in pericardial primary tumors, but it can also be observed occasionally in metastatic tumors. If untreated, death usually results within a few weeks from cardiac tamponade. Rapid recurrence is very frequent if pericardiocentesis alone is instituted. Our case

showed pericardial metastasis and cardiac tamponade in a patient of parotid adenocarcinoma, which was surgically removed previously. It is interesting because parotid adenocarcinoma does not usually cause pericardial metastasis. Only 3 cases has been previously described in the international medical literature [2,6,7]. Out of these, two were associated with cardiac tamponade and needed intervention [2,6]. The non cardiac tamponade case, reported by Sulkes et al described a pericardial effusion following adenocarcinoma [7]. Becker et al reported the first case of this rare association, and described a very unique case of previously treated parotid mucoepidermoid carcinoma causing pericardial metastasis with cardiac tamponade that needed pericardiocentesis and pericardial window [6]. Barbetakis et al have recently described a very well documented case of surgically removed parotid carcinoma who received intensive chemotherapy [2]. Seven months later, the patient presented with cardiac tamponade, which was successfully drained by echocardiography-guided pericardiocentesis. a very detailed medical imaging work- up including echocardiography and ct scan was utilized to confirm the diagnosis.

In our case, the diagnostic work-up included echocardiography and CT scan, and pericardiocentesis was successfully performed using an ECG-guided spinal needle, followed by intra-pericardial cisplatin instillation. The patient died 4 months later of multiple metastasis. Since rapid recurrence is very frequent if pericardiocentesis alone is performed as acute therapy for pericardial tamponade, a kind of long term management should be considered. Unfortunately, there is no consensus about the best long term therapy, and the matter is still controversial. Barbetakis et al have described the usage of intra-pericardial instillation of cisplatin with minimal side effects, to prevent recurrence of pericardial effusion.. The use of different pharmacological agents to produce pericardial sclerosis, such as Cisplatin, 5 Fluorouracil, Bleomycin, tracycline and calk has been tried as long-term palliative therapy with varying degrees of complications [8,9,10]. Tetracyclin in particular has caused arrhythmias, chest pain and fever [11]. Surgical resection of

pericardium can provide relief from tamponade and extend life, but survival is limited by the advanced neoplasm.

Accordingly, the goal of treatment should be to provide adequate drainage and prevention of recurrent effusion using a safe technique that allows the patient to return to a normal life style as quickly as possible. Pericardial window is an option but it requires subxiphoid incision or thoracotomy under general anesthesia, which may cause a great deal of morbidity or even mortality in a patient with an advanced cancer. Thoracoscopic pericardiectomy may offer a good alternative in some cases.

References

1. Glehen O, Kwiatkowski F, Sugarbaker PH, et al. Cytoreductive surgery combined with perioperative intraperitoneal chemotherapy for the management of peritoneal carcinomatosis from colorectal cancer: a multi-institutional study. *J Clin Oncol*. 2004; 22:3284-92.
2. Barbetakis NG, Vassiliadis M, Krikeli M, et al. Cardiac Tamponade Secondary to Metastasis from Adenocarcinoma of the Parotid Gland, *World Journal of Surgical Oncology* 2003; 1:20.
3. Quaia E, Bussani R, Dalla Palma L. Pericardial metastasis from adenocarcinoma of unknown origin. Luxembourg, Euromultimedia, <http://www.eurorad.org/case.cfm?UID=232>
4. Pearson FG. Pericardial disease in thoracic surgery, 2nd Edition New York, Churchill Livingstone 2002, pp1619-1620.
5. Shyu KG, Chiang FT, PL Kuan, et al. Cardiac metastasis of hepatocellular carcinoma mimicking pericardial effusion on radionuclide angiocardiology. *Chest* 1992; 101: 261-262.
6. Becker S, Reza M, Greenberg S, et al. Pericardial effusion secondary to mucoepidermoid carcinoma of the parotid gland. A report of an unusual case. *Cancer* 1975; 36:1080-1085.
7. Sulkes A, Weshler Z, Dolberg L, et al. Isolated pericardial metastasis of parotid tumor origin. *Head Neck Surg* 1982; 4:344-348.
8. Maher ER, Buckman R. Intrapericardial instillation of bleomycin in malignant pericardial effusion. *Am Heart J* 1986; 11:613-614.
9. Tomkowski WZ, Filipecki S. Intrapericardial cisplatin for the management of patients with large malignant pericardial effusion in the course of the lung cancer. *Lung Cancer* 1997; 16:215-222.
10. Pavón Jiménez R, García Rubira J, García Martínez J, et al. Intrapericardial Cisplatin for Malignant Tamponade. *Rev Esp Cardiol* 2000; 53:587-589.
11. Shephard FA, Ginsberg JS, Evans WK. Tetracycline sclerosis in the management of malignant pericardial effusion. *J Clin Oncol* 1985; 3:1678-1682.

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