

Contralateral lymph node metastasis: A rare skip pattern

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ABSTRACT

Neck lymph node metastasis is the most critical factor influencing the survival and prognosis of oral squamous cell carcinoma. The outcome of patients with lymph node metastases occurring after excision or radiotherapy of the primary tumor is poor. In the absence of ipsilateral nodal metastases, contralateral lymph neck metastasis is extremely rare. Reports of skip metastases have been recorded for lesions of the tongue and floor of the mouth as there is free communication between the two sides of the tongue. Intraoperative frozen sections of neck nodes have been used as a modality for the detection of occult metastases and to guide the extent of neck dissection but have not provided satisfactory results. The case described in this report is a rare phenomenon that demonstrates a well-lateralized clinically advanced buccal mucosa carcinoma with histologically proven node-negative neck but exhibited contralateral positive neck after a span of 1 month.

Key words: Lymph node, Skip, Contralateral, Buccal mucosa

An uncontrolled growth of cells that invade and cause adjacent tissue impairment is known as cancer. Oral cancer is of significant public health importance to India as it ranks among the top three cancers in the country [1]. Oral cancer poses a serious health challenge to nations undergoing economic transition [2]. The major cause of this global health issue is the rising number of tobacco and alcohol users in children and youth [3]. The continual use of tobacco in various forms such as gutka, zarda, mawa, kharra, khaini, cigarettes, bidi, and hookah is a major cause of tumor development in the oral cavity in both young and adult Indian populations [4]. Staging during diagnosis is the most important prognostic predictor of oral squamous cell carcinoma (OSCC). Despite the fact that the oral cavity is accessible for visual examination, oral cancers are typically detected in their advanced stages. In India, around 77000 new cases and 52000 deaths are reported annually, which is approximately one-fourth of the global incidences [5]. The presence of neck metastasis is the most significant prognostic and survival factor in this disease. The SCC of the oral cavity presents a variable frequency of contralateral lymph neck metastases (CLNMs) between 0.9% and 36%, as reported in the literature [6]. Although elective treatment of the contralateral neck is accepted for OSCC approaching or crossing the midline, this is not routinely performed in lateralized cases.

Here, we present a case report of a patient who initially demonstrated negative nodes on his ipsilateral neck post surgery is provided. However, after one month, he showed contralateral positive neck nodes.


CASE REPORT

A 56-year-old male patient with a 20-year history of gutka chewing and 10 pack-years of smoking presented to our Department of Head and Neck Surgical Oncology in the month of October 2022 with a chief complaint of an ulcer in his left buccal mucosa for 1 month and weight loss of 15 kg for 2 months. Biopsy done outside was suggestive of well-differentiated OSCC.

On intraoral examination, an ulceroproliferative growth over the left buccal mucosa of approximately 5 × 4 cm extending anteriorly 1 cm away from the lip commissure till the second molar region posteriorly and superior-inferiorly from the upper gingivobuccal sulcus (GBS) till the lower GBS was evident (Fig. 1a). Extraorally, the overlying skin involvement was also evident (Fig. 1b). No clinically positive neck nodes were evident.

Whole-body positron emission tomography scan was also suggestive of a fluorodeoxyglucose-avid lesion over the left buccal mucosa eroding the cortical upper alveolus and lower alveolus (Fig. 1c).

The patient underwent a left composite resection, i.e., wide local excision of the buccal mucosa with the overlying

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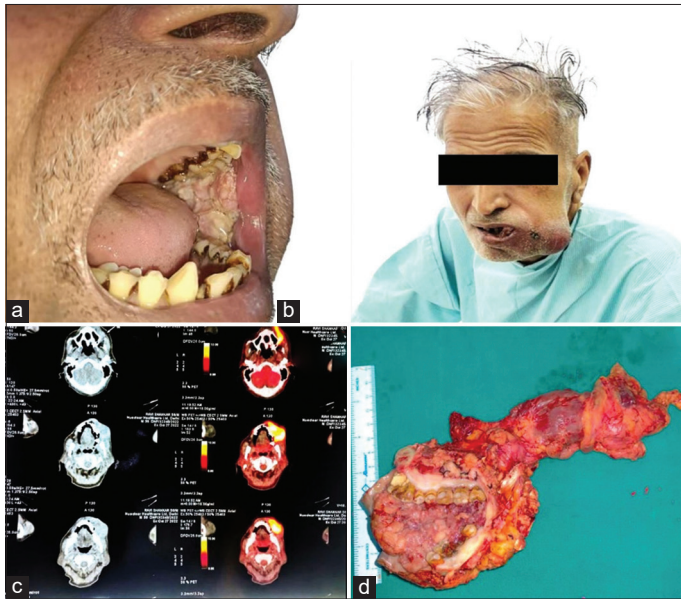


Figure 1: (a) Intraoral picture of the lesion; (b) clinical extraoral photograph of the patient demonstrating the primary tumor; (c) positron emission tomography scan suggestive of a fluorodeoxyglucose-avid lesion over the left buccal mucosa eroding the cortical upper alveolus and lower alveolus; (d) post-operative specimen picture of the composite resection with the neck nodes

skin, segmental mandibulectomy, upper alveolectomy with modified radical neck dissection (type II - preserving spinal accessory nerve, internal jugular vein) with bipaddled pectoralis major myocutaneous flap reconstruction (Fig. 1d). Frozen sections of the primary tumor were taken for the assessment of margins. The margins were clear of the tumor, with the shortest distance being 1.3 cm and the longest being 2.2 cm. The final histopathology report (HPR) stated the disease as pT4aN0 (according to the American Joint Committee on Cancer [AJCC] 8th ed.) [7] (Fig. 2a). There was no evidence of perineural or lymphovascular invasion. The depth of invasion for the tumor was >20 mm.

The patient was planned for adjuvant radiotherapy of 60 Gy/30 fractions/6 weeks [8]. After three fractions of radiotherapy on the 39th post-operative day, he demonstrated a positive node on the contralateral side of the neck with no evidence of a second primary lesion. Fine-needle aspiration cytology was performed and the report was positive for metastatic squamous cell carcinoma. He was reoperated with a right modified radical neck dissection (type III) on the 47th post-operative day.

On histopathological examination, the tumor was evident in the regional lymph nodes, and the largest lymph node discovered was 2.3 cm in size (Fig. 2b). The macroscopic extranodal extension (ENE) was present at the right level 1b lymph node, thus making the N stage as pN3b (Fig. 2c). The patient was advised to continue radiotherapy as the disease was staged advanced in the previous surgery. He was also advised for concurrent chemotherapy due to positive ENE in his final HPR. The patient is at present on follow-up every 2 months after his adjuvant therapy for 1 year.

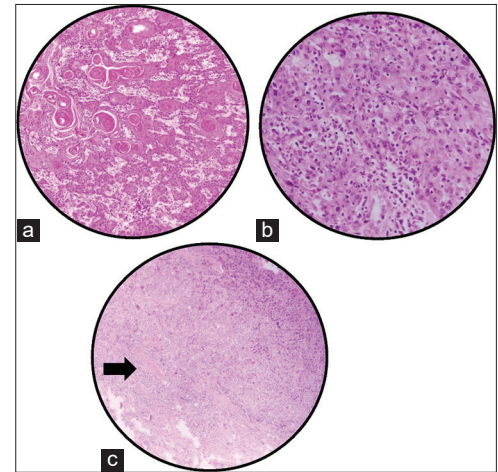


Figure 2: Hematoxylin- and eosin-stained slide showing (a) primary tumor showing tumor islands and keratin pearls in connective tissue stroma at $\times 10$; (b) metastatic lymph node invaded by neoplastic cells at $\times 40$; (c) extranodal extension, where neoplastic cells are infiltrating between muscle fibers outside the tumor capsule at $\times 10$ (shown in black arrow)

DISCUSSION

The contralateral metastasis propagation can occur in head-and-neck carcinoma in different ways: first, by crossing afferent lymphatic vessels, by tumor spread along the midline, when ipsilateral lymph nodes are widely involved, and second, in certain anatomical areas where there is no real barrier in the midline [9]. The majority of studies found that the patients with a high incidence of CLNM are those where the tumors have extended beyond midline or present with tongue and floor of the mouth cancers. Kurita *et al.* [6] observed an incidence of CLNM in early oral tongue SCC of 12.2%. In the paper reported by Koo *et al.*, [10] the overall rate of occult contralateral metastasis in OSCC was 11%, and the rate was 21% in cases of ipsilateral pathologic metastasis.

The factors that determined CLNM were demonstrated to be skin involvement and ipsilateral neck node metastases in a study by Mair *et al.* [11]. In the absence of ipsilateral nodal metastasis, contralateral nodal metastasis is extremely rare. Mair *et al.* [11] also found only two patients with isolated contralateral nodal metastases in their study. Along with the above factors, perineural, lymphovascular invasion, grade of differentiation, tumor location, and advanced stage also affect the CLNM [6].

Our case only demonstrated a well-lateralized buccal mucosa lesion with skin involvement, but no clinically or pathologically positive ipsilateral nodes or a positive perineural invasion/lymphovascular invasion was found. Involvement of skin is a poor prognostic sign and will upstage the disease to T4 as per the AJCC staging system. Whether contralateral neck dissection is required for such lateralized buccal mucosa cases with overlying skin involvement not crossing the midline or having no nodal metastases is highly questionable and needs further research. The OSCC has a high incidence of micrometastases and often

bilaterally metastases due to the rich submucosal lymphatic plexus that communicates freely crossing the middle line [9]. The depth of invasion (DOI) for the primary tumor also plays a significant role in causing contralateral metastases. According to a study by Flörke *et al.* [12], a mean value of 10.9 mm as DOI was reported to cause CLNM, and in our case, it was >20 mm, hence indicating a clear role in the disease process. Oral cancer patients often have pre-existing oral submucous fibrosis, which causes juxta-epithelial inflammation and fibrosis of submucosal tissues. This condition constricts the blood vessels of the underlying mucosa, which can potentially contribute to tumor spread to the contralateral neck.

Contralateral nodal metastasis in the absence of ipsilateral nodal metastasis is very rare, and a frozen section of ipsilateral neck dissection specimen has been used as a modality for the detection of occult metastases and to guide the extent of neck dissection [13]. Unfortunately, in view of high false-negative rates and poor sensitivity, a frozen section of neck nodes does not stand out to be a good diagnostic tool for the detection of occult cervical nodal metastases [14]. The cost, time, and expertise required for such frozen sections do not provide a meaningful clinical benefit in terms of regional failure and overall survival for clinically node-negative patients in OSCC. No challenges were experienced during the second surgery of the contralateral neck. However, as our patient presented with a positive contralateral lymph node at a later stage and had to be reoperated, the administration of adjuvant radiotherapy got delayed which might affect the prognosis and increase the risk for recurrence in the future. Since lateralized buccal mucosa carcinoma cases do not present with contralateral lymph node metastases, diagnosing such cases in the pre-operative phase is challenging. Alternatively, this patient could have been directed toward radiation for treating the neck node, but the patient was deemed fit for a second surgery and the clinical features of the node metastases were not problematic [15].

CONCLUSION

It has been widely accepted that CLNM dramatically reduces long-term survival and prognosis. Several predictive factors have been proposed to be correlated to CLNM. The percentage of patients presenting with such type of metastasis for well-lateralized oral cancer cases is very low but affects their outcome. This presents a dilemma for the operating surgeons on whether to

approach the contralateral neck during the first surgery and hence needs further research.

REFERENCES

1. Coelho KR. Challenges of the oral cancer burden in India. *J Cancer Epidemiol* 2012;2012:701932.
2. Laprise C, Shahul HP, Madathil SA, Thekkepurakkal AS, Castonguay G, Varghese I, *et al.* Periodontal diseases and risk of oral cancer in Southern India: Results from the HeNcE life study. *Int J Cancer* 2016;139:1512-9.
3. Corso GD, Villa A, Tarsitano A, Gohel A. Current trends in oral cancer: A review. *Cancer Cell Microenviron* 2016;3:E1332.
4. Varshitha A. Prevalence of oral cancer in India. *J Pharm Sci Res* 2015;7:845-8.
5. Borse V, Konwar AN, Buragohain P. Oral cancer diagnosis and perspectives in India. *Sens Int* 2020;1:100046.
6. Kurita H, Koike T, Narikawa J, Sakai H, Nakatsuka A, Uehara S, *et al.* Clinical predictors for contralateral neck lymph node metastasis from unilateral squamous cell carcinoma in the oral cavity. *Oral Oncol* 2004;40:898-903.
7. Ridge JA, Lydiatt WM, Patel SG, Glastonbury CM, Weber MB, Ghossein RA, *et al.* Oral cavity. In: Amin MB, Edge S, Greene F, Byrd DR, Brookland RK, Washington MK, *et al.*, editors. *AJCC Cancer Staging Manual*. 8th ed. Chicago: Springer International Publishing AG; 2018. p. 79-94.
8. Robertson AG, Soutar DS, Paul J, Webster M, Leonard AG, Moore KP, *et al.* Early closure of a randomized trial: Surgery and postoperative radiotherapy versus radiotherapy in the management of intra-oral tumours. *Clin Oncol (R Coll Radiol)* 1998;10:155-60.
9. Kowalski LP, Bagietto R, Lara JR, Santos RL, Tagawa EK, Santos IR. Factors influencing contralateral lymph node metastasis from oral carcinoma. *Head Neck* 1999;21:104-10.
10. Koo BS, Lim YC, Lee JS, Choi EC. Management of contralateral N0 neck in oral cavity squamous cell carcinoma. *Head Neck* 2006;28:896-901.
11. Mair M, Nair S, Thiagarajan SK, Agrawal J, Nair D, Chaturvedi P. Skin involvement and ipsilateral nodal metastasis as a predictor of contralateral nodal metastasis in buccal mucosa cancers. *Indian J Cancer* 2016;53:394-96.
12. Flörke C, Gülses A, Altmann CR, Wiltfang J, Wiekert H, Naujokat H. Clinicopathological risk factors for contralateral lymph node metastases in intraoral squamous cell carcinoma: A study of 331 cases. *Curr Oncol* 2021;28:1886-98.
13. Rao RS, Deshmane VH, Parikh HK, Parikh DM, Sukthankar PS. Extent of lymph node dissection in T3/T4 cancer of the alveolobuccal complex. *Head Neck* 1995;17:199203.
14. Chakrabarti S, Singhavi HR, Bal M, Mair M, Malik A, Mahuvakar A, *et al.* Intraoperative frozen section for detection of occult metastasis in clinically N0 neck does not improve outcome in oral cavity carcinomas. *Eur Arch Otorhinolaryngol* 2019;276:2325-30.
15. Huang SH, O'Sullivan B. Oral cancer: Current role of radiotherapy and chemotherapy. *Med Oral Patol Oral Cir Bucal* 2013;18:e233-40.

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