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Metastatic papillary carcinoma of thyroid and metastatic adenocarcinoma of prostate co-existing with oral cavity squamous cell carcinoma: A case report and review of literature

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I. Introduction

Most of cancer metastasis to the cervical lymph nodes is from cancers of the mucosal surfaces of the upper aerodigestive tract. The second most common source of metastasis is nonmucosal tumors in the head and neck such as salivary glands, thyroid glands and skin [1]. Cancers originating from sites other than the head and neck can rarely metastasize to the cervical lymph nodes. However, neoplasms of the genitourinary tract make up a significant proportion of these cancers and should be considered in the differential diagnosis of neoplastic lesions of the head and neck [2]. Review of the literature suggests that in elderly male patients with neck masses, prostate carcinoma should be ruled out.

The incidental discovery of metastatic adenocarcinoma of prostate and papillary carcinoma of thyroid in lymph nodes during neck dissection being done for separate primary head and neck carcinoma is a rare clinical situation. Incidental thyroid carcinomas may occur in 1–10% of the population.[3] However its prevalence is found to be 6–35% in various autopsy studies.[4]

We here present a very rare case of Metastatic adenocarcinoma of prostate and papillary carcinoma of thyroid in a dissected cervical lymph node specimen of a squamous cell carcinoma of oral tongue.

II. Case Report

61 year old retired gentleman , who is a known smoker since last 25 years, without having any such comorbidites , visited to the Radiotherapy outdoor of NRS Medical college and Hospital. He had complain of difficulty in swallowing since six months, associated with pain in mouth and dribbling of saliva. There was a swelling in the right side of tongue which was very small at beginning and gradually increasing in size later since last five to six months. He went through investigation like Contrast enhanced MRI and punch Biopsy from Ulceroproliferative growth at right lateral border of tongue.

Punch Biopsy from Ulceroproliferative growth at right lateral border of tongue suggest moderately differentiated infiltrating keratinising squamous cell carcinoma. Contrast enhanced MRI of Face and Neck report suggested A hyperintense lesion (6cm×3.3cm×2.8cm) in anterior 2/3rd of tongue on Right side, extends laterally to the lateral margin of tongue and nearly crosses the midline raphae into the left side Of tongue. Multiple enlarged lymph notes in Neck at level Ia, Ib, II on both the sides. (Largest 1.4cm× 1.2cm× 1.3cm), later On underwent Wide local excision hemiglossectomy and mandibulectommy with bilateral selective node dissection under general anaesthesia.The Post operative histopathology report suggests Moderate to Poorly differentiated infiltrating keratinising squamous cell carcinoma of tongue. Depth of invasion was 2.1 cm lymphovascular invasion and perineural invasion was positive, and surgical margin of excision was free of tumour. Size of the tumour was (5 cm ×2.5 cm ×2.2 cm). It was 1.5 cm from anterior, 0.8 cm from posterior,2.9 cm from medial, 0.9 cm from inferolateral resection margin.

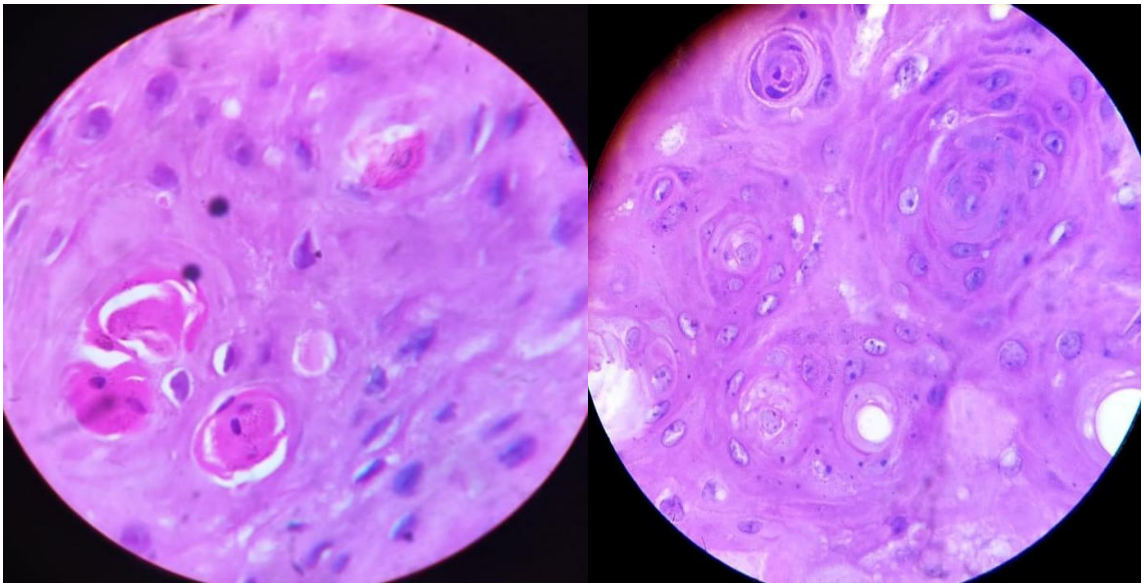

FIG 1. Slides Showing Squamous cell pattern with characteristic keratin pearls

Three right level Ia, five right level II, five left level Ib&III, three left level II, and two left level IV lymph nodes are reactive, non metastatic. But 2/16 Right level III and IV metastatic papillary adenocarcinoma.

After couple of week, Slide review and Immunohistochemistry study of the previous slide shows one of the Lymph nodes of Right level III &IV suggested metastasis of papillary carcinoma of thyroid, with expressions of thyroglobulin and TTF-1, and surprisingly the another lymph node reveals metastasis of adenocarcinoma of prostate with expressions of Cytokeratin, CK 8/18, NKX 3.1, PSA and AMACR. Immuno negative for MIC2, Pax8, synaptophysin, calcitonin, CEA, CK7 and CK 20

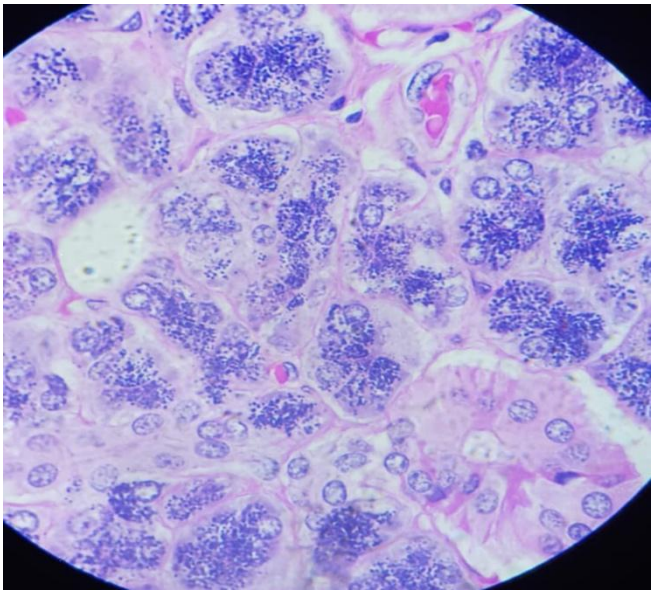

FIG 2. Slide showing papillary carcinoma of thyroid.

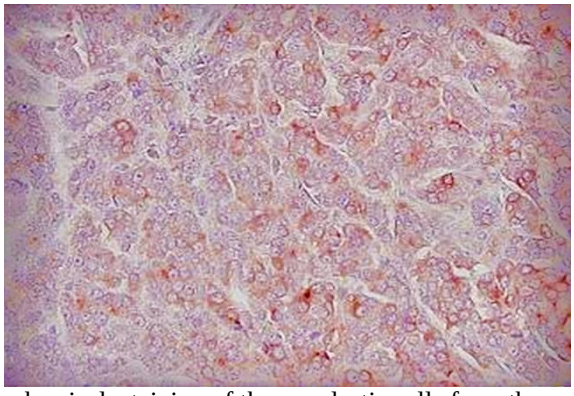

Fig 3. Showing immunohistochrmical staining of the neoplastic cells from the cervical lymph node, showing positivity for PSA.

18F-FDG whole body PET-CT Scan suggests No FDG avid growth in tongue, An FDG avid thyroid nodule seen in right lobe (1.87 cm ×1.55 cm×2.69 cm). SUVmax of 8.69. No significant FDG avid cervical lymphadenopathy seen.

Fig 4. *An FDG avid thyroid nodule seen in right lobe (1.87 cm ×1.55 cm×2.69 cm). SUVmax of 8.69.*

Multiple FDG avid nodular uptakes noted in peripheral zone of prostate, largest measures 1.31 cm×3.05 cm×1.55 cm. With SUVmax of 7.58, Multiple FDG avid retroperitoneal lymph nodes seen in para-aortic region showing increased FDG uptake, SUVmax of 7.2.

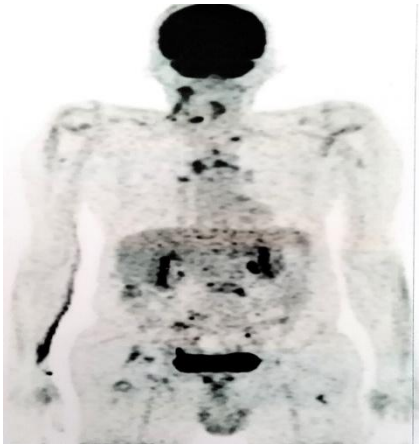

Fig 5. *Multiple FDG avid nodular uptakes in peripheral zone of prostate, largest (1.31 cm×3.05 cm×1.55) cm. With SUVmax of 7.58 .Multiple FDG avid mediastinal nodes, SUVmax of 6.09.*

Multiple FDG avid Sclerotic lesions are seen in visualised skeleton L2, L3 vertebra, sacrum, bilateral Iliam, acetabulum, ischium, left pubis, bilateral proximal femurs, bilateral clavicle , bilateral scapula, and right humeral head.

Multiple FDG avid mediastinal nodes seen in pre-tracheal, AP window, para-aortic, sub-carinal and right hilar region, showing increased FDG uptake, SUVmax of 6.09.

After a week, ultrasound guided FNAC from thyroid swelling suggests Papillary Carcinoma of thyroid, and we have also planned for serum PSA, which was also 72.82 ng/ml, which confirmed the diagnosis of Triple primary carcinoma of squamous cell carcinoma of Oral tongue, metastatic papillary cell carcinoma of thyroid and Metastatic Adenocarcinoma of Prostate.

On inspection the patient's ECOG(Eastern Cooperative Oncology Group) performance status was 2 , there was Ryle's tube kept in situ for feeding purpose. The operative scar mark was healthy with no obvious mass or lesion shown in per oral examination. On palpation no obvious mass or node found in either sides of neck, No palpable lymph nodes found in bilateral axilla, bilateral inguinal region. Per abdominal examination was also normal with soft and non tender abdomen. There is nodular prostate gland found in digital rectal examination(DRE).He was not complaining of any bone pain or any dysurea or frequent micturation.

Fig 6. Patient after hemiglossectomy and mandibulectommy with bilateral selective node dissection

We planned for Radical Concurrent Chemoradiation for the carcinoma oral tongue, systemic therapy for the metastatic adenocarcinoma of prostate and surgical intervention for papillary cell carcinoma of thyroid. For these, we have done done pre radiation dental check up and evaluation, all blood investigations like Complete Blood Count, Kidney function test and Liver function test along with the serum calcium level. Also done the ECG and Echocardiography for cardiological fitness for chemotherapy. All test reports are within normal level with acceptable parameters. He has received Concurrent Chemoradiation with 66Gy/33# over 6 and half weeks period in a shrinking field technique with weekly injection cisplatin chemotherapy @40mg/$m^{2.}$ Dose.

Fig 7. *Patient during the treatment period with conventional radiotherapy planning.*

He has also received Injection Leuprolide (22.5mg) Deep IM @3monthly interval, at the same time he has received Injection Zolindronic acid (4mg) @4weekly interval and obviously with dose adjustment according to the creatine clearance.Now he is on orally Calcium supplement, tab Bicalutamide maintenance therapy. He is on a regular monthly check up with serum calcium level, PSA level and Thyroid profile under close observation.

III. Discussion

Usually, prostate cancer spreads primarily to the regional lymph nodes and bones, followed by lung, bladder, liver, and adrenal gland. Cervical lymph node involvement in prostate cancer is rare and is almost uniformly associated with widespread metastatic disease in patients over 45 years of age. The reported incidence varies between 0.28 and 0.4% in most series, with only one case in the literature presenting in a man younger than 45 years of age [5,6].

Batson have postulated that head and neck metastases from prostate cancer occur due to hematogenous spread via the vertebral venous system (or Batson's plexus) [7]. However the hematogenous dissemination fails to explain the predilection of this carcinoma to metastasize to the left cervical region, whilst right side involvement is extremely uncommon. Prostate is richly supplied by lymphatics which drain into obturator-hypogastric and presacral nodes and from these to the iliac, paraaortic, cisterna chyli, and thoracic duct. Finally, the lymphatic drainage enters the systemic blood circulation via the left subclavian vein. Some authors postulated that tumor cells can lodge in the left cervical nodes by retrograde spread due to the proximity of these nodes with the point-of-entry of the thoracic duct into the left subclavian vein [8].

Vassiloplou-Sellin and Weber found the incidence of incidental thyroid metastasis to cervical nodes was 0.3% (eight cases of 2855 patients)[9].Butler et al. have in their studies reported that up to 3% of patients with head and neck cancer may harbor clinically unsuspected thyroid cancer.[10]The most common lymph nodes involved by metastatic thyroid carcinoma are level IV, level III, and level II.[11]. Clark et al. in their study have concluded that clinically normal thyroid gland in the presence of metastatic papillary carcinoma is not sufficient evidence to rule out small focus of carcinoma in the thyroid gland and so he advocates total thyroidectomy in all such Cases[12].

The significance of accidentally discovered metastatic thyroid lesion in the lymph nodes is not much when compared to the more aggressive primary squamous cell tumor. Hence more effort should be directed toward the primary tumor. Vassiloplou-Sellin and Weber believe that the ultimate outcome of such cases depends on tumor behavior of the primary squamous tumor and not by the clinical outcome of well differentiated carcinoma of thyroid[9].He advocates conservative treatment of thyroid gland in the presence of aggressive primary lesion.

IV. Conclusion

Metastatic papillary carcinoma thyroid and metastatic adenocarcinoma of prostate in the presence of squamous cell carcinoma of oral cavity is a rare clinical phenomenon. In such cases outcome of the patient depends on the behavior of the primary tumor, so in such cases aggressive treatment of primary squamous cell carcinoma oral cavity should take precedence, along with the continuation of Bisphosphonates, Hormonal therapy, Antiandrogen therapy is required for metastatic adenocarcinoma of prostate.Total thyroidectomy should be done in the presence of clinically palpable nodule in thyroid, or the presence of a suspicious nodule in the thyroid on ultrasound neck, positive thyroid scan, or suspicious lesion on intraoperative frozen section from the thyroid gland

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