

# Ophthalmic Metastasis in Squamous Cell Carcinoma of Head and Neck: A Study on Two Patients

D R Samanta<sup>1</sup>, C Bose<sup>2</sup>, R Bhuyan<sup>3</sup>, S R Mishra<sup>4</sup>, S N Senapati<sup>5</sup>

<sup>1</sup>Assistant Professor, Department of Medical Oncology, Acharya Harihara Regional Cancer Centre, Cuttack, Odisha, India, <sup>2</sup>Senior Resident, Department of Radiotherapy, Acharya Harihara Regional Cancer Centre, Cuttack, Odisha, India, <sup>3</sup>Professor, Department of Oral Pathology and Microbiology, Institute of Dental Science, Kalinga Nagar, BBSR, Odisha, India, <sup>4</sup>Post-graduate, Department of Radiotherapy, Acharya Harihara Regional Cancer Centre, Cuttack, Odisha, India, <sup>5</sup>Professor and Head, Department of Radiotherapy, Acharya Harihara Regional Cancer Centre, Cuttack, Odisha, India

## Abstract

Primary squamous cell carcinoma of head and neck usually metastasizes to the regional lymph node, lung, and bone. Ophthalmic metastasis in squamous cell carcinoma of head and neck is uncommon. Most of the ophthalmic metastasis is due to the carcinoma of the breast and lung. Squamous cell carcinoma of the oral cavity with metastasis to the eye has not yet been documented. We are presenting herewith two cases of carcinoma buccal mucosa that had ophthalmic metastasis. One patient had carcinoma left buccal mucosa, which was treated with left marginal mandibulectomy with pectoralis major myocutaneous flap and neck dissection followed by radiotherapy. He was asymptomatic for 1½ year, subsequently he presented with choroid, lung and bone metastasis. The other patient was diagnosed as carcinoma right buccal mucosa, which was subsequently treated with segmental mandibulectomy with supraomohyoid neck dissection, followed by radiotherapy. He was asymptomatic for 6 months. Subsequently, he presented with metastasis to the left orbit. Both the patients were treated with radiation with palliative intent to the eye and were symptomatically improved. The clinical presentation, diagnosis and treatment of carcinoma buccal mucosa with ophthalmic metastasis are discussed here with the review of literature due to its rarity and for future documentation.

**Key words:** Choroid metastasis, Head and neck carcinoma, Orbital metastasis, Squamous cell carcinoma

## INTRODUCTION

Ophthalmic metastasis from an extraocular primary malignancy is a rare event. Head and neck malignancy most commonly metastasize to the regional lymph node. Common sites of distant metastasis are lung, mediastinal lymph node, bone and liver.<sup>1</sup> Orbital metastasis is defined as one that occurs within the space between the eyeball and bony orbit. Orbital involvement usually occurs due to direct extension of nasopharyngeal and ethmoid sinus carcinoma or through perineural invasion. Similarly ocular metastasis mostly choroid metastasis occurs due to primary

in carcinoma of lung and breast.<sup>2</sup> However, carcinoma buccal mucosa with ocular metastasis is also a rare event. The overall prognosis of the patient with this metastasis is generally poor.<sup>3-5</sup> Once diagnosis has been established, treatment is mainly palliative and focuses on symptom relief and improvement of visual function. Ferry and Front reviewed a series of 227 cases of metastatic carcinoma to the eye and orbit, but none had primary head and neck malignancy.<sup>6</sup> Here we present two cases of squamous cell carcinoma of buccal mucosa that metastasizes to orbit and eye due to its rarity and for documentation.

## CASE REPORTS

### Case 1

A 47-year-old male on December 2011 clinically presented with an ulceroproliferative lesion of size 4 cm × 2 cm × 3 cm at left buccal mucosa whose margin was raised and everted, surface irregular. There was no involvement

Access this article online



www.ijss-sn.com

Month of Submission : 03-2015  
 Month of Peer Review : 04-2015  
 Month of Acceptance : 04-2015  
 Month of Publishing : 05-2015

**Corresponding Author:** Dr. Chaitali Bose, Department of Radiotherapy, Acharya Harihara Regional Cancer Centre, Mangalabag, Cuttack - 753 007, Odisha, India. Phone: +91-9853377682. E-mail: dr.chaitalibose@gmail.com

of regional draining lymph nodes. Histopathology of the primary was squamous cell carcinoma. He underwent left marginal mandibulectomy with pectoralis major myocutaneous flap with left modified neck dissection. Histopathology revealed squamous cell carcinoma of left buccal mucosa, tumor infiltration of the underlying soft tissue. All the mucosal and bony cut margins were free. There was no perineural invasion or lymphovascular space invasion, no involvement of the overlying skin. Out of 40 lymph nodes, no lymph node showed metastasis. Based on histopathology report he received adjuvant external beam radiotherapy of 60 Gy to locoregional site, which was completed on March 2012. He was asymptomatic till September 2013. Subsequently he presented with swelling followed by pain and diminished vision of the left eye. Left eye fundoscopy revealed choroid metastasis (Figure 1). Automated perimetry showed loss of temporal field of vision (Figure 2). Optical coherence tomography image of left eye presented with neurosensory detachment far nasal to the foveal center (Figure 3). Positron emission tomography-computed tomography evaluation showed metastatic disease in the left choroid, left acetabulum, 5<sup>th</sup> thoracic vertebra, and lung. He received palliative radiotherapy of 30 GY to left eye, 5<sup>th</sup> thoracic vertebra and left acetabulum after which he was asymptomatic. In view of the good response to radiotherapy, the patient was subjected to palliative chemotherapy with paclitaxel and carboplatin. After completion of three cycles of chemotherapy, he died due to the progression of his disease.

**Case 2**

A 48-year-old male presented with an ulceroproliferative lesion of size 4 cm × 5 cm × 4 cm with irregular margin at the right buccal mucosa of 9 months duration. He had clinically significant right Level I cervical lymphnode of size 2 cm × 2 cm, which was mobile. Histopathology

of the primary and fine needle aspiration and cytology of neck node showed squamous cell carcinoma. The patient underwent segmental mandibulectomy with supraomohyoid neck dissection. Post-operative biopsy revealed metastatic squamous cell carcinoma with deposits in right cervical node. He received adjuvant concurrent chemoradiation 60 GY in 30#, 2 GY/# with shrinking field technique, along with weekly cisplatin of 40 mg/m<sup>2</sup>. Six months after the completion of treatment he developed swelling, pain, diminished vision and restricted movement of his left eye. Axial plain and contrast-enhanced computed tomography scan of brain and paranasal sinuses revealed a soft tissue enhancing mass lesion in intraconal compartment of left orbit, separable from the left optic nerve, suggesting retro orbital metastasis (Figure 4). No evidence of bone erosion or involvement of paranasal sinus and intracranial



Figure 1: Fundoscopy of left eye showing choroid metastasis

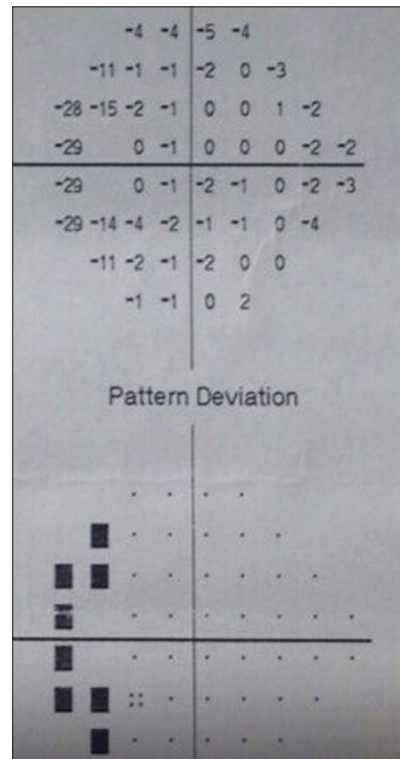


Figure 2: Automated perimetry showing loss of temporal field of vision

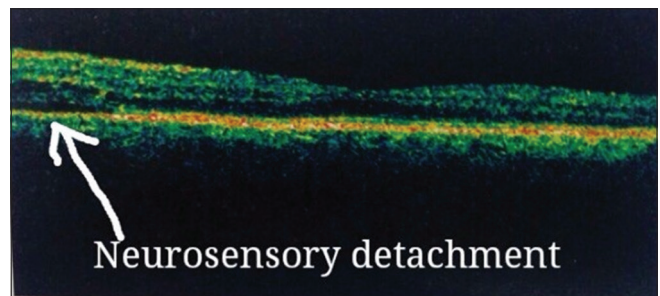
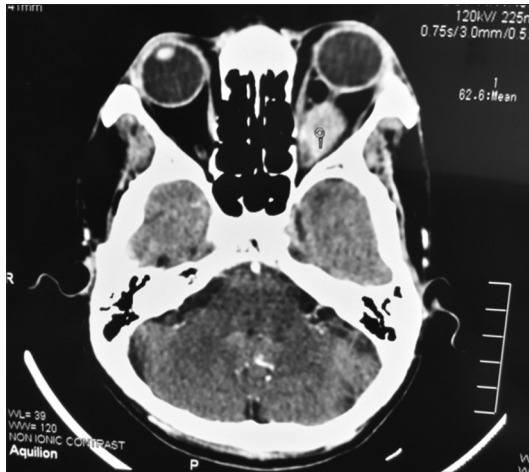


Figure 3: Optical coherence tomography image of left eye showing neurosensory detachment



**Figure 4: Axial computed tomography showing enhancing soft tissue lesion in the intraconal compartment of left orbit with proptosis of left eye**

extension was seen. The right eye and orbit were normal. Chest X-ray and ultrasound of abdomen and pelvis were normal. Clinico radiological evaluation did not reveal any distant metastasis. He received radiotherapy to left orbit with palliative intent, but subsequently was lost for follow-up.

## DISCUSSION

Orbital metastasis is relatively uncommon, occurs in 2-3% of patients with malignancy. The most common primary malignancy to metastasize to the eye includes breast (38-40%), lung (20-29%), and gastrointestinal tract (12%). The malignant lesion from other organs rarely metastasize to the eye. Isolated cases of thyroid cancer, malignant melanoma, hepatomas etc., metastasizing to the eye have been reported. In as many as 19% of cases, patients have no history of systemic cancer when presenting with ophthalmic symptoms. A possible explanation for this phenomenon is that the orbit's volume is restricted, so any expansion of a mass will result in a symptom much sooner than a similar mass located elsewhere in the body.<sup>7</sup> This metastasis usually indicates extensive hematogenous spread of a primary cancer, which was observed in one of our case.<sup>8</sup> The average age of the patient at the time of diagnosis is 61 years. Both the patients in our series were at 5<sup>th</sup> decade. Ocular involvement is more common than that of orbit. The ratio of ocular to orbital involvement ranges from 7:1 to 10:1.<sup>9</sup> Unilateral metastasis is common than bilateral metastasis.<sup>10</sup> Some studies have indicated that metastatic disease is more common in the left orbit. As the left common carotid ascends directly off the aorta tumor cells from the circulation could have a more direct path to left orbit. In this series both the patient

had unilateral orbital and ocular involvement i.e., of the left side.

Primary carcinoma of head and neck producing ocular metastasis is also further rare. Day *et al.* reported two patients of head and neck cancer, Maheswari *et al.* reported one patient of head and neck cancer with ophthalmic metastasis.<sup>11,12</sup> However, in our study both the patients, had primary carcinoma buccal mucosa that presented with the ocular and orbital metastasis which has not yet been reported in literature.

Treatment for orbital metastasis is mostly palliative. The aim of the treatment is to improve the patient's quality of life and restore or preserve visual function. Orbital surgery to remove the tumor mass is not usually recommended as this is not curative, offers no benefit in terms of prognosis or survival, and may be associated with significant ocular morbidity. It should be done only in cases of intractable ocular pain or unmanageable local hygiene due to rapid tumor growth. Both the patients in our series were treated with external beam radiotherapy with the palliative intent for which patients were symptoms free. Chemotherapy for systemic treatment can help to control orbital metastasis especially for chemosensitive tumor, such as small cell lung cancer and neuroblastoma, but the mainstay of treatment is orbital irradiation. In the present series, the first patient was treated with paclitaxel and carboplatin but there was no benefit. Radiotherapy may alleviate symptoms in 80% of cases and may be able to restore some vision. Patient's general health, life expectancy and side effect of treatment must be taken into consideration. Hormone therapy plays an important role in the treatment of metastasis from hormone sensitive tumors such as breast cancer and prostate cancer. Short-term improvement of vision after an individualized therapy of orbital metastases is beneficial. However, the systemic prognosis is poor. Mean survival time is about 10-20 months, which were also observed in the present series.

## CONCLUSION

Although ophthalmic metastasis is rare, any patient with proptosis with a history of malignancy should be evaluated for ophthalmic metastasis. Ophthalmic metastasis may represent the initial manifestation of undiagnosed systemic neoplasia. Treatment approach for ophthalmic metastasis is mostly palliative, and there must be good communication between patient and patient's relative with the health care provider explaining the prognosis. Even though carcinoma of head and neck rarely metastasize to orbit or eye, here we report two patients of carcinoma buccal mucosa

with ocular and orbital metastasis due to its rarity and documentation.

## REFERENCES

1. Kotwall C, Sako K, Razack MS, Rao U, Bakamjian V, Shedd DP. Metastatic patterns in squamous cell cancer of the head and neck. *Am J Surg* 1987;154:439-42.
2. Font RL, Ferry AP. Carcinoma metastatic to the eye and orbit III. A clinicopathologic study of 28 cases metastatic to the orbit. *Cancer* 1976;38:1326-35.
3. Shields JA, Shields CL, Brotman HK, Carvalho C, Perez N, Eagle RC Jr. Cancer metastatic to the orbit: The 2000 Robert M. Curts Lecture. *Ophthal Plast Reconstr Surg* 2001;17:346-54.
4. Holland D, Maune S, Kovács G, Behrendt S. Metastatic tumors of the orbit: A retrospective study. *Orbit* 2003;22:15-24.
5. Garrity JA, Henderson JW, Cameron JD. Metastatic carcinoma. In: Henderson's *Orbital Tumors*. 4<sup>th</sup> ed. New York: Raven Press; 2007. p. 313-26.
6. Ferry AP, Font RL. Carcinoma metastatic to the eye and orbit. I. A clinicopathologic study of 227 cases. *Arch Ophthalmol* 1974;92:276-86.
7. Goldberg RA, Rootman J. Clinical characteristics of metastatic orbital tumors. *Ophthalmology* 1990;97:620-4.
8. Ahmad SM, Esmaeli B. Metastatic tumors of the orbit and ocular adnexa. *Curr Opin Ophthalmol* 2007;18:405-13.
9. Hart WM. Metastatic carcinoma to the eye and orbit. *Int Ophthalmol Clin* 1962;2:465-82.
10. Valenzuela AA, Archibald CW, Fleming B, Ong L, O'Donnell B, Crompton JJ, *et al.* Orbital metastasis: Clinical features, management and outcome. *Orbit* 2009;28:153-9.
11. Maheswari GK, Baboo HA, Gopal U, Wadhwa MK. Carcinoma of the tongue presenting as orbital metastasis. *Turk J Cancer* 2002;32:172-6.
12. Day TA, Hoasjoe DK, Hebert RL, Gonzalez E, Shockley W, Stucker FJ, *et al.* Head and neck squamous cell carcinoma metastatic to the orbital apex. *Skull Base Surg* 1995;5:123-9.

**How to cite this article:** Samanta DR, Bose C, Bhuyan R, Mishra SR, Senapati SN. Ophthalmic Metastasis in Squamous Cell Carcinoma of Head and Neck: A Study on Two Patients. *Int J Sci Stud* 2015;3(2):230-233.

**Source of Support:** Nil, **Conflict of Interest:** None declared.