

## METASTATIC THYROID CARCINOMA OF THE MANDIBLE – MIMICKING PARAGANGLIOMA

Sreekanth Kotina      Kiran Kumar. S      Vandana Raghunath

*Department of Oral & Maxillofacial Pathology, Narayana Dental College and Hospital, Chintareddy palem, Nellore – 524003, Andhra Pradesh, India*

**Corresponding Author:** Kiran Kumar.S, Department of Oral and Maxillofacial Pathology, Sri Sai Dental College & Research Institute, Srikakulam- 532001, Andhra Pradesh, India, Ph: 09441181481, E-mail: drkiranmdsop@gmail.com

### Abstract

Metastases of tumours to the jaw bones are rare and the estimated incidence of metastasis from primary elsewhere to oral and maxillofacial region ranges from 1 to 3%. The primary tumours from the lung, breast and kidney frequently metastasize to the jaw bones. Mandible appears to be the most common site of involvement. Lungs are the most common site for the metastasis of thyroid carcinoma and it rarely metastasized to jaw bones. We present a rare case of thyroid carcinoma metastasizing to the mandible which histopathologically mimicking the paraganglioma, and to highlight the consideration of metastatic neoplasms in the differential diagnosis of jaw lesions

**Key words:** Metastatic tumors, Paraganglioma, Thyroid carcinoma

### Introduction

Metastatic tumours to the oral region are uncommon and may occur in the oral soft tissues or in the jawbones. Because of its rarity, the diagnosis is challenging and should be considered in the differential diagnosis of inflammatory and reactive lesions which are common in the area<sup>1,2</sup>. Involvement of the jaw bones by malignant tumors is most often due to direct extension of the disease either from the oral cavity or from the surrounding tissues.

### Case Report

A 55-year-old female patient presented with swelling in the lower left jaw since 6 months. Clinical examination revealed an ill-defined swelling, measuring roughly about 6×6 cms in the body of the mandible. The swelling extended antero- posteriorly from corner of the mouth to the ramus of the mandible, supero-inferiorly from the tragus to the lower border of the mandible [Fig. 1].

On palpation the swelling was tender and soft to firm in consistency. The skin over the swelling appeared normal. Intraorally the swelling was extended from first premolar to retromolar area causing obliteration of buccal

vestibule. Grade III mobility and bleeding on probing in relation to 35 was noted. Buccal and lingual cortical plates are expanded and eggshell crackling was felt on palpation. Left submandibular lymph nodes were palpable and they are tender [Fig. 2].

OPG revealed a well defined radio opaque lesion extending from distal aspect of first premolar to the neck condyle [Fig. 3]. CT scan showed a large ill defined expansile lytic lesion measuring 6 X 4 cm [Fig. 4]. The medical records revealed that the patient had been treated surgically for thyroid carcinoma 15 years back.

Based on the clinical and radiographic findings, a provisional diagnosis of a metastatic tumour was considered. Either a metastases from thyroid or breast was more in favour for the given factors like age, gender and clinical presentation.

The incisional biopsy microscopically revealed the presence of cuboidal cells with eosinophilic cytoplasm arranged in the form of follicles. Provisional diagnosis of metastatic thyroid carcinoma was made and the patient was referred to oncology department for the management of the tumor

Roughly ovoid 4 X 4 cms excised specimen was received [Fig. 5]. The specimen was solid, well encapsulated, and tan to pink in colour with blood clots. Specimen was soft to firm in consistency and it was cut in to two halves the cut surface shows hemorrhagic areas [Fig. 6].

Microscopically excised specimen revealed encapsulated lesional tissue with hemorrhagic areas and solid nests of cells which resemble the Zellballen appearance present in the paraganglioma [Fig 7 and 8]. To rule out the paraganglioma immune histochemistry was performed with Neuron specific enolase (NSE), Chromogranin. Both NSE and chromogranin are negative [Fig. 9 and 10]. Deeper sections shows the follicles containing Eosinophilic Colloid material and the follicles are surrounded by the cuboidal cells [Fig11], finally the diagnosis of metastatic thyroid carcinoma was given.



Fig 3: OPG revealed a well defined radio opaque lesion extending from distal aspect of first premolar to the neck condyle.

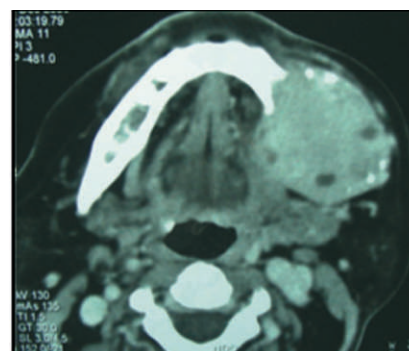


Fig 4: The CT scan showed a large ill defined expansile lytic lesion



Fig 1: A diffuse swelling in relation to left side of the mandible.

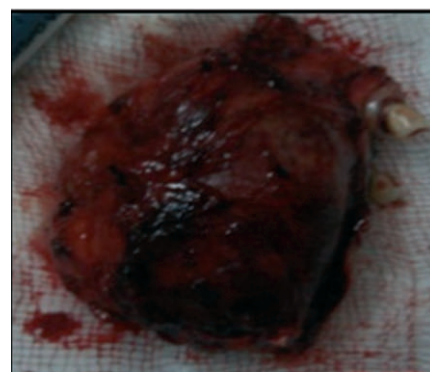


Fig 5: Hemorrhagic gross specimen



Fig 2: Buccal and lingual cortical plate expansion



Fig 6: Cut surface showing cystic spaces and hemorrhagic areas



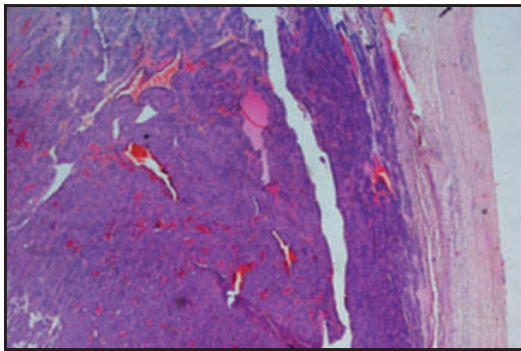


Fig 7: capsulated lesional tissue showing highly vascularized areas

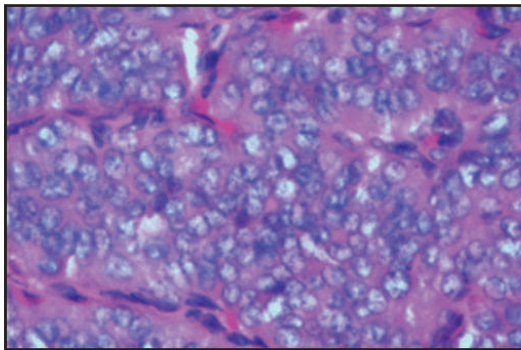


Fig 8: Highly cellular lesion containing blood vessels mimicking paraganglioma

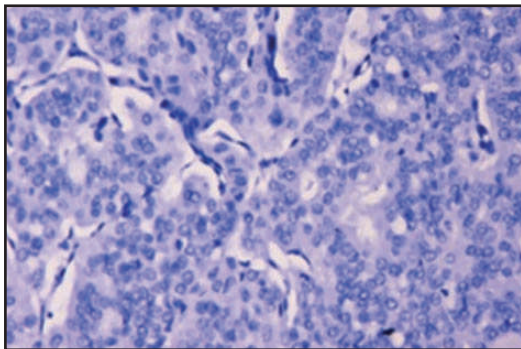


Fig 9: Neuron specific enolase(NSE)– negative

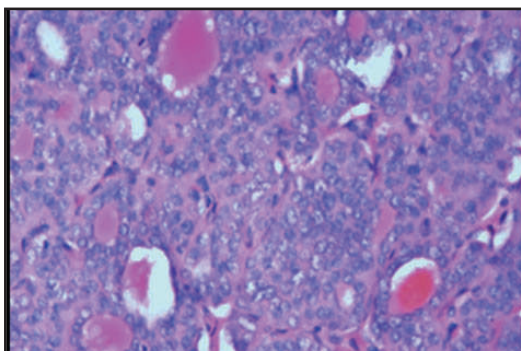


Fig 10: Chromagranin A- Negative

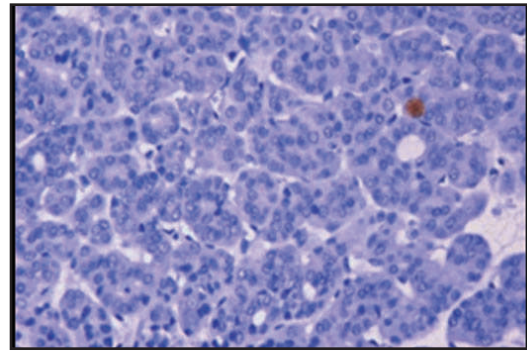


Fig 11: Follicle containing Eosinophilic Colloid

## Discussion

Metastasis is a complex biological cascade starts with detachment of tumor cells from the primary tumor, spreading into the tissues, invading the lymphovascular structures followed by their survival in the circulation. Involvement of the jaw bones by malignant tumors is most often due to direct extension of the disease either from the oral cavity or from the surrounding tissues<sup>3,4</sup>.

The estimated incidence of metastasis from primary elsewhere to oral and maxillofacial region ranges from 1 to 3%. Around 8 to 33% of the follicular thyroid carcinoma patients presented with distant metastases at the time of diagnosis<sup>5, 6</sup>. Hematogenous spreading had been known as the main way of distant metastases in follicular thyroid carcinoma. Bone and lung are the major targets of distant metastases by the thyroid follicular cells. Large perfusion area and high blood flow may be the main reasons<sup>7, 8</sup>.

Several cases of metastatic tumors to the jaw bones have been reported from different parts of the world, this is the first reported case report of a follicular thyroid carcinoma which histopathologically mimics the paraganglioma. The features favoring for the diagnosis of paraganglioma are high vascularity and solid areas of lesional tissue resembles zellbalen but it shows NSE and chromogranin negativity. Further serial sections demonstrated the thyroid follicles which were filled with homogenous eosinophilic material so the final diagnosis of metastatic follicular thyroid carcinoma was made.

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