

# Cardiac Metastasis of Thyroid Cancer

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Anaplastic thyroid carcinomas are very aggressive cancers and metastasize frequently to the lungs and pleura. The cardiac metastases of thyroid cancers are rare. The diagnosis before the death is rare. We present a case of anaplastic thyroid carcinoma with metastatic involvement of the heart. It was presented with atrial fibrillation. The echocardiography demonstrated a solid mass in interventricular septum. One week later the patient died of heart failure. We call attention of clinicians that during the follow up of thyroid cancer such arrhythmias may be the harbinger of a cardiac metastasis.

**Keywords:** Anaplastic thyroid carcinoma, cardiac metastasis, echocardiography

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## INTRODUCTION

Anaplastic thyroid carcinomas (ATC) are very aggressive cancers. The median survival is 4 to 5 months and the long survival is rare. Fifteen to 50 percent of the patients with anaplastic carcinoma have extensive local invasion and distant metastases at initial presentation of the disease (1). In 90% of the cases, lungs and pleura are sites of distant metastasis. Other metastatic sites are bone, brain, skin, liver, kidney, pancreas, adrenal glands, and heart.

The cardiac tumors are rare. Secondary tumors of the heart are found more frequently than primary tumors. Any cancer may metastasize to the heart. The autopsy series show that there is heart metastasis in patients with leukemia, melanoma, thyroid cancer, lung cancer, sarcomas, renal cell carcinoma, esophageal cancer, lymphoma, and breast cancer. Cardiac metastasis of thyroid cancer is uncommon even in autopsies (2, 3). Antemortem diagnosis of this clinical status is rare. There are thirteen cases of thyroid cancer with heart metastasis have reported in the literature 25 years ago (4). Herein, we present a case of ATC with metastatic involvement of the heart.

## CASE

A 73-year-old woman was seen at our hospital because of a large and hard mass in the neck, and bilateral masses in the

lungs. Pathological examination showed an undifferentiated carcinoma of the thyroid gland. Plasma thyroglobulin level was elevated, but calcitonine was normal.

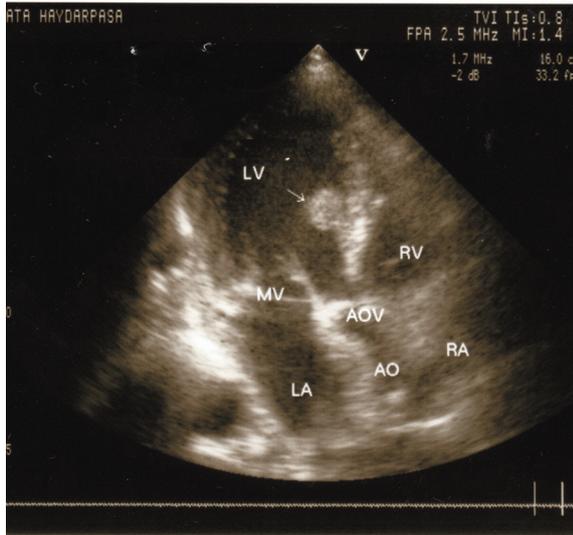
Initially, cardiac evaluation was normal. Chemotherapy protocol consisting of doxorubicin and cisplatin was started. Two months later, atrial fibrillation was seen. Two-dimensional echocardiography demonstrated a solid mass with 35 mm in diameter which is linked by a peduncle to interventricular septum, near the left ventricle outlet. Left ventricle diameters and functions were normal (Figure 1). In the right ventricular apical region, similar multiple masses were detected. The patient underwent anticoagulation for atrial fibrillation. These metastatic masses' diameters were stable during follow-up. One week later, she died of heart failure. We did not perform the autopsy because the patient's family refused it.

## DISCUSSION

The heart metastasis is rarely diagnosed antemortem, because the it is frequently asymptomatic, and often represents the terminal stage and it is associated generally with widespread metastasis. In autopsies, myocardial involvement is seen accompanying pericardial invasion. The symptom of myocardial metastatic disease is often the initiation of sudden arrhythmia (5). Sudden death is possible but not common. Cardiac perforation and myocardial infarction by coronary erosion or hemorrhage are extremely rare. The patient's complaints are dyspnea and exercise intolerance. In the normal coronary angiography of the patient, T-wave inversion

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**Figure 1. Appearance of cardiac mass in the left ventricle by echocardiography (white arrow). (LV: left ventricle, RV: right ventricle, AOV: aortic valve, Ao: aorta, LA: left atrium, RA: right atrium)**

and pathologic Q-waves are seen (6). Atrial arrhythmias and low voltage were reported. In this case, the patient was evaluated by performing a cardiac examination because of atrial fibrillation, thus a heart metastasis was detected.

Twenty-five percent of ATC patients have initial metastasis. Although the reported incidence of cardiac metastasis from thyroid carcinoma varies from 0% to 2% among autopsy series, clinical diagnosis of the heart metastasis is rare (2, 3). In the literature, several ATC cases with heart metastasis were reported (4). This case of ATC with myocardial metastasis, which was detected before death, is one of the rare clinical presentations.

These cardiac masses' echocardiographic images indicate myocardial metastasis and these same diameters excluded thrombi after anticoagulant medication. Serum thyroglobulin level was elevated and calcitonin was normal. The moderate leukocytosis was present. The previous ATC reports touched on this subject (7).

In patients with particularly aggressive tumor, if there are newly discovered arrhythmias or myocardial infarction, cardiac metastasis must be remembered.

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