

Pericardial Metastases from Squamous Cell Carcinoma of Tonsils

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Introduction

Malignant involvement of the pericardium is a very rare occurrence in head and neck cancers. The most common metastatic tumor involving the pericardium is lung cancer, others include breast and esophageal cancers, melanoma, lymphoma and leukemia. Pericardial metastases are seen in 1%-20% of autopsies in patients with cancer and the pericardium is involved in 64%-69% of all cases of cardiac metastases (CM). During the early stages, the clinical manifestations of CM can be subtle and indistinct and may therefore go undiagnosed. Thus, the majority are often identified in advanced stages, or incidentally, either during cardiac surgery or during postmortem analysis.

Case Description

We present the case of a 52-year-old male with a past medical history of HIV on HAART therapy and HPV + left tonsillar squamous cell carcinoma (status-post resection, chemotherapy with cisplatin and radiotherapy, 2017) presented in May 2020 with c/o shortness of breath and was found to have bilateral pleural effusion and cardiac tamponade. Echocardiogram showed thickening of the visceral pericardium concerning for tumor implantation. The patient underwent pericardial window placement and about 1 liter of hemorrhagic pericardial fluid was removed. The fluid analysis showed clusters of atypical epithelioid cells within the background mesothelial cells (Table 1). Pericardial biopsy showed fibrous pleural tissue with rare clusters of atypical cells and mesothelial cells (Table 2). These findings raised a suspicion for metastatic tonsillar squamous cell carcinoma. The patient chose to follow up with his primary oncologist at a different site.

Then later in September 2020, the patient presented again with shortness of breath and palpitation and was found to have recurrence of pericardial effusion and bilateral pleural effusions. An echocardiogram showed constrictive pericarditis, likely secondary to tumor invasion versus coagulum formation from the previous pericardiocentesis. Cardiac catheterization confirmed constrictive pericarditis. Pleural fluid analysis showed a transudative fluid, negative for p40 expression making metastatic pleural disease unlikely. The patient underwent anterior pericardiectomy for symptom relief and for diagnostic purpose. Pathology reports from the tissue now confirmed metastatic poorly differentiated squamous cell carcinoma (Table 3). At this point the patient had high pleural fluid outputs (800 to 1200 milliliters per day) for which PleurX catheters were placed in bilateral chest cavities.

The patient was started on palliative chemotherapy with high dose paclitaxel and carboplatin to which he developed intolerable side effects and was transitioned to low dose chemotherapy of same regimen. After the initiation of chemotherapy, the output from the PleurX catheter progressively reduced and eventually it was less than 10 ml/day. At this point the PleurX catheters were removed. His hospital course was also complicated with DVT and subsegmental Pulmonary embolism for which and IVC filter was placed, and he is on Eliquis.

Tables & Images

Table 1. Pericardial fluid cytology in May 2020

Atypical Epithelial cells		Mesothelial cells
Positive	Negative	Positive
P40 expression	Cytokeratin-7, Thyroid Transcription factor-1 (THF-1), Synaptophysin, Chromogranin, Thyroglobulin, and Calcitonin	Calretinin and WT-1

Table 2. Pericardial Tissue biopsy in May 2020

Atypical Epithelial cells	Mesothelial cells
Positive	Positive
p40 and pan-cytokeratin expression	Calretinin, Cytokeratin-7, and WT-1 expression

Table 3. Pericardial biopsy in October 2020

Strongly positive	Positive	Negative
p-16	high-risk HPV (16,18,31,32)	low risk HPV (6,11)

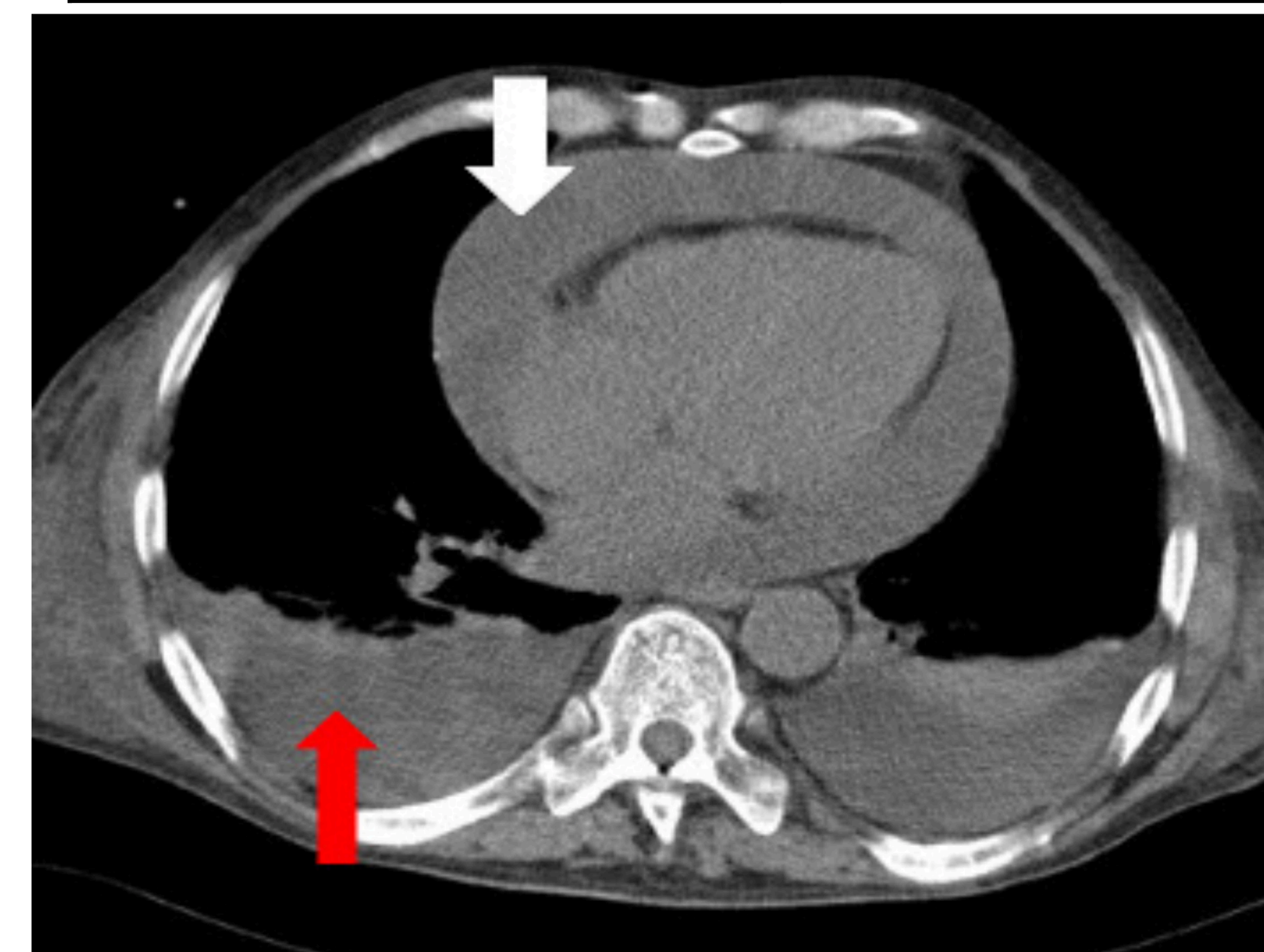


Figure 1: CT chest
White arrow: Pericardial effusion
Red arrow: Pleural effusion

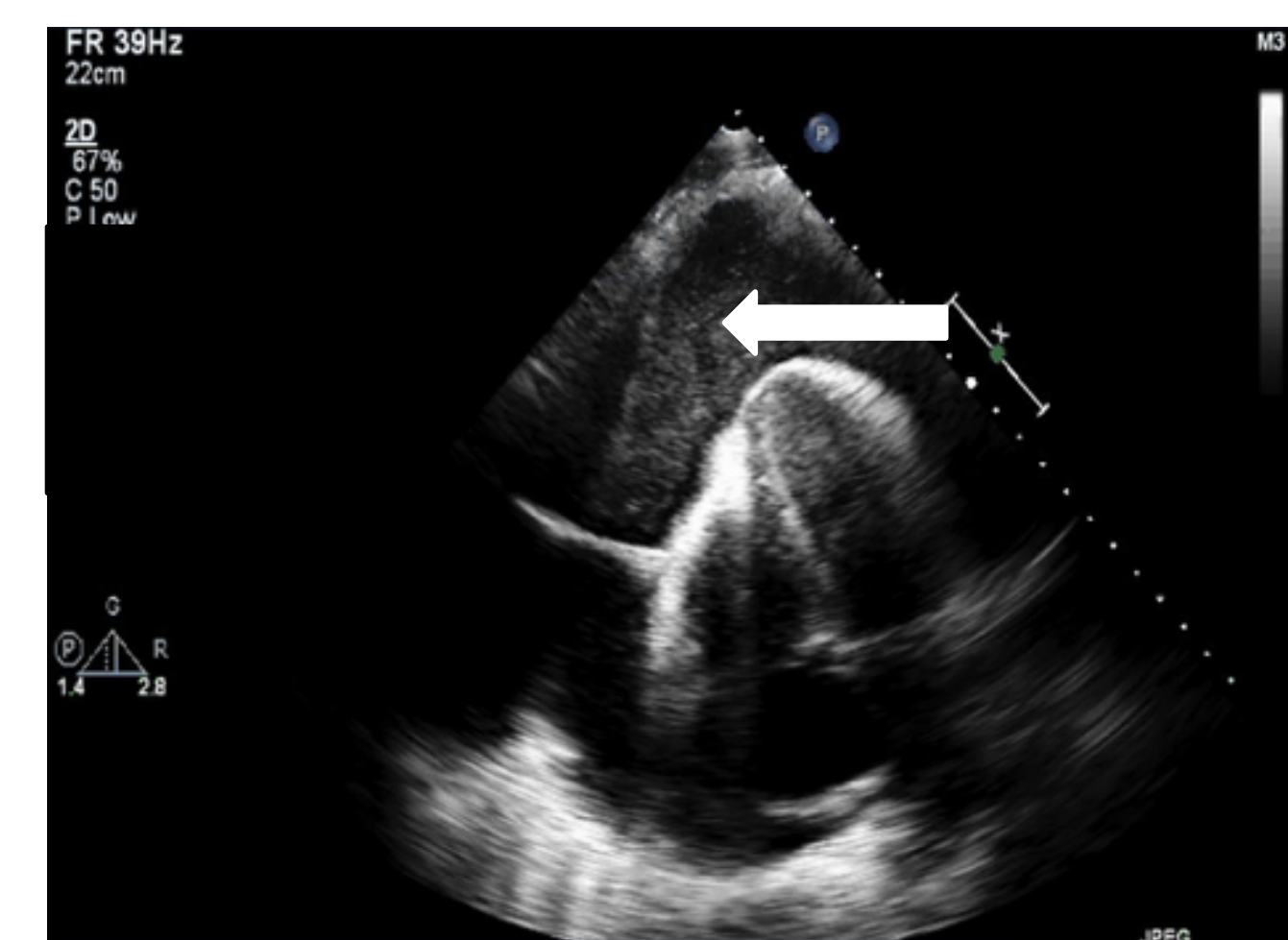


Figure 2: 2D ECHO Apical view, arrow showing pericardial effusion

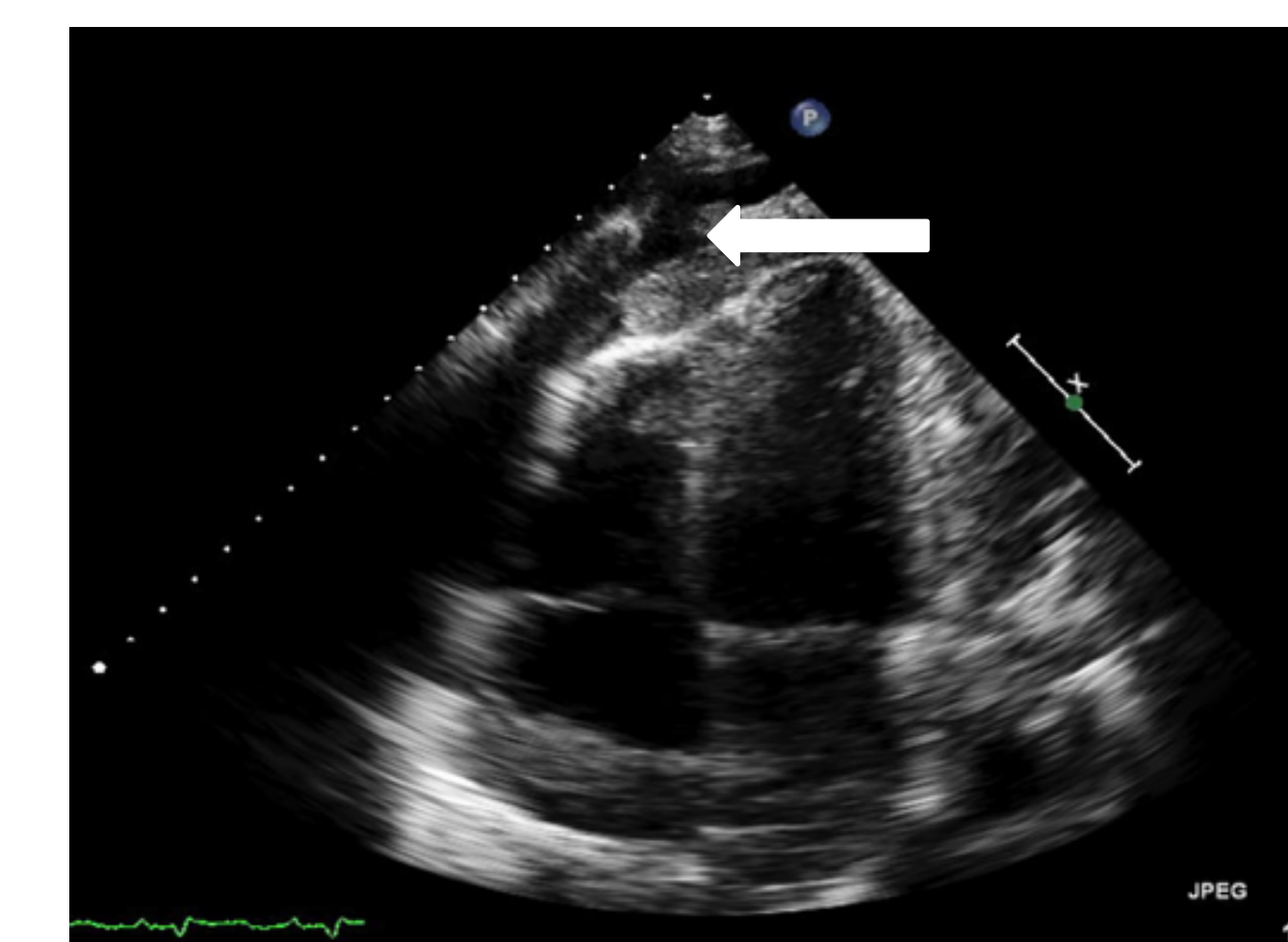


Figure 3: 2D ECHO apical view arrow showing coagulum formation showing status post anterior pericardiectomy

Discussion

Despite the momentous improvement in cancer management, limited therapeutic options are currently available for management of pericardial metastasis. Imaging studies of the heart for metastasis is not routine practice and not included in guidelines. In our case we were able to find the pericardial disease probably in the early stages and initiate the appropriate management giving the patient a favorable outcome. So, we suggest patient with history of malignancy presenting with any kind of cardiopulmonary symptoms, cardiac metastasis should be kept in the differentials and ideally be followed by an imaging study. Further research is necessary to ascertain the best diagnostic and treatment modalities.

Conclusion

Very limited data is available in the management of cardiac and pericardial metastasis in head and neck cancers. Our patient had achieved good loco regional control of the disease and there was no local recurrence of disease, but his atypical site of metastasis make this a rare case. The patient was fortunate enough that his pericardial metastasis was identified at an early stage, and he was a surgical candidate. Despite the poor prognosis of our patient, we were able to improve the quality of his life and thus our case adds to the limited literature available.

References

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