

## Cavernous Sinus Metastasis from Carcinoma Buccal Mucosa - A Rare Presentation

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**Abstract:** Distant brain metastases from oral squamous cell carcinomas are extremely unusual. Here we present a case of a 55-year-old female who was treated for locally advanced carcinoma of buccal mucosa with surgery. While on adjuvant radiotherapy, she developed right lateral rectus palsy. When evaluated with MRI brain, she was found to harbor a metastatic deposit in right cavernous sinus. Because of poor performance status and noncompliance, biopsy was not contemplated and she was treated with radiotherapy to the metastatic site. This is the first case reported of this kind in the available literature.

**Keywords:** Distant brain, metastases, carcinoma.

### INTRODUCTION

Oral cancer tumors mostly present as localized disease and tend to remain localized until late in the course of their development. Around 20 % of the patients develop distant metastasis and might eventually die of their disease [1]. Distant metastasis usually occurs in patients with nodal disease at presentation or in patients who recur loco regionally [2]. Most common sites of metastasis are lung (66%), followed by bone (22%), and liver (9.5%) [3]. Therefore, preoperative tumor staging is usually focused on these sites (CT scan of the chest, radionuclide bone scans, and ultrasound of the liver) when indicated.

Brain metastasis from squamous cell carcinoma of oral cavity is very rare. Only a handful of cases have been reported so far in the literature [4,5]. In the following case study, we present a patient who developed cavernous sinus metastasis while on treatment for carcinoma left buccal mucosa.

### CASE DESCRIPTION

This 55 year old female patient presented on July 2014 to our head and neck clinic with a non-healing ulcer in the right buccal mucosa of one month duration. On evaluation she was found to have and an ulcero proliferative growth of about 5x4 cms in the right buccal mucosa involving the right lower gingiva buccal sulcus and extending posteriorly up to the right retromolar trigone. She also had multiple right level II and III nodes. The biopsy from the lesion was suggestive of squamous cell carcinoma.

CT evaluation revealed bony erosion of anterior cortex of inferior part of ramus of right mandible. There were multiple lymph nodes in right level II, III and IV regions. Her chest X ray did not reveal any abnormality and her base line blood investigations were also normal. She was clinically diagnosed to have c T4a N2b M0 carcinoma right buccal mucosa. She was treated with Neo adjuvant

chemotherapy with cisplatin and 5 fluorouracil for two cycles, followed by surgery (Wide excision + Right hemi mandibulectomy + Right modified radical neck dissection + Pectoralis major myocutaneous flap reconstruction) on August 2014. Her surgical pathology showed a residual tumour of 2.5x2cm. All of the 18 nodes sampled were negative for metastasis. All surgical margins were negative, and there was no lympho vascular or perineural invasion. However segment of bone which was removed showed tumor infiltration.

She was started on post-operative radiotherapy to the tumor bed and ipsilateral neck. After 5 fractions of RT, she was admitted with generalized weakness, poor oral intake and hyponatremia. While on admission she was found to have right lateral rectus palsy and diplopia (Fig 1). MRI evaluation showed T1 iso/hypo intense lesion in the right cavernous sinus encasing internal carotid artery [approximate size 15x12mm] (Fig 2a,b). Contrast MRI could not be done due to technical difficulty. Her general health was not satisfactory to proceed with histological confirmation and further evaluation. The adjuvant radiotherapy was stopped and she was then started on radiotherapy to skull base (Fig 3).



Fig-1: Image showing the patient with right lateral rectus palsy

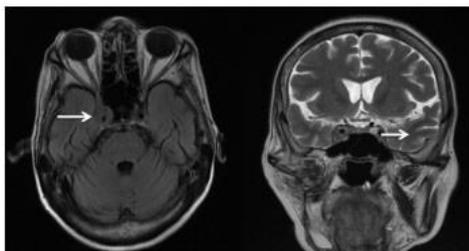


Fig-2 a,b :Axial T2 Flair and coronal T2 images showing metastatic deposit in right cavernous sinus encasing carotid vessels.

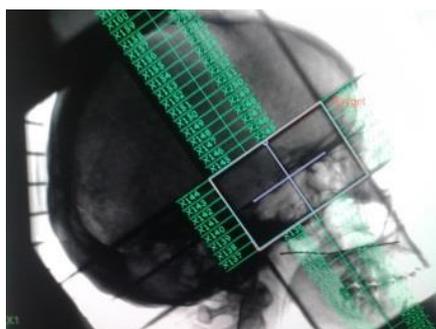


Fig-3: Simulator image showing the radiotherapy portals to treat the metastatic site

## DISCUSSION

The development of metastasis of tumor is a multi-step process, in which multiple genes participate in and play different roles. With regard to the regional lymph node metastasis, several important gene proteins related to microvascular angiogenesis and lymph genesis function as promoters of regional lymph node metastasis. In the event of distant metastasis, several processes determine the tumor spreading to other organ systems, including angiogenesis, tumor invasion into local stroma and vascular system, circulation of tumor cells, arrest of tumor cells at distant site, and colony formation at secondary site.

As a relatively rare but clinically relevant event, the development of distant metastasis is usually difficult to predict in clinic, especially when initial treatment planning is made. Malignant tumors can metastasize into every part of the brain. The underlying factors relating to the differential propensity of primary tumors to metastasize into the brain remain unknown. With respect to oral cavity squamous cell carcinomas, distant metastases are uncommon. When they occur,

they occur commonly to lung, bones and liver. Brain metastasis from oral cavity cancers is extremely rare and only few cases have been described in literature. In our patient it was a further rarest event, where metastases have occurred from a carcinoma buccal mucosa to right cavernous sinus, resulting in lateral rectus palsy.

Our patient, presented with generalized weakness during the initial week of adjuvant radiotherapy. Baseline evaluation revealed hyponatremia and her weakness was attributed to that. But even after correction of hyponatremia her weakness persisted. Detailed clinical examination then revealed right lateral rectus palsy and diplopia. MRI showed a metastatic deposit in the right cavernous sinus encasing the right carotid artery. This was the possible reason for the lateral rectus palsy. Though we could not proceed with a biopsy to confirm the diagnosis due to the poor general health of the patient, since the radiological diagnosis was confirmatory of metastasis. She was started on steroids immediately after the diagnosis was made for which she responded satisfactorily.

This is the first case report of this kind reported in the literature. This could either be a metastatic deposit in cavernous sinus or it could also be a deposit due to perineural spread along the mandibular nerve. This patient was then treated with palliative radiotherapy with 20 Gy in five fractions to the skull base.

#### **CONCLUSION**

Though metastasis to cavernous sinus from a carcinoma buccal mucosa is extremely rare, proper clinical examination and the suspicion of remote possibilities might be extremely helpful while managing our patients.

#### **REFERENCE**

1. Myers E. Cancer of the head and neck, 4th ed. Philadelphia: Saunders, 2003.
2. Merino OR, Lindberg RD, Fletcher GH. An analysis of distant metastases from squamous cell carcinoma of the upper respiratory and digestive tracts. *Cancer* 1977;40(1):145–151.
3. Ferlito A. Incidence and sites of distant metastases from head and neck cancer. *ORL J OtorhinolaryngolRelat Spec* 2001;63(4):202–207.
4. P. S. G. F. Hardee and I. L. Hutchison, “Intracranial metastases from oral squamous cell carcinoma,” *British Journal of Oral and Maxillofacial Surgery*, vol. 39, no. 4, pp. 282–285, 2001.
5. J. Ruzevick, A. Olivi, and W. H. Westra, “Metastatic squamous cell carcinoma to the brain: an unrecognized pattern of distant spread in patients with HPV-related head and neck cancer,” *Journal of Neuro-Oncology*, vol. 112, pp. 449–454, 2013.