Melanoma of the Dorsal Tongue
Frederick C. Roediger, M.D., 1 Annemieke Van Zante, M.D., Ph.D., 2 Stefan M. Zechowy, M.D., 3 David W. Eisele, M.D. 1
1 Department of Otolaryngology-Head and Neck Surgery, University of California, San Francisco
2 Department of Pathology, University of California, San Francisco
3 Santa Rosa Head and Neck Surgical Group, Santa Rosa, CA

INTRODUCTION
MUCOSAL MELANOMA OF THE HEAD & NECK

Epidemiology
- MMHN represents <1% of all melanomas.
- Nasal cavity > oral cavity > paranasal sinuses > pharynx/larynx
- Most oral cavity MMHN occurs on the hard palate/upper alveolar ridge.
- Dorsal tongue MMHN is exceedingly rare [30 cases reported].

Pathology
- Cytologic appearance is variable. Most are melanin-rich.
- Immunohistochemistry (IHC) is usually positive for S-100 and HMB-45.
- Primary lesions show junctional activity in the mucosa; metastases do not.

Staging
- Stage I: local disease, II: regional metastasis, III: distant metastasis

Treatment
- Surgery is the primary treatment modality.
- Postoperative radiation therapy (RT) is considered for high-risk tumors to improve local and regional control.
- Definitive RT is reserved for patients who are not surgical candidates or for palliation of unresectable primary tumors.
- Adjunct immunotherapy may be administered for recurrence and disseminated disease.

Prognosis
- Much worse than for cutaneous melanoma (CM), with an estimated 5-year survival of 17%.

PIGMENTED ORAL LESIONS
- 37% of patients with MMHN have preexisting mucosal pigmentation.
- The most common lesions are benign: dental amalgam tattoo and racial pigmentation (present in up to 87% of African-Americans).
- All others exhibit varying degrees of malignant potential and should be biopsied: melanotic macules, melanocytic nevi, and melanocarcinoma.

CASE REPORT
PRESENTATION
- 80yoM with three-week history of tongue discomfort.
- Physical examination revealed two closely juxtaposed, midline, pigmented dorsal tongue lesions (see Figure 1).
- No other lesions were seen on comprehensive head and neck examination including fiberoptic nasopharyngoscopy. Cranial nerves were intact. No enlarged cervical lymph nodes were palpated.

Figure 1. Initial appearance of dorsal tongue lesions.

DIAGNOSIS AND STAGING
- Incisional biopsy encompassing the posterior lesion and a portion of the anterior lesion revealed primary mucosal melanoma (see Figure 2).
- Full body dermatologic examination did not identify a primary skin lesion.
- Magnetic resonance imaging (MRI) of the neck with gadolinium showed no evidence of regional metastasis.
- Position emission tomography/computed tomography (PET/CT) was negative for distant metastasis.

CASE REPORT (CONT)
PATHOLOGY
- Figure 2. Incisional biopsy specimen.
- A. H&E, 100x
- B. H&E, 200x.
- C. Keratin
- D. S-100
- A. H&E stained section demonstrates a highly cellular proliferation underlying benign squamous epithelium. B. High power field shows a pleomorphic neoplasm including spindled, multinucleated, and large bizarre cells. C. IHC stain for keratin is positive in the overlying benign squamous epithelium, but negative in the neoplastic cells. D. IHC stain for S-100 is positive in the neoplastic cells, supporting a diagnosis of melanoma.

TREATMENT
- Midline partial glossectomy with primary closure and bilateral selective neck dissections (levels I-III) were performed.

Figure 3. Intraoperative views.
- A. Residual pigmented lesion (arrow) at anterior border of the healed incisional biopsy site (arrowheads). B. Wide margins were taken.
- Final surgical pathology showed a 0.2cm residual melanoma in situ (intraepithelial) with closed margin 1.2cm and all cervical lymph nodes negative.
- The recovery was uncomplicated.

OUTCOME
- Close clinical surveillance was performed. The patient remains asymptomatic with normal speech and swallowing and no evidence of disease at 3 ½ years.

DISCUSSION
SURVIVAL
- MMHN are highly aggressive tumors with poor survival rates, approaching 5% at 10 years in studies with sufficient follow-up, despite the fact that the majority of patients (75%) present with Stage I, i.e. localized, disease.
- Survival for oral cavity MMHN is worse than for nasal cavity primaries (12.3% versus 30.9% 5-year survival, respectively), and the majority of recurrences present within one to two years of treatment.
- Thus, it is surprising that the patient in this case report remains free of disease at 3 ½ years after treatment. A number of factors may have played a role:
  - First, the primary goal of therapy, excision with widely negative surgical margins, was accomplished. Even in these cases, the local failure rate according to pooled, retrospective data is 53%.
  - Second, there was a notable lack of angioinvasion seen on all specimens from this case. Angioinvasion, a precursor to hematogenous spread that is common but not universal in MMHN, has been shown to be associated with decreased survival. Another predictor of poor survival, skeletal muscle invasion, was seen in this case, but appears to have played less of a role than angioinvasion in determining this individual’s outcome.
- Finally, it is possible that the follow-up is insufficient. MMHN has been reported to recur after 5 years or later so the prognosis in this case remains guardedly optimistic.

MULTIFOCALITY
- This patient initially presented with two pigmented lesions. Multifocality has been reported with MMHN and proposed by some to explain the overall poor prognosis for this disease.
- Careful review of pathology from the initial incisional biopsy and the partial glossectomy failed to reveal two discrete lesions. The possibility remains that one of the lesions seen at presentation was a satellite lesion of the other, but the available pathological evidence indicates that they were contiguous. The visible gap between them at presentation was either due to a portion of the tumor that was amelanotic (which is exceedingly rare with MMHN) or submucosal.

THE ROLE OF ADJUVANT THERAPY
- Postoperative RT has been shown to improve local-regional control in MMHN but has not improved overall survival nor the rate of distant metastasis.
- Immunotherapy has been used to manage disseminated CM but the effectiveness of these agents in treating MMHN has not been demonstrated.

CONCLUSIONS
- MMHN occurs less frequently and confers a worse prognosis than CM.
- The case of an elderly man with melanoma of the dorsal tongue, an extremely rare location for this cancer, demonstrates primary surgical management with no evidence of disease at 3 ½ years.
- MMHN continues to present significant challenges to the head and neck oncologist. Complete surgical excision at an early stage offers the best hope of survival.
- Our current knowledge of this rare entity is based on collective, retrospective experience. Prospective studies are warranted to advance care for patients with this disease.

SELECTED REFERENCES