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Indian Journal of Pathology and Oncology

Journal homepage: www.ijpo.co.in

Case Report

Mandibular metastasis of a silent papillary thyroid carcinoma: A rare case presentation

Bushra Siddiqui¹, Haleema Sadia¹, Durre Shehwar^{1,*}, Shahbaz Habib Faridi², Mastakim A Mazumder³

¹Dept. of Pathology, Jawaharlal Nehru Medical College and Hospital, AMU, Aligarh, Uttar Pradesh, India

²Dept. of Surgery, Jawaharlal Nehru Medical College and Hospital, AMU, Aligarh, Uttar Pradesh, India

³Dept. of Nephrology and Kidney Transplant, Fortis Escorts, Okhla, New Delhi, India



ARTICLE INFO

Article history:

Received 28-01-2022

Accepted 09-05-2022

Available online 28-05-2022

Keywords:

Jaw lesions

Mandible

Metastasis

Papillary carcinoma

Thyroid

ABSTRACT

Papillary carcinoma is the most common malignancy of thyroid accounting for about 80-90% of thyroid cancers. The most common site of metastasis is lung and bone. Distant metastasis is associated with poor prognosis in thyroid cancers in terms of decreased survival rates. Metastasis to mandible is a rare occurrence in thyroid cancers and very few cases have been reported in literature. Here we present a case of 45-year-old female who presented with complaints of pain and swelling in right side of mandible for past 10 months. On examination, a 3x3 cm hard, non-mobile growth on right side of mandible was seen. Microscopy revealed features of metastasis from papillary thyroid carcinoma, which were later confirmed by immunohistochemistry. Mandibular metastasis of thyroid cancer is exceedingly rare, however in cases presenting initially with jaw swelling it must be kept as a differential diagnosis.

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1. Introduction

Papillary thyroid carcinoma (PTC) is the most common malignancy of thyroid gland comprising about 80-90% of all the cases.¹ It usually presents as a slow growing mass, with a relatively indolent behaviour and favourable outcome.² Distant metastases are considerably less.³ Metastasis to the oral cavity is relatively uncommon and posterior body of mandible (molar-premolar region) is the most common site.⁴

PTC presenting with mandibular metastasis is extremely rare and often associated with poor prognosis. We report a rare case of silent papillary carcinoma thyroid presenting initially as mandibular metastasis.

2. Case Report

A 45-year-old female came to dental OPD of our hospital with complaints of pain and swelling in right lower region of mandible. She did not have any co-morbidities. There was no history of smoking, alcohol intake or tobacco chewing. Patient had average built and nutrition. There was no neck swelling or any cervical lymphadenopathy. A hard, non-mobile and tender swelling on the right side of body of mandible measuring 3 x 3 cm was noted. It was not associated with any redness, discharge or any skin ulceration. Intraorally, the swelling was solitary, non-mobile, extending from premolar region to molar region. The patient was partially edentulous due to extraction of 36th and 37th tooth with dental caries two months ago.

A differential diagnosis of central giant cell granuloma and ameloblastoma were made. CT scan revealed a well-defined expansile lytic enhancing soft tissue density lesion

* Corresponding author.

E-mail address: shewardurre10@gmail.com (D. Shehwar).

measuring 3.4x2.6 cm and erosion of buccal and lingual plate involving right angle of mandible with extension of lesion into surrounding soft tissue. A hypodense lesion with few chunky calcifications involving the right lobe of thyroid gland was also detected.

A biopsy was done from the jaw lesion which on gross showed a single creamish white soft tissue piece measuring 1.7x1x0.5 cm. On microscopy, haematoxylin and eosin-stained tissue section showed infiltration of bony tissue and fibro collagenous tissue by variable sized colloid filled follicles, lined by cuboidal cells with clear to eosinophilic cytoplasm. (Figure 1). The findings are suggestive for metastasis from a thyroid neoplasm. On immunohistochemistry, the tumor cells showed strong and diffuse nuclear positivity for TTF1 (Figure 2). The microscopy features in combination with immunohistochemistry were consistent with metastatic papillary thyroid cancer. Right hemimandibulectomy was performed along with total thyroidectomy. She also received two cycles of chemotherapy with Adriamycin and Cisplatin. No further radiotherapy has been given to our patient, and she is still in regular follow-up at 6 months.

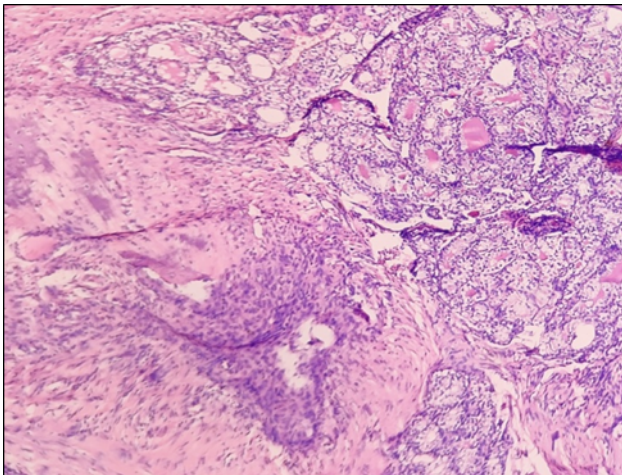


Fig. 1: H & E showed metastasis of papillary thyroid cancer in mandible with cuboidal to columnar cells lining the spaces with some showing luminal colloid (10x)

3. Discussion

Jaw metastasis are rare and their early diagnosis is difficult.⁵ Several factors are involved in development of oral metastasis, which include tumour nature, its aggressiveness and predilection for specific oral sites.⁶ Commonly affected age-group by the oral metastasis are the older adults.⁵ The patient in our case was also in her 5th decade of life. Although jaw metastases are commonly seen in males, metastasis arising from thyroid carcinoma are frequently encountered in females.

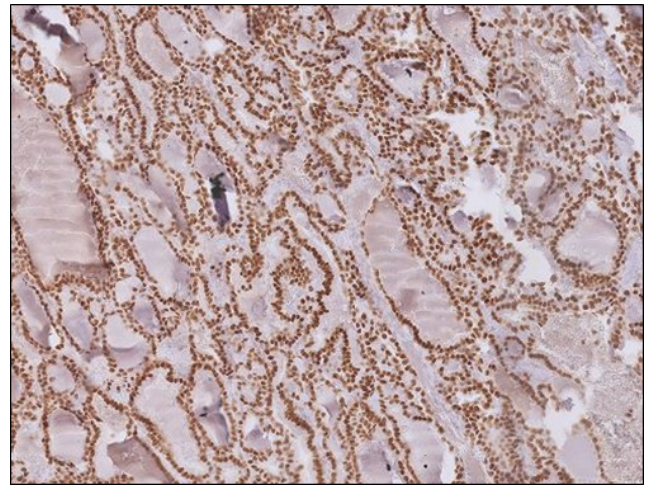


Fig. 2: The nuclei of neoplastic cells were strongly and diffusely positive for TTF1 (10x)

Jaw metastasis have predilection for molar and pre-molar regions of mandible. These findings are in conformity with our case. The body and angle of the mandible are commonly involved sites owing to the rich vascular supply in the medullary cavity of these regions.⁴ Jaw metastasis may present as pain, swelling, tooth mobility, pathologic fracture and paraesthesia, but some may be completely asymptomatic too.⁴ Our patient presented with a painful swelling in the body of mandible.

In a study done by Hirshberg et al.⁶ about 14% of patients had underwent teeth extractions in the metastatic area prior to the disease detection. Our patient also had a history of loosening and extraction of 36 and 37 tooth due to dental caries two months before the diagnosis was made.

Thyroid carcinoma presenting as mandibular metastasis are not very frequent, with only few cases reported in the literature. Owing to their propensity for vascular dissemination, most of them arises from follicular variant of thyroid carcinomas. Papillary thyroid carcinoma usually remains intra-glandular or give rise to cervical metastasis.

PTC is the most common thyroid malignancy, constituting about 80% of all thyroid cancers.¹ It presents as an asymptomatic slow-growing thyroid mass which is sometimes detected incidentally. It has a relatively indolent behaviour and a favourable prognosis.² Papillary thyroid carcinoma usually shows lymphatic invasion and frequently metastasizes to regional lymph nodes, although distant metastases is considerably less frequent.

The rate and location of metastatic spread varies according to the histologic subtype of thyroid cancer. Up to 6% of patients with well-differentiated thyroid carcinoma have been reported to develop distant metastasis, with a predilection for bones (43%) and lung (40%). On the other hand, follicular thyroid carcinomas are more prone to spread via the hematogenous route, especially to the lung and

bones with a rate of 5–20%.⁷ Metastatic tumours to the oral cavity are relatively rare representing approximately 1% of all oral malignancies. The most common malignancies to give metastasis to oral cavity are breast cancer in women and lung cancer in men. Other common primary sites were prostate, colon, kidney, adrenal gland, liver, and female genital organs. Metastatic thyroid carcinoma to the oral tissues, as in this case, is a rare event.⁴ Most of the previously reported metastatic thyroid carcinomas of the oral cavity had been follicular thyroid carcinoma (FTC), and metastatic PTC was very rare. Hurthle cell, poorly differentiated, and medullary carcinomas have been also reported in the mandible.

The treatment of oral metastases arising from thyroid carcinomas varies from palliative care to varied combinations of surgical resection, radioactive iodine treatment, radiotherapy or chemotherapy. It has been recommended that surgical resection of the metastatic tumour along with total thyroidectomy, followed by radioactive iodine therapy may improve survival.⁸ Prognosis of patients with distant thyroid cancer metastases is generally poor, with an average of 40% of patients alive 4 years after the diagnosis of metastasis and an overall 10-year survival rate of 27% for bone metastases of differentiated thyroid carcinoma.⁹ Our patient underwent hemi-mandibulectomy with total thyroidectomy.

4. Conclusion

Metastatic tumours to the jaw arising from a primary thyroid cancer, including PTC are extremely rare. A thorough diagnostic work-up is necessary for detection of the primary site and appropriate immunomarkers are needed for confirmation. Early detection of metastatic disease may improve treatment effectiveness and survival.

5. Source of Funding

None.

6. Conflict of Interest

None.

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Author biography

Bushra Siddiqui, Assistant Professor

Haleema Sadia, Junior Resident

Durre Shehwar, Senior Resident  <https://orcid.org/0000-0003-0780-3773>

Shahbaz Habib Faridi, Assistant Professor

Mastakim A Mazumder, Associate Consultant

Cite this article: Siddiqui B, Sadia H, Shehwar D, Faridi SH, Mazumder MA. Mandibular metastasis of a silent papillary thyroid carcinoma: A rare case presentation. *Indian J Pathol Oncol* 2022;9(2):194-196.