



SQUAMOUS CELL CARCINOMA OF TONGUE INVOLVING HEART- AUOPSY FINDINGS

Sunita Singh., Gauri Munjal* and Rajeev Sen

Department of Pathology, Pt.BD Sharma, PGIMS, Rohtak

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ABSTRACT

Metastasis to heart is a very rare event. Amongst head and neck malignancies, tongue is a relatively common site for cardiac meta

Key words:

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INTRODUCTION

Neoplasm of heart can be primary or secondary. Metastatic tumors are 20-40 times more common than the primary.^{1,2} Though, distant metastasis to heart is extremely uncommon, the most common neoplasms that metastasize to heart are melanoma, leukemia and lymphoma.² The different routes of metastasis to heart include lymphatic, hematogenous, transvenous and direct route.³

Head and neck Squamous cell carcinoma (SCC) has an overall lower incidence of distant metastasis compared to other malignancies. The common locations of metastasis are found to be lung, bone, liver and skin.

Here, we present a medicolegal autopsy case of metastatic SCC to heart and lung originating in the tongue.

CASE REPORT

A 53 year old male patient was found dead in his house due to sudden cardiac arrest. His past medical history revealed Squamous cell carcinoma of tongue for which he had undergone chemoradiotherapy. Later on, radiological findings revealed the progression of disease to lungs. A few weeks before his death, the patient suffered from shortness of breath and an episode of syncope which attributed to pulmonary disease. Patient died following uncontrolled arrhythmia.

An autopsy was performed in order to determine the cause of death. The heart weighed 220gm (expected weight) and measured 12x8x6cm. On serial sectioning, grey white firm areas were observed in various regions of the heart.(Figure 1). However, there was no obvious tumor infiltration in the

conducting system. Right and left coronaries showed atherosclerosis.



Figure 1 Macroscopic findings: Cut surface of heart shows grey white areas in both the ventricles along with a tumor mass at the apex.

One piece of lung was received which weighed 20gm and measured 9x5x3cm. On serial sectioning, grey white, firm foci were seen in the parenchyma of lung. On microscopic examination, ventricular portions of heart showed deposits of moderately differentiated squamous cell carcinoma infiltrating the myocardium along with complicated atherosclerosis in the major arteries. (Figure 2,3) Sections from the lung also showed deposits of moderately differentiated squamous cell carcinoma.(Figure 4)

*Corresponding author: Gauri Munjal

Department of Pathology, Pt.BD Sharma, PGIMS, Rohtak

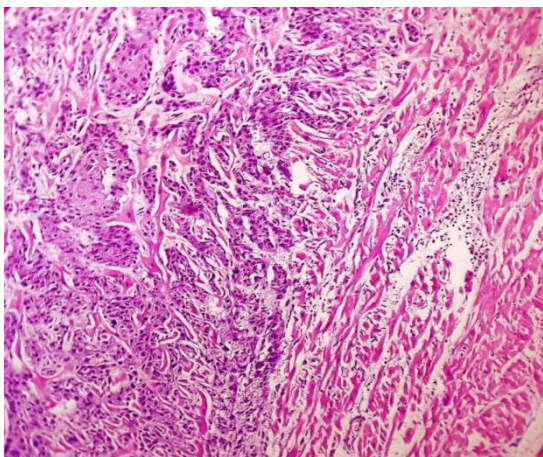


Figure 2 Microscopic findings: Infiltration of the myocardium by squamous cell carcinoma (H&E, 100X)

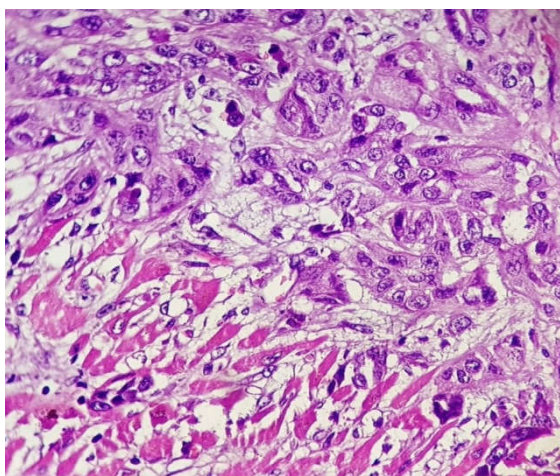


Figure 3 Microscopic findings: Infiltration of malignant squamous cells into the myocardium (H&E, 100X)

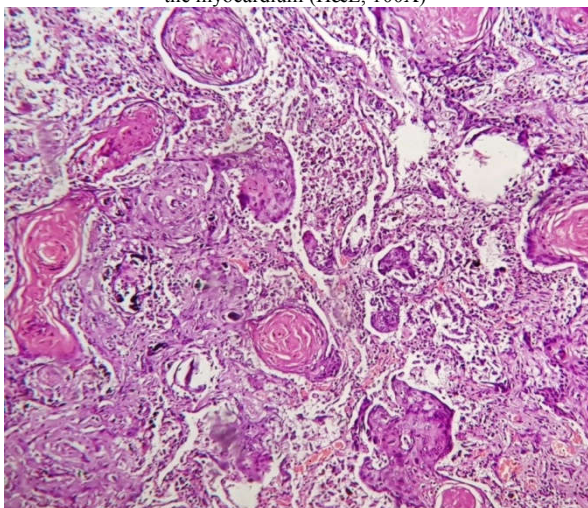


Figure 4 Microscopic findings: Squamous cell carcinoma infiltrating into the lung parenchyma.(H&E, 100X)

No significant gross or histological changes were noted in any other organ. Based on the above autopsy findings and history of SCC tongue, we determined that the cause of death was metastasis of SCC to the lung and heart.

DISCUSSION

Cardiac metastasis are usually seen to occur in 6th to 7th decade of life.² Studies have shown the occurrence of metastatic infiltration of the heart ranging from 2.3-18.3% (6% on an average).^{1,3}

The diagnosis is usually made post – mortem. The most common malignancies that metastasize to heart are malignant melanoma, leukaemia, lymphoma, breast, oesophagus and lung cancers.² The most common site of cardiac metastasis is pericardium (60-80%), followed by myocardium and endocardium is rarely involved.³ Cardiac involvement is generally due to direct extension from adjacent lymph nodes which explains the spread into pericardium and myocardium in 90% cases.¹

The overall incidence of metastasis to heart is infrequent due to the following protective mechanisms proposed by Prichard *et al*^{4,5}:

1. strong kneading action of myocardium,
2. rapid blood flow through the heart,
3. metabolic peculiarities of striated muscle and
4. lymphatic flow that is moving away from heart.

The various routes of spread of neoplasms to heart are by means of lymphatic, hematogenous route and direct extension, transvenous extension via the superior or inferior vena cava. Pericardial involvement usually involves lymphatic route and myocardial involvement involves hematogenous route.² The patients with metastatic disease may present with tachycardia, arrhythmia, cardiomegaly, heart failure, hypotension, dyspnoea and peripheral cyanosis but can also be completely asymptomatic.¹

Amongst the cases of cardiac metastasis from head and neck carcinomas, tongue seem to be more frequent site than the rest varying from 1.5-50%.³

Kavanagh³ and colleagues reported a case of sublingual and laryngeal carcinoma with metastasis to lung and myocardium. Similar to our study, McKeag *et al*⁶ and Werbel *et al*⁷ demonstrated cases of metastatic SCC infiltrating the myocardium arising in the tongue.

In Probert's⁸ review of 779 patients with head and neck carcinoma, only 7 patients (0.9%) were found to have metastasis to the heart.

A few cases of cardiac metastasis have been documented with the tumor originating outside head and neck. Ete *et al*² presented a case of SCC lung with secondaries to heart (endocardium) and multiple sites in skin. Mousavi *et al*¹, Kondo *et al*⁵ reported unusual cases of metastatic SCC from uterine cervix and hand respectively.

CONCLUSION

Cardiac metastases are often incurable, the prognosis is poor and palliative therapy is offered. In the present case there were extensive cardiac metastasis in the absence of very evident cardiac symptoms, therefore such a diagnosis should be considered in case of history of a previous malignancy and newly developing cardiopulmonary symptoms. Also, amongst head and neck malignancies, tongue is a relatively common site for cardiac metastasis, therefore it should draw attention in a case of sudden death.

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