Sinonasal Neoplasms Involving the Cranial Base and Orbit: A case series of unusual pathology and review of the literature.

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Introduction

The differential diagnosis for neoplasms involving the nasal cavity and paranasal sinuses is quite broad, and patients often present with non-specific symptomatology. Imaging may demonstrate involvement of the cranial base and orbit, but there are not always distinct radiologic characteristics to pinpoint a diagnosis. While squamous cell carcinomas and other epithelial neoplasms represent the majority of malignant sinonasal neoplasms, we review a series of patients with poorly differentiated malignancies that illustrate some of the diagnostic and therapeutic challenges in this wide spectrum of diseases.

Methods and Materials

All patients who presented with sinonasal masses involving the cranial base and orbit in 2015 in our institution were reviewed. We analyzed presenting symptoms, imaging characteristics, initial and final histopathologic findings, including immunohistochemistry (IHC), and definitive management. A literature review was also performed to assess diagnostic characteristics and treatment options for these infrequently encountered neoplasms.

Results

A total of 16 cases were reviewed, and 4 patients were selected given their uncommon diagnoses and therapeutic challenges. These included malignant mucosal melanoma, sinonasal undifferentiated carcinoma (SNUC), plasmablastic lymphoma, and basaloid squamous cell carcinoma. Their histopathologic appearance, IHC profile, and unique diagnostic characteristics are presented and reviewed. Treatment modalities consisted of surgery, radiation, chemotherapy, or a combination thereof. The literature review encompasses previous reports with a focus on histopathology and IHC in establishing a diagnosis. Treatment options are also reviewed for these rare neoplasms.

Discussion

While poorly differentiated neoplasms can be difficult to distinguish under direct light microscopy and simple stains, immunohistochemistry has shown great benefit in accurately identifying the underlying pathology. SNUC tends to be diffusely positive with pan-cytokeratins but lacks squamous differentiation, as would be demonstrated by the presence of squamous markers (Fig. 3). EBER positivity in a setting of active HIV infection is strongly associated with plasmablastic lymphoma, and HMB-45 or MelanA are commonly encountered with mucosal melanoma (Fig. 4). Usually, a single immunohistochemical stain will not give a definitive answer, and staining profiles are often put together to best classify these neoplasms. These poorly differentiated malignancies tend to be very aggressive, and even with resection to negative margins, recurrence rates can be as high as 90% in some instances. As such, multimodality therapy is often necessary and palliative management should also be considered in certain circumstances.

Conclusions

The anterior and middle cranial base may be directly involved by a variety of sinonasal processes. It is important to review imaging characteristics and obtain a histopathologic diagnosis before proceeding further. Immunohistochemistry plays an important role in differentiating between many poorly differentiated or undifferentiated carcinomas. While the aforementioned sinonasal neoplasms are rarely encountered, establishing the diagnosis is important when considering management, counseling, and patient outcomes.

References


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