Clinical Report

Malignant Melanoma of the Nasal Cavity: Our Clinical Experience

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Abstract: Primary malignant melanoma (MM) in otorhinolaryngology is a rare disease that has a poor prognosis. There has been a significant increase in the incidence of MM in the nasal cavity in recent years. We performed surgery on four Turkish patients for intranasal MM during a 6-month period, and the cases were reviewed retrospectively. One patient underwent open surgery, and the other three underwent endoscopic resection. All four patients had microscopically negative surgical margins. One patient received treatment with radiotherapy during the postoperative period. A negative surgical margin and removal of mucosal melanocyt areas are important criteria for surgical success and a better prognosis.

Key Words: Primary malignant melanoma, Nasal cavity, Negative surgical margin

Introduction

Melanomas are tumors arising from melanocytes. They may be located in the basal layers of the skin or in the mucosal region. Malignant melanomas (MMs) account for only 20% of tumors localized in the head and neck region. However, the head and neck region is a common primary area for mucosal melanomas, with 55.4% originating in this area. The nasal cavity is affected more often than the paranasal sinuses. Mucosal MMs occur most frequently in individuals between the fifth and the eighth decade. Young populations are rarely affected, and the disease is slightly more common in men than in women. Age and sex do not affect the prognosis. In our review, we present our clinical experience in the light of literature associated with intranasal MMs. Most rhinologists may not encounter MM of the nasal passage even once during their professional life. We have experienced an increased incidence of this disease within a very short period.

Materials and Methods

We retrospectively evaluated four intranasal MM cases admitted to our hospital between November 2011 and May 2012. Patients were given informed about the disease and surgery. Approval was obtained from all patients. Cases were evaluated in terms of age, sex, and the location of the mass. The presenting symptoms of the patients were recorded as nasal obstruction, epistaxis, and headache. Anterior rhinoscopy and rigid nasal endoscopy were used as diagnostic tools. To confirm the diagnosis, computed tomography (CT) was required in three of the patients.

Histopathology

Sections of tumor tissue are large hyperchromatic nuclei, eosinophilic cytoplasm, pleomorphism, and majority of cells pigmented that is characterized by a typical melanosit. The diagnoses of the cases were confirmed all patient by the presence of melanin and/or immunoreactivity to a melanoma associated markers S-100 and Human Melanoma Black (HMB-45).

Results

Four female patients with intranasal MMs were evaluated in this study. The mean age of the patients was 71 years (range 67-78) (table 1). The MMs were located in the left nasal cavity in all four patients. In two of the patients, the MM mass was advanced...
and filled the nasal passage. In one of the patients, the mass was at the level of the middle concha. It was impacted between the middle and the inferior concha and the nasal septum, markedly obstructing the nasal passage. In the other patient, the mass was located on the front of the inferior concha. Nasal obstruction and epistaxis were the most common symptoms reported by the three patients (75%). One patient was asymptomatic (25%). There was no significant medical history any of the patients. The surgical margin was negative in all the patients postoperatively.

Discussion
Mucosal MMs of the nasal cavity and the paranasal sinuses are rare, accounting for only 1.3% of all MMs in routine ENT practice. Due to the rarity of mucosal MMs, much of the available information has been obtained from case series. According to data obtained from 295 MM patients autopsies, mucosal MMs accounted for 21.6% of all cases, and sinonasal MMs accounted for 21.9% in the mucosal MMs. The second most is seen in the oral cavity, particularly in the hard palate and the maxillary alveolar gingiva. Nasal melanomas are tumors that present with high-grade malignancy; they have a different biological nature and epidemiological features to cutaneous melanomas and have a worse prognosis than those. The clinical course of MMs are often unpredictable. Many patients have lymph node and distant lung and hepatic metastases at the time of diagnosis, and recurrences may occur sporadically, even after some years. Metastasis was detected in none of our patients in preoperative tests. Metastatic mucosal melanomas are less common. It has been reported that only 0.6–9.3% of cutaneous MMs exhibit metastasis in the upper gastrointestinal and pulmonary system. Metastatic involvement most commonly involves the base of the tongue and the nasal cavity. Mucosal melanoma of the head and neck are generally indicative of existing metastatic disease.

We found a significant prevalence (100%) of the disease in our study of four females, but there have been conflicting reports regarding the incidence of sinonasal mucosal melanoma in males and females.

Many studies that investigated only patients with intranasal MMs have reported that the incidence is higher in male than in female patients. According to the literature, this disease appears to be associated with advanced age. The age of our patients at presentation (71 years) is similar to that reported in other published studies.

Many studies have suggested that the incidence of MM is higher in Caucasians.

Epistaxis and nasal obstruction were the most frequent presenting symptoms in reported series. The prominent symptoms were also epistaxis and nasal obstruction in our patients. However, MM was detected in one of our patients incidentally during a routine control examination. Within the head and neck region, the most common site of origin is the nasal cavity. In our study, the inferior concha was the most frequent site of MM origin (75%), with MM originating in the lateral nasal wall in one patient. However, it is difficult, particularly with large lesions, to determine the exact site of origin. The origin can be determined only if the main mass is resected intraoperatively. In a review of 190 patients with sinonasal melanomas, 148 (78%) were found in the nasal cavity and 42 (22%) were found in the sinus. The nasal septum accounted for 44 (30%), the lateral nasal wall for 44 (30%), the inferior turbinates for 12 (8%), and the middle turbinates 7(5%) of the nasal melanomas.

Various methods including surgery, irradiation alone, irradiation with surgery or irradiation with surgery and chemotherap have been used to treat MM of the nose. Different surgical interventions may be applicable, depending on the extent of the lesion, for example, lateral rhinotomy, maxillectomy, craniofacial resection, or endoscopic resection.

Our primary goal was to achieve extensive resection and a tumor-free margin. We prefer open surgery and endoscopic resection. Neck dissection is not recommended for patients who...
in the setting of No neck. However, neck dissection should be done when the patient presents with a metastatic lymph node. We proposed neck dissection to a patient who showed suspicious lymphadenopathy on a PET scan, but the patient refused the procedure. There was no recurrence at the operation site 3 months later at follow up.

The most important point that we want to draw attention to with respect to surgical intervention is that melanotic fields demonstrating maculation metastasis may be present in the other mucosal regions through the nose where the mass is contacted or not (Figure 1C). Ronaldo and his colleagues have emphasized the intranasal MMs may be multicentricity. After an accurate determination of these fields and removal of the mucosa within this field, the clinician should ascertain whether the tumor has invaded the cartilage or bony structure (Figure 1D). If the bony structure of the base of the nose is affected, then controllable resection is required. If an attempt is made to drill the lesion above the bone using a diamond-pointed drill, recurrence is unavoidable because the melanotic cells will invade the deeper bony structure at the microscopic level.

According to the staging by American Joint Committee on Cancer Staging Mucosal Melanoma of the Head and Neck, 7th Edition:

- **Primary tumor (T)**
  - T4a Moderately advanced disease; tumor involving deep soft tissue, cartilage, bone, or overlying skin
  - T4b Very advanced disease; tumor involving brain, dura, skull base, lower cranial nerves (IX, X, XI, XII), masticator space, carotid artery, prevertebral space, or mediastinal structures.

According to this staging, our one patient stage T4a that the patient had maxillary sinus medial wall invasion. Other three patient stage T3 that they had mucosal disease. According to most reported series and reviews, there was no statistical difference in survival between patients receiving surgery alone and those receiving surgery and radiotherapy. Many authors have recommended aggressive local therapy with adjuvant or salvage radiotherapy for patients with sinonasal mucosal melanoma, even in the absence of a survival benefit because postoperative adjuvant radiotherapy provides local control in patients. Chen and colleagues reported that surgery is the first choice and that postoperative radiotherapy yields better outcomes. Another study reported that absolute local control by radiotherapy alone achieved success in 61% of cases. Melanoma is a relatively chemo-resistant tumor. Chemotherapy can be used for palliative purposes in patients with advanced stage disease. Nakaya and colleagues stated that negative surgical margins were not predictive of a better prognosis. However, we believe that negative surgical margins and clearing foci such as mucosal maculation areas are important criteria for treatment success. The precise etiopathogenesis is unknown, with one study suggesting that tobacco use and formaldehyde exposure may play a role. Smoking or alcohol abuse was present in none of our patients, and they reported no history of major drug exposure.

The first step in the diagnosis of suspect lesions. MMs are usually dark black in color with a view, although the appearance and the color of the lesion may vary according to the contents melanosit. Histopathology and immunohistochemical analysis are needed for a definitive diagnosis. The differential diagnosis of nasal melanoma includes olfactory neuroblastoma, lymphoma, plasmacytoma, undifferentiated carcinoma, rhabdomyosarcoma, malignant fibrous histiocytoma, leiomyosarcoma, malignant fibrous histiocytoma, and neurogenic sarcoma. Generally, immunohistochemical staining with anti-S-100, HMB-45, and antivimentin can confirm the diagnosis. S-100 is a sensitive but nonspecific protein in melanomas. HMB-45, monoclonal antibody derived from extracts of melanoma, is more specific, but can occasionally be detected in carcinoma cells. On the other hand, some recent studies have reported that MRI is a useful method for the diagnosis of melanotic melanomas.

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**Table 1**

<table>
<thead>
<tr>
<th>Patient</th>
<th>Age/Sex</th>
<th>Site</th>
<th>T</th>
<th>Neck Lymph Node</th>
<th>Distant Metastases</th>
<th>Treatment</th>
<th>Surgery Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>78/Female</td>
<td>Left</td>
<td>T4a</td>
<td>No</td>
<td>No</td>
<td>Open Surgery</td>
<td>medial maxillectomy and total removal of intranasal structures and mucosa</td>
</tr>
<tr>
<td>2</td>
<td>67/Female</td>
<td>Left</td>
<td>T3</td>
<td>No</td>
<td>No</td>
<td>Endoscopic Surgery</td>
<td>inferior concha and around mucosa resection</td>
</tr>
<tr>
<td>3</td>
<td>68/Female</td>
<td>Left</td>
<td>T3</td>
<td>No</td>
<td>No</td>
<td>Endoscopic Surgery</td>
<td>mass and contiguous mucosa resection</td>
</tr>
<tr>
<td>4</td>
<td>71/Female</td>
<td>Left</td>
<td>T3</td>
<td>No</td>
<td>No</td>
<td>Endoscopic Surgery</td>
<td>mass and contiguous mucosa resection</td>
</tr>
</tbody>
</table>

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located in the nasal region. Some authors have reported that MMs of the sinonasal cavity show characteristic MR signal intensity, which is mainly attributable to the degree and the distribution of melanin pigmentation and partly attributable to hemorrhage within the mass\(^\text{19}\). It has also been reported that high signal intensity within the lesion on T1-weighted images suggests the presence of melanin\(^\text{20}\).

Mucosal MM in the head and neck has a poor prognosis. Despite advances in surgical techniques and methods of adjuvant therapy, the 5-year survival rate of patients with nasal melanoma is very low\(^\text{12}\).

In conclusion, intranasal MM is a tumor with an increasing rate of incidence and poor prognosis. It should not be ruled out in patients of advanced age who present with an intranasal mass. Treatment of MM with wide surgical resection provides the best local control. The tumoral tissue shows one mucosal melanotic maculations on the squamous epithelium that covers the nasal mucosa. The resection of these melanotic fields is important with respect to achieving surgical success.

References


