Case Report

Malignant melanoma maxilla

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ABSTRACT

A malignant melanoma is a highly lethal melanocytic neoplasm. A neoplasm usually affects the skin. Malignant melanomas in the head and neck region are rare, accounting for less than 1% of all melanomas. Malignant melanoma of the nose and paranasal sinuses is an aggressive disease typically presenting at an advanced stage, with a 5-year survival rate ranging 20-30%. Melanomas are tumors arising from melanocytes, which are neuroectodermally derived cells located in the basal layers of the skin. This is a case report of a 35-year-old male, who presented with very aggressive disease and developed liver metastasis.

Key words: Melanocytes, melanoma, neuroectoderm

Introduction

A malignant melonoma originates from the malignant transformation of melanocytes. Melanoma of the head and neck area is a rare pathology, accounting for about 0.2% of all melanomas.[1] Most of these lesions (80%) have occurred on the maxillary anterior gingival area, generally on the palatal and alveolar mucosa. The primary mucosal malignant melanomas are aggressive tumors but usually occur as asymptomatic masses. Moreover, the same lesion rarely could be melanotic.[2-4] In Japan, oral malignant melanoma is relatively common, with about 50% of cases occurring in the hard palate and the upper gingiva.[3] The age range for patients with oral malignant melanoma is 40-70 years, the average age being 55 years.

Melanomas are malignant neoplasms arising from melanocytes, which originate from the neural crest cells. The cells and the corresponding neoplasms arising from the neural crest are grouped under dispersed neuroendocrine system (DNES) tumors.[5]

Melanoma is a major health problem. When discovered early and fully excised, melanoma is highly curable. However, once metastatic disease develops, treatment options are limited and survival is generally measured in months. Patients with stage III melanoma (involvement of regional lymph nodes) have a 5-year survival chance of approximately 50%.[2]

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Case Report

A 35-year-old male patient referred to us with a history of progressing right nasal early obstruction that tended to become bilateral during the period of 1 year. The patient also had the complaint of bloodstained, on and off nasal discharge. Over time he developed dull pain in the right facial region. Initially the patient took indigenous treatment. During this course of management, he did not get significant relief from his symptoms. Hence he came to the tertiary care center Ear, Nose, and Throat (ENT) OPD at IGIMS, Patna, Bihar, India for further treatment after 9 months of the appearance of initial symptoms. At the tertiary care center, the ENT surgeon examined him and found a lobulated fleshy mass obliterating his right nasal cavity, with deviation of the septum toward the left side. Computed tomographic (CT) scan of the peripheral nervous system (PNS) was advised, which revealed a large, enhancing, destructive nasal mass involving both nasal cavities, 9 × 4.5 × 4.4 cm^3 in size, with significant bone erosion involving the lamina papyracea and cribriform plate without significant intracranial extension. On the basis of this, a diagnosis of inverted papilloma was made and a biopsy was taken. The histopathological examination (HPE) report revealed poorly differentiated malignant tumor and the possibility of malignant melanoma; the case was referred to the oncology department for further management and treatment.

The eye examination revealed eye movement in all quadrants with normal pupillary reflex. The oral cavity examination was normal, including normal alveolar process and palate, and no loose teeth. The rest of the ENT examination including ear, pharynx, larynx, and neck was within normal limits (WNL); the chest and abdomen were normal.

On the basis of these findings, total maxillectomy on the right side was done and a specimen was sent for HPE. The final examination revealed the possibility of malignant melanomas, and immunohistochemistry (IHC) was advised. IHC confirmed the diagnosis based on IHC markers. On cross-examination, grayish white tissue of $4 \times 3 \times 2$ cm^3 size was obtained by surgery. Histologically there was proliferation of oval to spindle-shaped cells, present in nests and sheets in the fibrovascular stroma with abundant cytoplasm, and nuclear aplasia and giant cells were present. Areas of degeneration and necrosis were present. Opinion come with poorly differentiated malignant tumor possibility of malignant melanoma is likely. The diagnosis was confirmed by IHC with HMB45 antibodies (3+) [Figure 1], S100 (4+) [Figure 2], and vimentin (4+) [Figure 3].

The patient was discharged after the removal of all the stitches. At the time of discharge, eye movement was normal and there were no significant complaints except for the presence of crust toward the operated side. The patient was sent to the oncology department for further treatment. Our examination of the patient justified the finding from the previous examination by the ENT surgeon, including diffuse edema toward the right infraorbital site without any significant breach in the continuity of the facial skeleton.

We report a case of primary malignant melanoma arising from the right maxilla. After total maxillectomy, metastasis to the liver was found. After maxillectomy, the HPE report, and IHC, the patient received chemotherapy in the form of inj. dacarbazine (DTIC) 220 mg/m^2 on D1-D3 and inj. cisplatin 25 mg/m^2 on D1-D3 at 21-day intervals. He received four cycles of chemotherapy and was lost to follow-up.

Discussion

Malignant melanoma is a relatively rare malignancy and constitutes approximately 1-2% of all malignancies arising in the body. Of these, 90% occur in the skin. Primary malignant melanomas arising in the nasal and paranasal sinuses are rare,[6] accounting for less than 1% of all melanomas, and have a poor prognosis. In 1965, Kully and Shreedharan[7] reported the first case of melanoma in India. Ravid and Esteeves[8] reported that

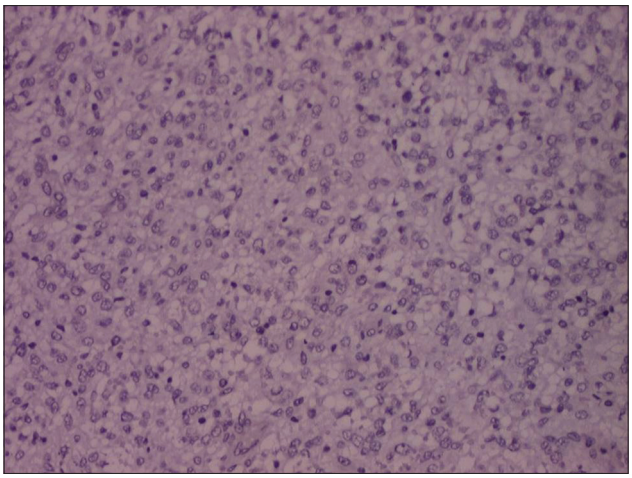

Figure 1: IHC, HMB45 antibodies (3+)

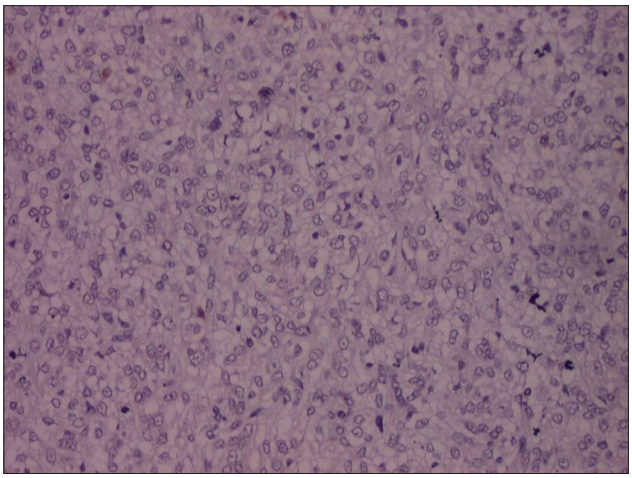

Figure 2: IHC, S100 (4+)

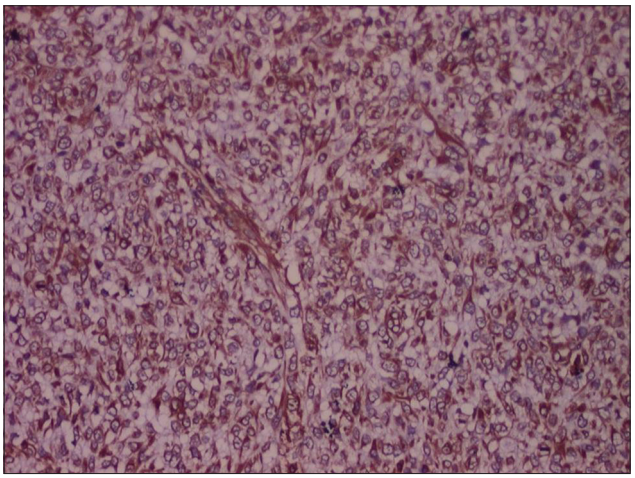

Figure 3: IHC, vimentin (4+)

Lucke in 1869 operated on a 52-year-old man suffering from melanotic sarcoma of the nasal mucosa. The first case in the American literature was reported by Lincoln in 1885.

Melanomas are present primarily in the basal portion of the epidermis at the dermal-epidermal junction. Primary malignant melanomas have been described in virtually all sites and organ systems where neural crest cells migrate (Sandeep and Faudpzar *et al*. 2010).[5]

A melanoma is a malignant neoplasm arising from the neural crest cells. During embryologic development, melanocytes migrate from the neural crest to the epithelial lining of the skin, and in developed skin they reside primarily in the basal epithelial layer because of the oral cavity developing from an ectodermal depression or invagination and the epithelial lining of the oral mucosa normally containing melanocytes in its basal layer,[9-11] which can evolve into melanomas, as in the skin. Mucosal melanomas tend to present at later stages when they are more aggressive and in a vertical, nodular growth phase. The clinical features are nonspecific, thus frequently there is a delay in diagnosis. The prognosis is always poor due to local recurrence, local nodal involvement, and distant organ metastasis occurring months or years after the diagnosis.

The etiologic and pathologic basis of the disease is not yet fully understood. In 1974, Zak and Lawson reported the presence of dendritic melanocytes in the epithelium of the sinonasal region.[12] Cove presented a case of a malignant primary multifocal intranasal melanoma arising from a preexisting nasal and maxillary sinus melanosis.[13]

Delays in the diagnosis, the complex anatomy that makes complete surgical excision difficult, the increase in vascularity causing early hematogenous spread, and the more aggressive nature of the oral tumor form can result in poor prognosis.[14,15] Malignant melanoma is a deadly disease. Although it constitutes only 3-5% of all cutaneous malignancies, it accounts for most skin cancer-related deaths (77%).[16]

The precise site of tumor origin is occasionally difficult to identify due to the large size of the tumor and the extensive local destruction it causes. Clinically, most patients present with symptoms of congestion, pain, and swelling of the cheek and nose as well as unilateral nasal obstruction.[17]

Melanomas may progress radially or vertically. Most lesions appear as asymmetric pigment molecules of irregular shape; they may grow in a horizontal manner for some years prior to a phase of vertical growth and submucosal invasion.[18] A melanoma may progress in three phases: A nodular phase usually affecting the center; a flat or slightly elevated, deep brownish, pigmented plaque phase; and a nonelevated, light brown, molecular phase.[19]

The most essential treatment is wide resection of the primary tumor whenever possible. Surgery provides the best chance of controlling the disease.[20] Radiotherapy combined with surgery is recommended in cases of local recurrence or incomplete removal of tumor.[17] Optimal radiation doses remain uncertain. Various chemotherapy regimens, such as those involving vinca alkaloids, alkylating agents, and antimetabolites have been tried, but all yielded disappointing results. DTIC may be administered either as a single agent or in combination with other agents.[21]

A malignant melanoma affecting the mucosal surfaces of the head and neck is rare. It is even less common when it involves the nasal cavity, accounting for less than 1% of all malignant melanomas.[22] Its clinical features are nonspecific, which frequently leads to delays in diagnosis. Prognosis is always poor due to local recurrence, local nodal involvement, and distant organ metastasis occurring months or years after the initial diagnosis.

Clinically, the patients present with complaints of nasal mass, bloody discharge, obstruction, and rhinorrhea. Grossly, melanoma can present as a firm, gray-white or pink to black, ulcerated mass; black coloration is a rarity. Its absence does not rule out melanoma. Histologically, melanomas are variable in appearance, and it has been said that one may look like anything; therefore, it is in the differential diagnosis of almost everything. It is identified because of its junctional activity; prominent melanin pigmentation; marked cytological atypia; nuclear grooves, folds, and pseudoinclusions; large eosinophilic nucleoli; and abundant mitotic figures. The cells can be epithelioid, spindle-shaped, or extremely bizarre. Their size can range from small (lymphocyte-like) to that of giant, multinucleated forms. The cytoplasm can be eosinophilic, basophilic, foamy, of the signet-ring type, oncocytic, or completely clear (as in balloon cell melanoma). Melanin can be abundant, scanty, or absent (as in amelanotic melanoma). Immunoperoxidase studies are extremely useful and include the use of HMB-45, S100, MART-1/melan-A, and one of the newest diagnostic markers, pigment epithelium-derived factor (PEDF). Immunohistochemically, sinonasal malignant melanomas are positive for S100 and markers for melanomas including HMB45, MART-1, and tyrosinase. Most of them do not produce significant amounts of melanin. P16 is expressed in a significant number of these tumors and is mainly related to the deletion of the 9p21 region.[23]

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radiation doses remain uncertain. Gilligan and Slevin[24] and Thompson *et al*.[17] suggested high doses of 50-55 Gy in 15 or 16 daily fractions over 21 days. In addition, Thompson *et al*. recommended performing simple excision of the involved cervical nodes except in cases when there were simultaneously more than two enlarged ipsilateral cervical glands, for which a radical neck dissection was recommended. Moreover, Seo *et al*.[25] performed chemotherapy in conjunction with administration of the antiestrogen agent tamoxifen to treat their three patients, and obtained satisfactory responses despite the fact that one of the tumors was unstainable for estrogen receptors. Other chemotherapy regimes, such as those involving vinca alkaloids, alkylating agents, and antimetabolites have been tried, but all yielded disappointing results. DTIC, whose efficacy is still controversial,[21] may be administered as a single agent or in combination with other agents. In our case, the patient was given six courses of chemotherapy with DTIC and cisplatin, but metastasis to the neck lymph nodes, liver, and pancreas still occurred after chemotherapy.

Conclusion

The case reported here highlights the importance of early diagnosis and its outcome. Malignant melanoma has very aggressive behavior and a poor prognosis. This makes it difficult to prevent or detect at an early stage. It is usually diagnosed at a later stage. Despite the rarity of sinonasal melanomas, their aggressive behavior and overall dismal prognosis warrant investigation in the hope of diagnosis at an earlier stage. Most sinonasal melanomas are asymptomatic and painless at the early stage and this causes delays in diagnosis.

References

1. Ulusal BG, Karatas O, Yildiz AC, Oztan Y. Primary malignant melanoma of the maxillary gingiva. Dermatol Surg 2003;29:304-7.
2. Strauss JE, Strauss SI. Oral malignant melanoma: A case report and review of literature. J Oral Maxillofac Surg 1994;52:972-6.
3. Curran JB, Whittaker JS. Primary malignant melanoma of the oral cavity. Oral Surg Oral Med Oral Pathol 1973;36:701-6.
4. Manganaro AM, Hammond HL, Dalton MJ, Williams TP. Oral melanoma: Case reports and review of the literature. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 1995;80:670-6.
5. Fauzdar S, Rao DD, Arthanari KK, Krishnan G, Naikmasur VG, Revanappa MM. Malignant melanoma of the mandibular gingiva. Rare Tumors 2010;2:e25.
6. Yoshioka H, Kamada T, Kandatsu S, Koga M, Yoshikawa K, Matsuoka Y, *et al*. MRI of mucosal malignant melanoma of the head and neck. J Comput Assist Tomogr 1998;22:492-7.
7. Kutty MK, Sreedharan T. Malignant melanoma of the nasal septum (A case report with brief review of literature). J Laryngol Otol 1965;79:249-52.
8. Ravid JM, Esteves JA. Malignant melanoma of the nose and paranasal sinuses and juvenile melanoma of the nose. Arch Otolaryngol 1960;72:431-44.
9. Ardekian L, Rosen DJ, Peled M, Rachmiel A, Machtei EE, el Naaj IA, *et al*. Primary gingival malignant melanoma. Report of 3 cases. J Periodontol 2000;71:117-20.
10. Takagi M, Ishikawa G, Mori W. Primary malignant melanoma of the oral cavity in Japan. With special reference to mucosal melanosis. Cancer 1974;34:358-70.
11. Conley JJ. Melanomas of the mucous membrane of the head and neck. Laryngoscope 1989;99:1248-54.
12. Zak JG, Lawson W. The presence of melanocytes in the nasal cavity. Ann Otol Rhinol Laryngol 1974;83:515-9.
13. Cove H. Melanosis, melanocytic hyperplasia, and primary malignant melanoma of the nasal cavity. Cancer 1979;44:1424-33.
14. Rapini RP, Golitz LE, Greer RO Jr, Krekorian EA, Poulson T. Primary malignant melanoma of the oral cavity. A review of 177 cases. Cancer 1985:55:1543-51.
15. McCaffrey TV, Neel HB 3rd, Gaffey TA. Malignant melanoma of the oral cavity: Review of 10 cases. Laryngoscape 1980;90:1329-35.
16. Boring CC, Squires TS, Tong T, Montgomery S. Cancer statistics, 1994. Ca Cancer J Clin 1994;44:7-26.
17. Thompson AC, Morgan DA, Bradley PJ. Malignant Melanoma of the nasal cavity and paranasal sinuses. Clin Otolaryngol Allied Sci 1993;18:34-6.
18. Manganaro AM, Hammond HL, Dalton MJ, Williams TP. Oral melanoma. Case reports and review of the literature. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 1995;80:670-6.
19. Umeda M, Komatsubara H, Shibuya Y, Yokoo S, Komori T. Premalignant melanocytic dysplasia and malignant melanoma of the oral mucosa. Oral Oncol 2002;38:714-22.
20. Jayaraj SM, Hern JD, Mochloulis G, Porter GC. Malignant melanoma arising in the frontal sinuses. J Laryngol Otol 1997;111:376-8.
21. Berthelsen A, Andersen AP, Jensen TS, Hansen HS. Melanomas of the mucosa in the oral cavity and the upper respiratory passages. Cancer 1984;54:907-12.
22. Khanna R, Srivastava RN, Agarwal A. Primary malignant melanoma of the nasal cavity. Ear Nose Throat J 1990;69:654-5.
23. Gupta S, Singh PA, Misra V, Jain S. Malignant melanoma of maxillary sinus. J Clin Diagn Res 2009;3:1801-4.
24. Gilligan D, Selvin NJ. Radical radiotherapy for 28 cases of mucosal melanoma in the nasal cavity and sinuses. Br J Radiol 1991;64:1147-50.
25. Seo W, Ogasawara H, Sakagami M. Chemohormonal therapy for malignant melanomas of the nasal and paranasal mucosa. Rhinology 1997;35:19-21.

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