

Case Report

Papillary Thyroid Carcinoma Metastasis to Mandible- A Case Report

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ABSTRACT:

Papillary thyroid carcinoma metastasis to mandible is rare and represent approximately one percent, although it is the most common carcinoma of the thyroid. In case of metastasis in the oral cavity, the most common site is the body of the mandible in the premolar-molar region. Common oral sites other than the jawbones are gingiva, buccal mucosa; soft palate and tongue. In case of solely involvement of one side of mandible, which occurred in this case, hemimandibulectomy is the preferred treatment option.

Key words: Mandible, Papillary thyroid carcinoma, Metastasis.

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INTRODUCTION

Metastatic carcinomas of the oral cavity are very rare and represent approximately 1 % – 2 % of all oral malignancies. It is a challenge to the clinician and pathologist to diagnose metastatic lesion in the oral cavity and in distinguishing that a lesion is metastatic and in determining the site of origin because of its uncommonness. The breast, lung, kidney, bone and colon are the most common primary sources of metastatic tumours to the oral region. In the oral cavity, the most common site is the body of the mandible in the premolar-molar region [1]. Common oral sites other than the jawbones are gingiva, buccal mucosa, soft palate and tongue [2]. Thyroid carcinoma is one of the uncommon sources of metastatic cancers of the oral cavity with a prevalence of only 6.1 % of all jaw metastasis [3]. Most common symptoms are non-specific like pain, swelling, loosening of teeth and paraesthesia [2]. Sometimes, these lesions are asymptomatic, and may be unnoticed. The pathogenesis of the metastatic process in the jawbones is not clear. Bones with a red marrow are the favoured sites for metastatic deposits in the skeleton. Hashimoto et al. advocated that haematopoietic areas favour or attract metastatic tumour cells [4].

This article reports a rare case of mandibular metastasis of thyroid papillary carcinoma with a history of thyroid growth operated fifteen years back.

CASE REPORT

A thirty five years old female patient reported to Oral & Maxillofacial Surgery department of Government Dental College and Hospital, Amritsar with chief complaint of swelling and pain involving right side of lower jaw region. She noticed pain around right lower jaw 10 months back, for which extraction of right lower third molar was done by a local practitioner. After 20 days of tooth extraction, patient noticed pain in the same region which was sharp and continuous in nature and was radiating around temporal region. She also complained of swelling in the right posterior lower jaw region and non-healing lesion in right posterior tooth region intra-orally for which she got the incisional biopsy done. The biopsy report showed stratified squamous epithelium, partially ulcerated with ulcer bed formed of inflammatory granulation tissue composed of proliferating capillary channels along with neutrophils, eosinophils and plasma cells. The slide also showed presence of glandular tissue arranged in form of duct like cystic spaces lined by cuboidal/columnar epithelium. The epithelium was lined by round to oval cells having bland chromatin and moderate amount of cytoplasm. These features were suggestive of Benign Adenomatoid Odontogenic Tumor. Patient also gave history of thyroidectomy 15 years back but she did not have any medical record of the procedure.

On physical examination facial asymmetry was found due to extra-oral swelling present on right lower side of face at angle of mandible of size 3 × 5 cm extending antero-posteriorly 5cm away from right ala of nose to right tragus of ear. Supero-inferiorly the swelling extends from right lobule of ear to the inferior border of mandible. The scar of thyroidectomy could be seen on her neck [see fig.1].



Fig. 1. Pre-operative facial appearance

No lymphadenopathy or thyroid mass could be palpated in the neck. Intraoral examination showed an ulcero-proliferative lesion present in right mandibular raphe area approximately 3 × 4cm extending from right second molar to right premolar and supero-inferiorly from occlusal surface to right external oblique ridge [see fig. 2].



Fig. 2. Pre-operative photograph showing intraoral ulcerated lesion on the right side of retromolar region

She also complained of paresthesia of lower lip and chin region on the right side. The oral hygiene was unsatisfactorily. On palpation surface of the bone was found to be irregular, crepitus or abnormal hypermobility were seen and bucco-lingual cortical plate expansion was also present.

The OPG showed multilocular radiolucent lesion which extends from right second molar to coronoid process of mandible. The anterior border of ramus and lower border was thinned out. Expansion, thinning, perforation and discontinuity of the buccal and lingual cortical plates were also evident with intervening radio-opaque septae within the radiolucent lesion. Pathological fractures at coronoid process and neck of condyle was also evident [see fig. 3].



Fig. 3. Preoperative Orthopantomogram

The clinical features and histo-pathological finding was not found to be compatible with each other. Based upon the clinical and radiological features, it seems to be aggressive odontogenic tumours and secondary neoplasm was kept in mind.

Due to aggressiveness of clinical features and to improve the patient's quality of life, segmental resection with disarticulation was planned. After routine blood investigation Hb% was found to be 6.2 g/dl and other relevant investigations were within normal limit. Then after proper blood group matching, four units of packed RBCs were transfused to the patient. Once patient was fit, the surgery was planned under general anesthesia. The treatment modality was discussed with the patient and operative procedure was carried out under general anaesthesia after written consent. The mandibular mass was removed in three pieces (due to pathological fractures at coronoid process and below the neck of condyle) by hemimandibulectomy with disarticulation, through a right submandibular incision and the bone defect was reconstructed using 2.7 mm titanium condyle reconstructive plate. Then layerwise closure was done. After that the entire specimen was sent for histopathological examination.

The histopathological report showed papillae usually lined by a single layer of cuboidal to low columnar tumor cells, ovoid nuclei with nuclear overlapping [see fig 4].

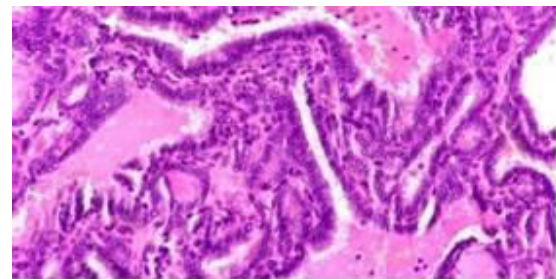


Fig. 4. Histological image of lesion shows papilla lined by layer lined by columnar cells and having ovoid nuclei with nuclear overlapping

On receiving (secondary) the history it was assumed that patient was operated for thyroid carcinoma as no record with it. These features were suggestive of metastatic deposits of papillary thyroid carcinoma. Then patient was sent for whole body thyroid scan which was suggestive of residual right lobe in thyroid bed with no evidence of

functioning metastasis in soft tissue or bones. Patient made uneventful recovery and was kept on regular follow up [see fig. 5].



Fig. 5. Post-operative facial appearance

DISCUSSION

The incidence of oral cancer may vary depending on different geographical areas. Also the age has a powerful influence on the risk of cancer, so standardisation for age is necessary [5]. In India, there are high rates of primary oral neoplasm in both sexes due to additional risk factors like smoking, chewing betel nuts and tobacco. Hence, the percentage of oral metastases is lower in the Indian population. Also, the oral metastases are not separately mentioned by cancer registries [6].

Metastatic tumours to the oral region are infrequent, comprising only 1%-2% of all malignant neoplasm. They are generally difficult to diagnose because of their uncommonness. Oral region is not a preferred site for metastases [6]. The primary site differed between the genders: for women, it was the breasts followed by the adrenal, colo-rectum, female genital organs, and thyroid; for men, it was lung followed by the prostate, kidney, bone, and adrenal [2]. Metastases to jaw bones are 2.5 times common than metastases to oral mucosa. Mandible is the most common location and the premolar-molar area is the most frequently affected site. This may be due to greater hematopoietic tissue in the mandible than the other jaw bones as the mode of metastasis is haematogenous, the neoplastic cells gets deposited in the vascular haemopoietic tissue, incidence of the jaw bones metastasis is less than other bones in the body which is possibly because of steady replacement of red marrow with yellow or fatty marrow [7, 8]. Most common symptoms are pain, swelling, loosening of teeth and paraesthesia. Less frequently, the lesion can present as pain in the temporomandibular joint region or as osteomyelitis in the jaw, or as trigeminal neuralgia [2]. The metastasis of tumours is a complex process. First the tumour cells detach from the primary tumours and breach a sequence of barriers. Then they spread in the tissue, invade the blood or lymphatic vessels, and through the circulation they invade the target organ, and proliferate within the target tissue. For growing beyond the size of 2–3 mm, tumour cells require oxygen and nutrients for which neoangiogenesis can occur [9, 10].

Sometimes the histopathological picture of an oral metastasis gives information to the recognition of a concealed primary tumour present somewhere else in the body but sometimes it does not help until the primary tumour is in course detected [11]. Harada et al. reviewed on thyroid carcinoma, and found that a number of cases in which squamous cell carcinoma and adenocarcinoma or anaplastic carcinoma coexisted [12]. However, Katoh et al. showed that squamous cell carcinomas had coexisting papillary carcinoma. They suggested that papillary carcinoma with squamous metaplasia and high-grade squamous cell carcinoma of the thyroid are closely related in histogenesis, but may show different clinical presentation, on the basis of degree of differentiation [13].

The prognosis for papillary thyroid carcinoma is better in younger patients without extracapsular extension and the chances of recurrence rate significantly higher in older patients, so age is the important prognostic factor of papillary thyroid carcinoma [5]. The role of routine total thyroidectomy with postoperative RAI (Radioactive Iodine) therapy remains controversial. According to Hay et al. 73% of papillary thyroid carcinoma patients younger than 21 years at the initial surgery, who died from nonthyroid malignancy during follow-up, underwent postoperative therapeutic irradiation, and so they have warned about routine therapeutic use of radioactive iodine therapy [14]. Ito et al in 2012 suggested that high-dose radioactive iodine administration immediately after surgery should be avoided and routine total thyroidectomy is not mandatory for patients with no aggressive features [5].

The palliative therapy may be the only treatment option when a metastatic tumour in the oral cavity has also developed metastases at other sites. The curative treatment of oral metastases should be considered when sole metastasis of mandible with identified primary tumours has been identified which occurred in this case.

Due to slow growing nature of papillary thyroid carcinoma, long term survival rate remains high even with distant metastasis, so in case of sole metastasis of mandible proper segmental resection with reconstruction of defects may result in improved prognosis and decrease in morbidity.

This case report of mandibular metastasis of papillary thyroid carcinoma should draw the attention of both the clinicians as well as pathologists when dealing with such rare cases.

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