

Case Report

Unilateral Facial Paralysis and Ophthalmoplegia Caused by Lower Lip Carcinoma: A Case Report

Oğuzhan Katar¹, Münir Demir Bajin¹, Elif Günay Bulut², Levent Sennaroğlu¹¹Department of Otorhinolaryngology, Hacettepe University School of Medicine, Ankara, Turkey²Department of Radiology, Hacettepe University School of Medicine, Ankara, Turkey

ORCID IDs of the authors: O.K. 0000-0001-5485-7948; M.D.B. 0000-0003-1088-4367; E.G.B. 0000-0003-0305-2239; L.S. 0000-0001-8429-2431

Cite this article as: Katar O, Demir Bajin M, Günay Bulut E, Sennaroğlu L. Unilateral facial paralysis and ophthalmoplegia caused by lower lip carcinoma: A case report. *J Int Adv Otol*. 2021; 17(2): 179-81.

We discuss a case of lower lip carcinoma which presented with atypical symptoms; facial paralysis, conductive type hearing loss, and ophthalmoplegia. Due to an earlier resection, no mass was evident on the primary examination. Diagnostic imaging revealed a mass originating from the lower lip, the perineural spread of the tumor along the left inferior alveolar nerve to the left infratemporal fossa and the left foramen ovale. Through a retrograde course from the foramen ovale, the tumor extended the ipsilateral cavernous sinus, Meckel's cave, and cisternal portion of the CN V. This atypical spread pattern of the tumor caused symptoms that may be attributed to a diagnosis related to the ear. The biopsy confirmed squamous cell carcinoma, and the patient was referred for chemotherapy and radiotherapy.

KEYWORDS: Cancer of the lip, facial paralysis, conductive hearing loss, eye movement disorders

INTRODUCTION

Lower lip carcinoma is one of the most common types of malignancy among head and neck neoplasms. It accounts for 25-30% of all oral cavity malignancies, and it mainly affects fair-skinned males in their mid-60s.¹ Well-known predisposing factors are sun exposure and tobacco usage. When detected and treated at early stages the disease has a favorable prognosis, with 5-year survival rates reaching about 75-80%.² The disease mainly spreads to lymph nodes of the neck region through lymphatic drainage, but, although uncommon, there are other modes of tumor spread, like perineural invasion. We report a case of lower lip carcinoma with perineural spread and a unique clinical presentation.

CASE REPORT

Informed Consent

This work has been conducted with the informed and overt patient consent, in accordance with the Code of Ethics of the World Medical Association (Declaration of Helsinki).

A 50-year-old male presented with an ulcerated lesion on the inner surface of the lower lip which persisted for 3-4 months. He was a farmer, with a history of prolonged sun exposure. He had a history of left-sided lower lip malignancy (histological type is unknown) which was diagnosed with a biopsy performed about 1 year ago at a different hospital. Surgical treatment had been offered at the time of diagnosis, but the patient rejected the treatment and quit the follow-up. He consulted an alternative medicine center and was treated with a topical herbal ointment (the name or contents of the ointment are also unknown). The ulcerated lesion on the lip regressed with the treatment. The patient had not received any additional treatment.

About 5 months after this treatment, another ulcerated lesion is occurred on the mucosal side of the lower lip, in close proximity to the first lesion. A month later, the patient developed facial paralysis and total ophthalmoplegia on the left side. The patient reports the paralysis had developed over a few days. He was referred to our hospital for further evaluation.

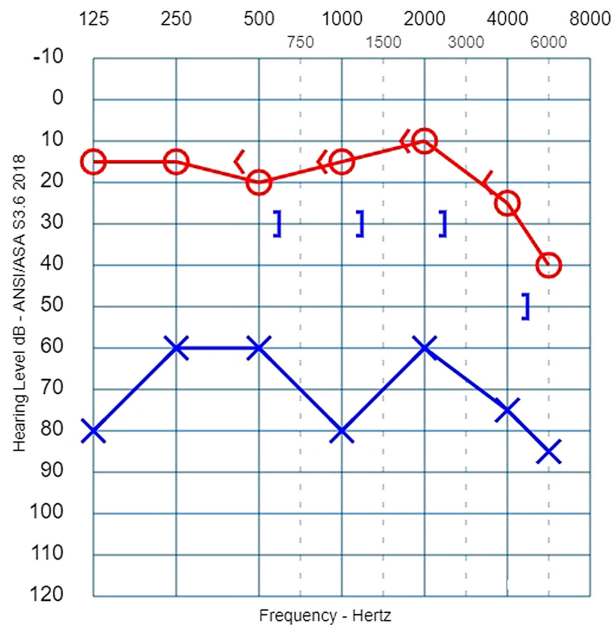


Figure 1. Audiogram of the patient showing a moderate conductive hearing loss in the left ear affecting all frequencies.

During the physical examination, (HB grade 6) facial paralysis was noted on the left side. No eye-movements could be seen on the left eye. Hypoesthesia on the frontal and maxillary branches of the left trigeminal nerve was detected. With otoscopy, a white-grayish pulsatile mass was detected behind the tympanic membrane. There was indurated mass invading the left gingivolabial and gingivobuccal sulci, about 2 cm in diameter, with an ulcerated area of about 1 cm. The lesion was submucosally connected to the lower labial surgical scar, remaining from the previous biopsy.

An audiological assessment was performed and moderate conduction type hearing loss was detected on the left ear (Figure 1). Ipsilateral or contralateral acoustic reflexes could not be received at the left side. A type-B tympanogram was obtained from the left tympanic membrane. Also, the patient was consulted to the ophthalmology department, and loss of vision on the left eye was detected (0.05), with loss of corneal reflexes.

Contrast-enhanced computed tomography (CT) and magnetic resonance imaging (MRI) scans of the area were performed. CT and MRI of the patient revealed the perineural spread of the tumor along the left inferior alveolar nerve to the left infratemporal fossa and the left

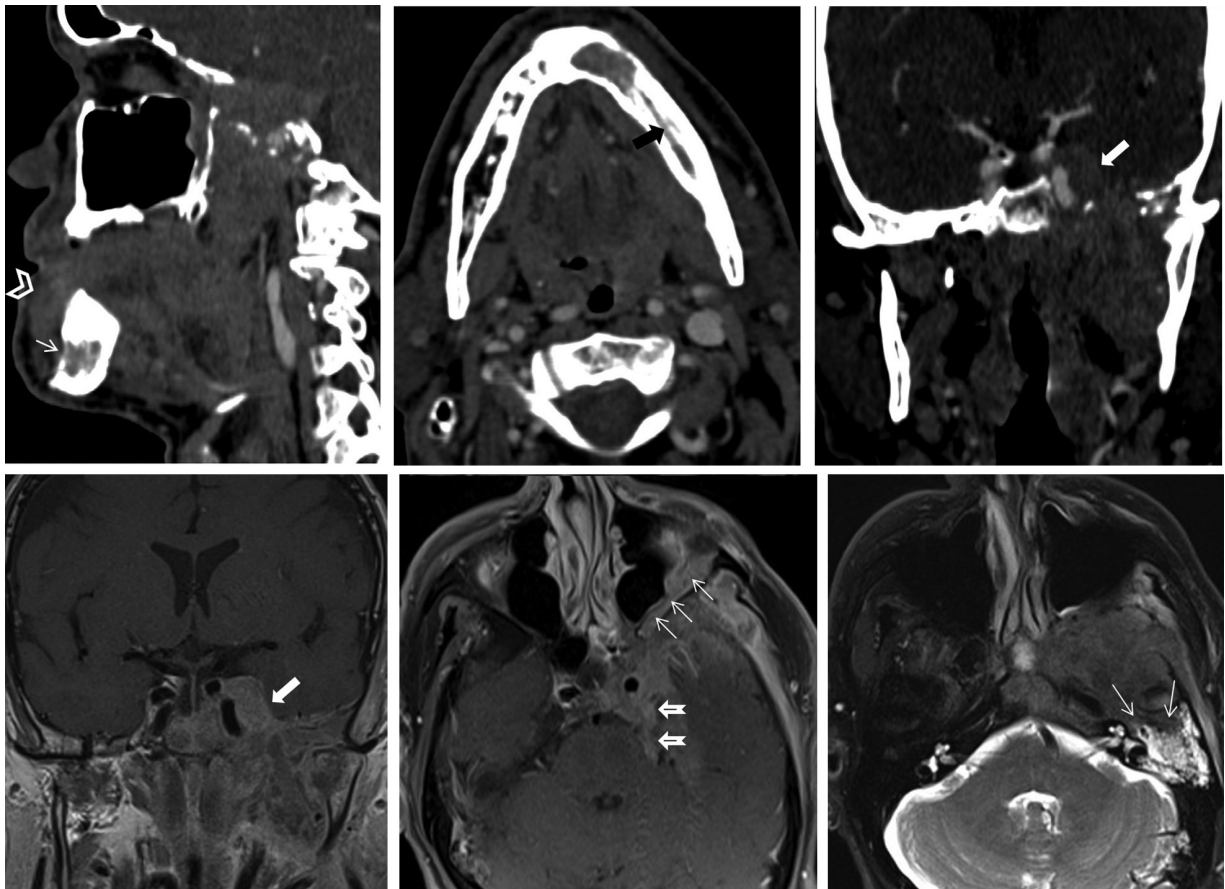


Figure 2. CT (A-C) and MR (D-E) images of the patient. The sagittal reformat CT image (A) shows the lower lip mass (arrowhead) which invades the mandible around the region of mental foramen (arrow). The axial CT image (B) shows the perineural spread of the mass along the left inferior alveolar nerve. Note widening of the mandibular canal with tubular enhancement (black arrow). The coronal CT (C) and post-contrast T1-weighted (W) MRI (D) images reveal the extension of the mass from the infratemporal fossa to the cavernous sinus and the middle cranial fossa (arrows) through the foramen ovale and the destroyed skull base. The axial post-contrast T1W image (E) shows intraorbital extension through an infraorbital fissure (thin arrows) and perineural spread to the cisternal portion of CN V from Meckel's cave (notched arrows). Also, note tumoral invasion of the tympanic cavity and the mastoid cells (arrows) in the axial fat-saturated T2W image (F).

foramen ovale. Through a retrograde course from the foramen ovale, the tumor extended the ipsilateral cavernous sinus, Meckel's cave and cisternal portion of the CN V. The left pterygopalatine fossa was also involved with resulting intraorbital extension through the left infraorbital fissure (Figure 2).

There were bilateral fusiform-shaped lymph nodes at L2A smaller than 1 cm, with no evident signs of metastasis.

A biopsy was performed from the gingivobuccal lesion, and the diagnosis of squamous cell carcinoma was confirmed. The biopsy specimen was not big enough to assess the perineural invasion histopathologically.

The patient's treatment was discussed by a multidisciplinary oncology committee. The tumor was evaluated as unresectable, and the patient was referred to the oncology department for chemoradiotherapy.

DISCUSSION

Perineural invasion is a well-defined mode of spread for head and neck malignancies, in which the disease extends away from the primary site using the peripheral nerves as a low-resistance conduit.³ The length of the extension is usually about 2 cms,⁴ but there are reported cases with 12 cm of perineural extension.⁵ Even though adenoid cystic carcinoma has the highest risk for perineural invasion, squamous cell carcinoma accounts for most of the cases, as its incidence is much higher than the former.⁶

Squamous cell carcinomas of the head and neck, tend to spread primarily by regional lymph node metastases. Extension of the tumor primarily by perineural invasion is a rare situation. Though there are reported cases in the literature, this case stands out by the extent of disease progression.⁷⁻¹⁰ Also, we were not able to find any cases with lower lip carcinoma extending to the tympanic cavity. There is only one other reported lip carcinoma case in the literature, with the involvement of fifth, seventh, eighth cranial nerves and total ophthalmoplegia, but in that case, radiological exams were reported as normal, and perineural invasion was speculated.⁷ With this case report, we were able to show the perineural invasion radiologically.

If there were no perineural invasion, surgical resection could have been possible for our patient. But by using the complex neural anatomy of the region, the tumor extended to many vital structures, therefore became unresectable. We can say that the main factor in deciding this patient's treatment has been the perineural invasion.

Regional neurologic deficits in patients with lower lip carcinomas (hypoesthesia, pain, motor deficits, etc.) should alert the clinician about the possible perineural invasion and should be aggressively inspected, even in the absence of other signs of tumor recurrence. The perineural invasion can be demonstrated by different imaging modalities, especially with positron emission tomography-CT scans.

Early detection of perineural spread can give the clinician the opportunity to treat the disease more aggressively, therefore increasing the chances for prolonged survival.

CONCLUSION

This article demonstrates a case of lower lip carcinoma with symptoms not usually related to the disease. Rare cases like this show the importance of a good medical history and targeted diagnostic tests in order to correctly diagnose diseases with atypical presentation.

Informed Consent: Written informed consent was taken from the patient.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – M.D.B, L.S.; Design – O.K.; Supervision – M.D.B, L.S.; Resource – O.K., E.G.B.; Materials – O.K., E.G.B.; Data Collection and/or Processing – O.K., E.G.B.; Analysis and/or Interpretation – O.K., E.G.B.; Literature Search – O.K.; Writing – O.K.; Critical Reviews – M.D.B., L.S.

Conflict of Interest: The authors have no conflicting interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

REFERENCES

1. Han AY, Kuan EC, Mallen-St Clair J, et al. Epidemiology of squamous cell carcinoma of the lip in the United States: a population-based cohort analysis. *JAMA Otolaryngol Head Neck Surg.* 2016;142(12):1216-1223. [\[CrossRef\]](#)
2. Kim BG, Kim JH, Kim MI, et al. Retrospective study on factors affecting the prognosis in oral cancer patients who underwent surgical treatment only. *Maxillofac Plast Reconstr Surg.* 2016;38(1):3. [\[CrossRef\]](#)
3. Fagan JJ, Collins B, Barnes L, et al. Perineural invasion in squamous cell carcinoma of the head and neck. *Arch Otolaryngol Head Neck Surg.* 1998;124(6):637-640. [\[CrossRef\]](#)
4. Carter RL, Foster CS, Dinsdale EA, Pittam MR. Perineural spread by squamous carcinomas of the head and neck: a morphological study using anti-axon and anti-myelin monoclonal antibodies. *J Clin Pathol.* 1983;36(3):269-275. [\[CrossRef\]](#)
5. Ballantyne AJ, McCarten AB, Ibanez ML. The extension of cancer of the head and neck through peripheral nerves. *Am J Surg.* 1963;106(4):651-667. [\[CrossRef\]](#)
6. Paes FM, Singer AD, Checkver AN, et al. Perineural spread in head and neck malignancies: clinical significance and evaluation with 18F-FDG PET/CT. *RadioGraphics.* 2013;33(6):1717-1736. [\[CrossRef\]](#)
7. Banerjee TK, Gottschalk PG. Unusual manifestations of multiple cranial nerve palsies and mandibular metastasis in a patient with squamous cell carcinoma of the lip. *Cancer.* 1984;53(2):346-348. [\[CrossRef\]](#)
8. Bagatin M, Orihovac Z, Mohammed AM. Perineural invasion by carcinoma of the lower lip. *J Craniomaxillofac Surg.* 1995;23(3):155-159. [\[CrossRef\]](#)
9. Bhatnagar AK, Heron DE, Schaitkin B. Perineural invasion of squamous cell carcinoma of the lip with occult involvement of the infra-orbital nerve detected by PET-CT and treated with MRI-based IMRT: a case report. *Technol Cancer Res Treat.* 2005;4(3):251-253. [\[CrossRef\]](#)
10. Matzko J, Becker DG, Phillips CD. Obliteration of fat planes by perineural spread of squamous cell carcinoma along the inferior alveolar nerve. *Am J Neurorad.* 1994;15(10):1843-1845.