

INCIDENTAL CERVICAL LYMPH NODE METASTASIS OF PAPILLARY THYROID CARCINOMA IN NECK DISSECTION SPECIMEN FROM A BUCCAL MUCOSA SQUAMOUS CELL CARCINOMA PATIENT: A CASE REPORT

Oncology/Radiotherapy

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ABSTRACT

Multiple primary tumors may develop in patients with head and neck squamous cell carcinoma. The coincidence of head and neck squamous cell carcinoma with papillary thyroid carcinoma is a rare finding. The presence of incidental PTC in lymph nodes can pose a diagnostic and management dilemma. Appropriate imaging and work up should be undertaken to identify and define the extent of a primary thyroid tumor. The incidental finding of a synchronous, primary thyroid gland carcinoma upon pathologic examination of lymph nodes recovered from a specimen after a composite resection procedure for squamous cell carcinoma of the buccal mucosa is rare and is therefore worth reporting. Patient is best managed after discussion in a multidisciplinary tumour board keeping in balance the morbidity from additional surgery and the overall prognosis of the patient from their index nonthyroid head and neck cancer, for which the neck dissection was performed.

KEYWORDS

papillary thyroid carcinoma, synchronous, squamous cell carcinoma, buccal mucosa.

INTRODUCTION

Oral cavity cancer are ranked 17th both incidence and mortality wise with 377713 new cases diagnosed globally in year 2020. In india, incidence wise it is ranked 2nd with 135929 new cases diagnosed in year 2020.¹ Most of the oral cavity cancer are squamous cell carcinoma and spread most commonly to regional cervical lymph node in a predictable manner. Surgery and radiation are the only curative treatments for head and neck carcinomas. Although chemotherapy alone is not curative, it enhances the effects of radiation and thus is routinely used as part of combined modality treatment in patients with higher stage disease. When primary tumour is to be treated surgically, an MRND for clinically positive neck node or elective neck dissection should be performed when the risk of regional lymph node metastasis is 10% to 15% or greater.

Because of the exposure to similar carcinogens, the coexistence of multiple primary tumors is established in patients with head and neck SCC². As reported by Jones *et al.*³, the most common regions for such phenomenon are mouth, followed by larynx and oropharynx. It is reported that 7% of such lesions develop synchronously and 25% will develop metachronously⁴. The differentiated thyroid carcinoma, as a synchronous primary tumor, is rarely detected incidentally in the thyroid gland or in the cervical lymph nodes from patients with head and neck SCC⁴.

Here, we report about lymph node (LN) metastasis of papillary thyroid cancer (PTC) that was found incidentally in a neck dissection specimen of buccal mucosa squamous cell carcinoma (SCC).

CASE REPORT-

A 51-year-old man presented in out patient department of our institute with complaint of ulcer over inner aspect of right cheek for 2 months duration. He had no medical history and negative history of tobacco or alcohol consumption. Intraoral examination revealed a ulceroproliferative lesion over right buccal mucosa adjacent to lower alveolus measuring 3.0 × 3.5 centimeters. Multiple neck nodes were palpable in right neck (level IB, IIA and III). HPE report of punch biopsy specimen came as squamous cell carcinoma (moderately differentiated).

Contrast-enhanced computed tomography (CECT) of face, neck and thorax was done to evaluate the locoregional extent of cancer and to rule out synchronous disease and lung metastases. CECT showed 3.7 × 4.1 × 1.5 cm sized heterogeneously contrast enhancing soft tissue mass in the right buccal mucosa, inseparable from the orbicularis oris and depressor anguli oris muscles. The lesion was extending to the gingivo-buccal sulcus area. Adjacent mandible abutment by tumour was noted. The clinical diagnosis was made of Squamous cell carcinoma of right buccal mucosa. Clinically staged as per AJCC 8th edition- cT3N2BM0 (stage IVA).

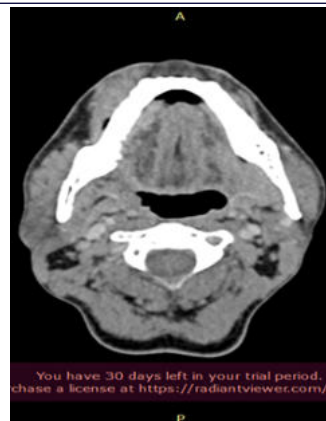


Figure 1. CECT face : Heterogeneously contrast enhancing soft tissue mass (arrow) is noted in the right buccal mucosa(3.7x4.1x1.5 cm).



Figure 2. CECT neck: Multiple enlarged right cervical lymph nodes, calcification seen in one of the node anterior to right carotid sheath.

Multidisciplinary tumour board suggested for surgery. Patient had undergone right buccal mucosa composite resection with right modified radical neck dissection (level I-V) and tongue flap

reconstruction for inner lining and Steinmann pin reconstruction for mandibular defect. Post operative stay at hospital was uneventful and patient was discharged on post operative day- 5.



Figure 3. Intraoperative photograph after steinmann pin reconstruction

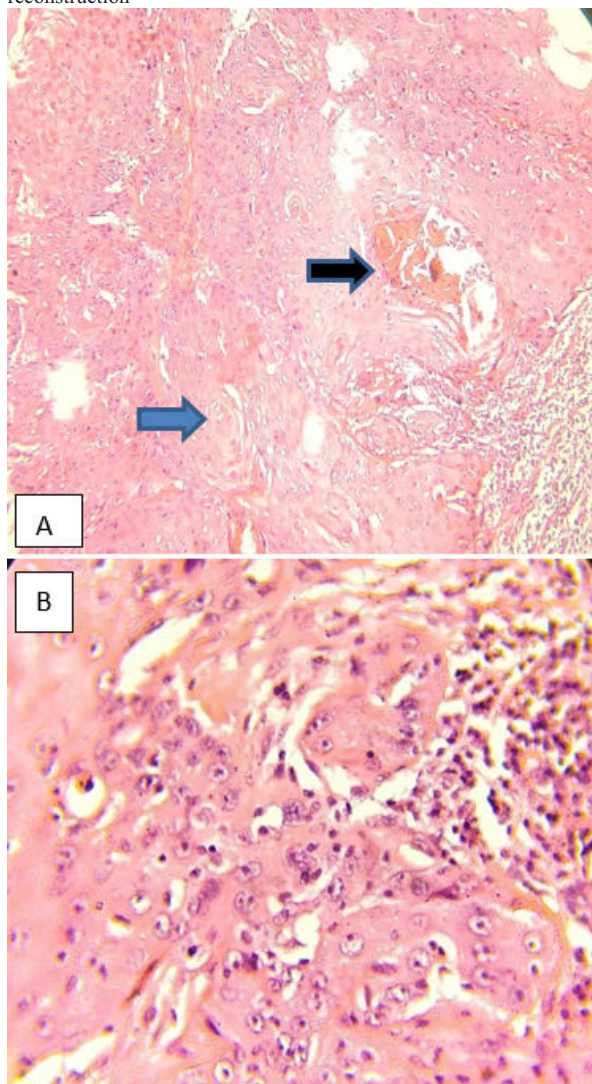


Figure 4. Squamous cell carcinoma- A- (200X)- malignant squamous cells in nests, the cells have abundant dense eosinophilic cytoplasm. Keratin pearls (black arrow) and epithelial pearls (blue arrow) are also noted. B- (400X)- The nuclei are pleomorphic and hyperchromatic

with prominent nucleoli. The cytoplasm is abundant and dense eosinophilic.

Histopathology report showed moderately differentiated squamous cell carcinoma, all margins were free, depth of invasion 13 mm, tumour size in greatest dimension was 2 cm, lymphovascular invasion, perineural invasion and extranodal extension was not found. **All 6 out of 37 examined lymph nodes showed metastasis from papillary thyroid carcinoma (PTC), pathologically staged as pT3N0.**

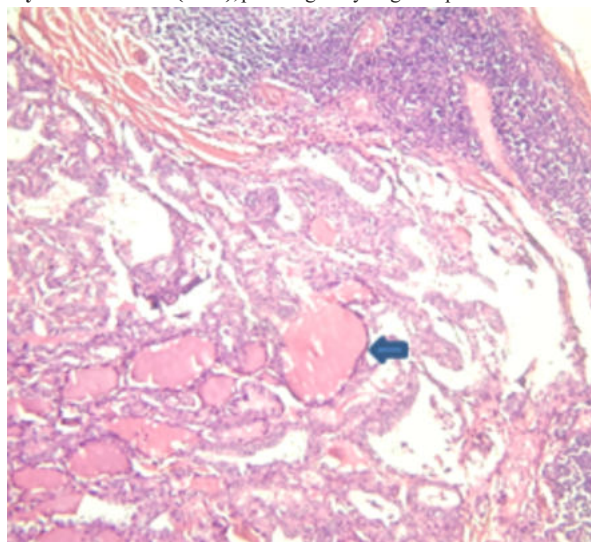


Figure 5- Papillary carcinoma metastasis in lymph node, (200X), blue arrow – thyroid follicle with colloid. Lymphoid tissue infiltrated by a papillary tumour showing follicles filled with colloid.

Ultrasound of the thyroid and neck was done, which showed hypoechogenic lesion (7x12 mm) in right lobe of thyroid gland with internal calcification, small hypoechogenic nodular lesion (3x4 mm) in left lobe, multiple nodes seen in left neck (largest 7x24 mm). Ultrasound guided FNAC from right lobe thyroid nodule was done which showed atypical cells in cluster and papillary fragments, atypical cells are round to oval, showing nucleomegaly, nuclear overcrowding and overlapping. Nuclei show hyperchromasia with occasional nuclear grooving and intranuclear pseudo-inclusion, - suspicious of papillary carcinoma (Bethesda category V).

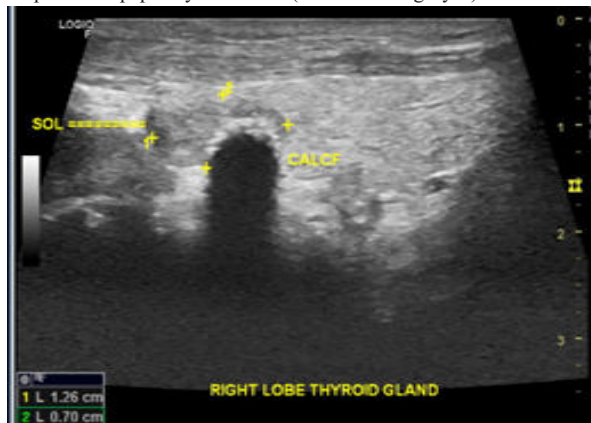


Figure 6. USG thyroid-Hypoechogenic lesion (7x12 mm) in right lobe of thyroid gland with internal calcification.

Multidisciplinary tumour board suggested for surgery for PTC followed by adjuvant radiotherapy for buccal mucosa SCC. Patient had undergone total thyroidectomy with bilateral central compartment (level VI) and left selective neck dissection (level II-IV). Final Histopathology report showed papillary thyroid carcinoma, multifocal tumour (right and left lobe of thyroid), largest tumour size was 1 cm, lymphovascular invasion, perineural invasion and extranodal extension was not found. 5 out of 7 right level VI lymph nodes showed metastatic deposit but other nodes (left level VI and left level II-IV) were free of the disease. Pathologically staged as mpT1aN1b (Stage I).

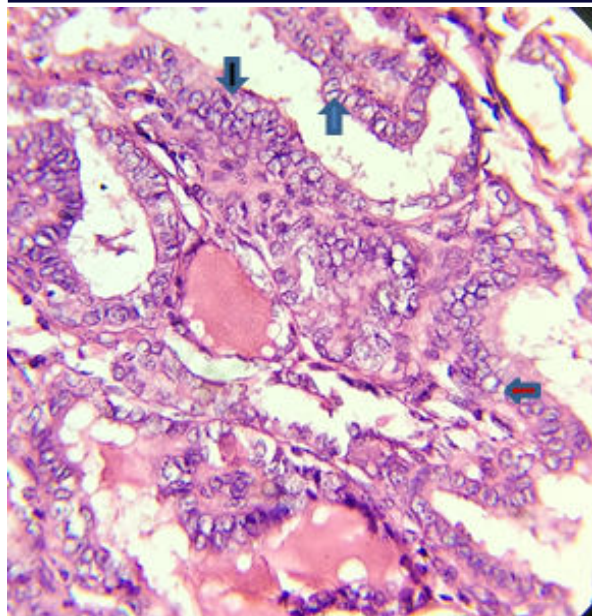


Figure 7. Follicles are lined by malignant follicular epithelial cells with classic nuclear features of papillary carcinoma of thyroid [Orphan Annie Eye nuclei (red arrow), nuclear overlapping (black arrow), nuclear grooving (blue arrow)]

Patient had received adjuvant radiotherapy for buccal mucosa SCC. Whole body radioactive iodine scan and ablative therapy is planned after interval of 6-8 weeks.

DISCUSSION-

It is important to consider the possibility of malignant metastases when a distinctly different histologic appearance is observed for cervical LNs. The primary foci of malignant tumors that may metastasize to cervical LNs include the esophagus^{5,6}, breast⁷, stomach⁸, lung⁹, and prostate¹⁰, besides the head, neck, and thyroid¹¹, as in our case. Occult PTCs have been described in up to 10% of the general population¹².

Thyroid cancer are incidence wise ranked 10th with 586202 new cases diagnosed globally in year 2020. In India, incidence wise it is ranked 19th with 20432 new cases diagnosed in year 2020. The thyroid follicular cells give rise to differentiated thyroid cancer (DTC). Around 90 % of thyroid cancers are DTC which mainly include papillary thyroid cancer (PTC) and follicular thyroid cancer.

Metastatic PTC as an incidental finding during neck dissection, is unusual and its incidence estimated to be less than 0.5% by some researchers¹³. Cervical metastases occur in 50% of all small tumors and 75% of larger ones. Thus, a wide sampling and precise study of all specimens must be performed for ultimate diagnosis¹⁴. Regardless of histological specifications of thyroid tissue inclusions, the prognosis is good, 10-year survival rate is more than 90%, and metastasis does not affect its outcome, though literature shows high risks in elderly patients^{15,16}.

Lim et al.¹⁷ reported a case of PTC and SCC that was identified in the same cervical LN as a collisional metastasis. Considering these findings, if the thyroid tissue is found in cervical LNs, it is not likely that the tumor has metastasized. Our patient was pathologically diagnosed with primary thyroid and metastatic LN, which was the same PTC, thus proving malignant metastasis to the cervical LN.

Mandapathil et al.¹² reported 26 incidentally diagnosed metastatic PTCs in neck dissection specimens, of which 10 primary sites were in the oral cavity, and metastatic PTC was predominantly found in level III and IV LNs. They proposed the following criteria for surgery vs. surveillance of primary thyroid cancer in patients with an incidentally detected metastatic PTC in the neck: surgery for (1) thyroid primary tumor detected on US with gross extrathyroidal extension, (2) thyroid primary tumor measuring > 1 cm, (3) thyroid primary tumor detected in a young patient, (4) additional LN metastases detected on imaging (US or CT), and (5) thyroid primary tumor detected in a patient with very good prognosis from the nonthyroid cancer for which neck

dissection was performed and surveillance for (1) small intrathyroidal primary tumor (<1 cm), (2) small primary tumor in an elderly patient, and (3) primary thyroid tumor detected, although the index primary cancer for neck dissection had a worse prognosis. Moreover, although several patients died owing to the head and neck squamous cell carcinoma (HNSCC), no patient died because of recurrence or metastatic PTC. It was reported that despite its metastatic spread, thyroid cancer does not affect the overall prognosis of patients already being treated for a more aggressive malignancy¹⁸. In our case, primary PTC measuring > 1 cm was detected using US in a male patient with locally advanced buccal mucosa SCC (pT3N0M0). Therefore, the use of surgery for the PTC was appropriate according to the above criteria.

CONCLUSION-

The presence of incidental PTC in lymph nodes can pose a diagnostic and management dilemma. Appropriate imaging and work up should be undertaken to identify and define the extent of a primary thyroid tumor. PTC is a differentiated thyroid cancer and although in neck region but managed totally different way than head and neck SCC. The incidental finding of a primary, synchronous thyroid gland carcinoma upon pathologic examination of lymph nodes recovered from a specimen after a composite resection procedure for squamous cell carcinoma of the buccal mucosa is rare and is therefore worth reporting. Patient is best managed after discussion in a multidisciplinary tumour board keeping in balance the morbidity from additional surgery and the overall prognosis of the patient from their index nonthyroid head and neck cancer, for which the neck dissection was performed.

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