

Case study

MUCOSAL MELANOMA OF THE SINO-NASAL TRACT-A RARE CASE REPORT

ABSTRACT: Sino nasal malignant melanoma is a very aggressive and rare neoplasm of the head and neck region. Less than 2% of all mucosal melanomas originate from the sino-nasal region demanding a high index of suspicion to diagnose these tumours. The patients developing sino-nasal melanomas are usually in their sixties and seventies. These patients often present in an advanced stage due to its nature of rapid progression associated with non-specific symptoms. The present case report highlights a rare case of malignant melanoma of the maxillary sinus, involving orbit in a 56 years old male patient.

KEYWORDS : mucosal melanoma, sino-nasal, aggressive , adjuvant, radiotherapy

INTRODUCTION : Mucosal malignant melanomas arising in the nasal cavity and paranasal sinuses account for 0.3 to 2% of all melanomas and approximately 4% of all head and neck melanomas.⁽¹⁾ The rarity of the tumour makes it difficult to diagnose and is often mistaken for the more common carcinomas of the sino-nasal region, other differential diagnosis being sarcoma, lymphoma and neuroblastoma. Sinonasal melanomas are highly aggressive tumours. To reflect this aggressive behavior, the primary cancers limited to mucosa are directly considered of T3 stage according to 8th edition of American Joint Committee on Cancer.⁽²⁾ By the time , the diagnosis is made, the disease will be usually in a locally advanced stage , eroding the bony wall and involving the adjacent structures like the oral cavity , palate , orbit , infra- temporal fossa , skull base and even brain. Therefore, there will be less scope left for curative approaches. However, conventionally, complete surgical excision with adequate negative margins is the treatment of choice. In cases with incomplete excision or positive margins, post operative adjuvant radiotherapy is recommended. Overall, the disease has a poor prognosis and the 5 year survival ranges from 20 to 40%.^(3,4)

CASE REPORT :

A 56 years old male patient presented with complaint of watery discharge from the right eye associated with conjunctival congestion since 15 days. It was associated with headache and decrease in the visual acuity. He took some symptomatic medication from the

ophthalmologist but was not relieved of his symptoms. Rather, the symptoms progressed in the next 10 days with swelling in the right cheek and right eye proptosis. It was associated with epistaxis, nasal obstruction, and decreased olfaction.

Patient is a non-smoker, non-alcoholic, vegetarian and gave no significant occupational history or exposure to any irritant substances. Upon examination there was severely proptotic right eye associated with chemosis, narrowing of the palpebral fissure, and right total ophthalmoplegia. Nasal cavity was filled with blackish mass with blood stained discharge. The right cheek was swollen and inflamed with a foul smelling discharging sinus.

No neck nodes were palpable and ear and oral examination were normal. Apart from the above findings, the rest of the systemic examination was normal. Routine investigations that were done included complete blood picture, liver and renal function tests, random blood sugar and were all within normal limits.

Biopsy was taken from the black mass seen through the right nasal cavity that showed melanoma. Immunohistochemically, the tumour stained positive for HMB-45 and S-100 that confirmed our diagnosis.

Metastatic workup was done for the patient. Findings of CT PNS showed 6.5x4.3x4.7 cm lesion causing lytic destruction of the right lamina papyracea and floor of the right orbit and extending into the intraconal compartment and reaching upto posterosuperior and lateral aspect of the globe. A FDG-PET CT SCAN was done which correlates with the CT findings and there was normal distribution of radiotracer in the rest of head and neck region, chest, abdomen, genito-urinary system and musculoskeletal system without any focal areas of abnormal metabolism.

The patient was planned for surgery and "right total maxillectomy with right orbital exenteration and disease clearance from the sphenoid and frontal sinuses were performed by the surgeon. Due to proximity to vital structures, a residual disease was left over the right ICA region and over the optic sheath. The HPR report showed a blackish brown tumour of size 5.5 x 5.0 x 4.5 cm. Antero-medial soft tissue margin, posterior soft tissue margin and medial skin margin are involved by tumour. In view of positive margins, the patient was planned for post operative radiotherapy, 50Gy/20 # @ 2.5GY/# using conformal radiotherapy technique. On first follow up after 6 weeks, the patient was asymptomatic and the disease was locally regionally controlled. He turned up after 2 months with symptoms of nausea and abdominal

61 discomfort .CECT whole abdomen showed multiple liver metastasis which was histologically
62 proven. Now he is on systemic chemotherapy.

63 DISCUSSION :

64 A primary sino-nasal malignant melanoma is very rare and usually a lethal disease.Overall
65 incidence of the disease is 0.6 to 3.8 % accounting for less than 1% of all malignant
66 melanomas.⁽⁵⁾ Because of its rarity,sino-nasal mucosal melanoma is poorly understood
67 ,characterized and studied.Among the head and neck anatomical location,sinonasal tract is a
68 common primary site for mucosal melanomas.⁽⁶⁾ In consequence of their hidden location,
69 mucosal melanomas are usually diagnosed in a loco-regionally advanced clinical stage,with a
70 rate of 5 -48% regional and 4-14% distant dissemination.⁽⁷⁾ Unlike its cutaneous counterpart
71 exposure to sunlight is not an etiological factor for sino-nasal malignant melanoma. Although
72 irritants like tobacco smoking have been implicated, their potential role is still unclear.

73 Melanomas arise from the aberrant melanocytes of the respective sites.In the nasal
74 cavity,they can be found in the respiratory epithelium,nasal glands,nasal septum,middle and
75 inferior turbinates etc.In physiological state,the melanocytes in the mucosa do not produce
76 any melanin,and only contain non-melanised melanosomes. However,they produce
77 substantial amounts of melanin in pathological conditions like Addisons disease and
78 neoplasm⁽⁸⁾

79 Sinonasal mucosal melanoma is usually a disease of the elderly , commonly occurring in the
80 seventh decade of life with no sex predilection.Race is an important entity determining the
81 prevalence of mucosal melanomas.10% of all the melanomas in the Ugandan population are
82 located in the oral or nasal cavity and are mucosal in origin. In Japan,oral cavity mucosal
83 melanomas are relatively common.The reported cases from India account only in numbers as
84 its occurrence in the Indian sub-continent is extremely rare.⁽⁹⁾

85 As was seen in our case,the patients usually present in a locally advanced stage T4a/T4b.The
86 early non-specific symptoms of nasal obstruction,epistaxis,headache,epiphora,conjunctival
87 congestion and chemosis etc are often misdiagnosed for the more common benign conditions
88 like infections,nasal polyp etc. Due to its intrinsic aggressiveness,the features like proptosis,
89 and Sino-cutaneous fistula soon follow the innocuous symptoms.Pain is a less common
90 feature of sino-nasal melanoma.Only in 6% of the cases,swelling of the nose or an actual
91 mass is visible at the vestibule.⁽¹⁰⁾

Unless it is amelanotic as is seen in 10% cases , most of the sino-nasal melanomas are grossly blackish brown to pink in colour , commonly friable, polypoidal in character.

Microscopically it shows small rounded or polygonal tumour cells arranged pattern or in lobules .Melanin pigment is found in 70-90 % of cells, unless amelanotic. The immunohistochemistry shall confirm the absence of the other commonly occurring carcinoma , angiocentric T cell/killer cell lymphoma.All melanomas be it cutaneous or mucosal react strongly with the α -subunit of S-100,which is a calcium binding protein found in the neural tissues. The frequency of S-100 immuno-reactivity varies from 86-100 %. A reactive antigen more specific to melanoma cells is HBM -45(melanoma cytoplasmic antigen) .The diagnostic workup includes complete head and neck examination, imaging of the face and neck in the form of CT scan or MRI . Chest and abdominal imaging or ideally PET CT may be done in all cases of stage IV disease to rule out the possibility of early metastasis.

The conventionally followed treatment of choice for sino-nasal melanoma is complete surgical excision with negative margins. Surgery provides the best chance of controlling the disease.⁽¹¹⁾ However in many cases the anatomical complexity,limited surgical visualization and proximity to vital structures makes the complete excision with negative margins impossible.Therefore,adjuvant radiotherapy is recommended in all such cases of incomplete resection.⁽¹²⁾ According to a study done by Kingdom and Kaplan,post operative radiotherapy appears to have an increase in the disease free intervals and prolonged survival as well.The result of adjuvant radiotherapy will be less favourable if the patient has regional nodal invasion or early distant metastasis at the time of presentation.⁽¹³⁾

Triple therapy with surgery followed by adjuvant radiotherapy and chemo-immunotherapy were also tried in many cases and the reported studies suggested modest increase in the local control and overall survival.^(14,15) The most frequently used chemotherapeutic agents include Dacarbazine and Platinum analogues.Immunotherapy is effective only in small percentage of patients and increased response rate has been observed when IL-2 and Interferon- α are combined with cisplatin.⁽¹⁶⁾

Compared to skin melanomas,the mucosal melanomas have a lower prevalence of regional lymphnode invasion,both at presentation and at recurrence. Oral cavity melanomas have higher incidence in lymphnode involvement than the sino-nasal ones.However,frequent recurrences and tendency for early hematogenous metastases despite radical surgery contribute to the grave prognosis of sino-nasal malignant melanomas.^(17,18) The occurrence of

local recurrence is seen in 31-85%,as according to many studies.The lung,liver,bone and brain are the most common sites of metastasis.⁽¹⁹⁾ Patients with surgery has better 3-year and 5-year OS rates than those who are treated without surgery (40.7% and 34.1% vs 21.4% and 14.3%, respectively). Patients who presents with metastasis at presentation is associated with worse prognosis.^(3,4)

According to a study at Memorial Sloan Kettering cancer centre, clinical stage at presentation,tumour thickness >5mm,vascular invasion on histological studies and development of distant metastasis are the only independent predictors of outcome in mucosal melanomas of the head and neck region.⁽²⁰⁾

CONCLUSION :

Sino-nasal mucosal melanoma is an unusual clinical entity. Favourable outcome,though less often possible can be expected only in cases of early detection and prompt surgical excision followed by adjuvant Radiotherapy.

However,despite aggressive therapy,the prognosis in these patients is usually grim with a morality rate more than 50%. Surgery remains the main stay of treatment although the role of adjuvant radiotherapy and chemotherapy is on its pace.A clearer understanding of the biology of the disease may help standardize the treatment modalities and inturn improve the outcome.

REFERENCES:

1. Lund VJ, Stammberger H, Nicolai P, Castelnuovo P, Beal T, Beham A, Bernal-Sprekelsen M, Braun H, Cappabianca P, Carrau R, Cavallo L. European position paper on endoscopic management of tumours of the nose, paranasal sinuses and skull base. Rhinology. Supplement. 2009 Dec(22):1-43.

2.AJCC 8th edition

3. Sun CZ, Li QL, Hu ZD, Jiang YE, Song M, Yang AK. Treatment and prognosis in sinonasal mucosal melanoma: A retrospective analysis of 65 patients from a single cancer center. Head Neck. 2014;36:675–681. doi: 10.1002/hed.23355. [PubMed]

4.Jangard M, Hansson J, Ragnarsson-Olding B. Primary sinonasal malignant melanoma: a nationwide study of the Swedish population, 1960–2000. Rhinology. 2013;51:22–30. [PubMed]

- 153 5.Chang AE , Karnell LH ,MenckHR.The National cancer Data Base Report on cutaneous
154 and noncutaneous melanoma: a summary of 84,836 cases from the past decade.The American
155 College Of Surgeons Commission On Cancer and the American Cancer Society
156 .Cancer.1998;83:1664-78
- 157 6.Mendenhall WM , Amdur RJ , Hinerman RW , Werning JW Villaret DB , Mendenhall NP.
158 Head and neck mucosal melanoma .Am J ClinOncol. 2005;28:626-30.
- 159 7. Gilligan D, Slevin NJ. Radical radiotherapy for 28 cases of mucosal melanoma in the nasal
160 cavity and sinuses. *Br J Radiol*. 1991 Dec. 64(768):1147-50.
- 161 8. Warszawik-Hendzel O, Slowinska M, Olszewska M, Rudnicka L. Melanoma of the oral
162 cavity: pathogenesis, dermoscopy, clinical features, staging and management. *J Dermatol*
163 *Case Rep*. 2014 Sep 30. 8 (3):60-6.
- 164 9. Dwivedi R, Samanta N, Agarwal S (2007) Primary malignant melanoma of the nasal
165 cavity and paranasal sinuses: a rare cause of epistaxis in the elderly. *Int J Head Neck Surg*
166 2(1)
- 167 10. Batsakis JG, Regezi JA, Solomon AR, et al. The pathology of head and neck tumors:
168 mucosal melanomas. *Head Neck Surg*. 1982;4:404–418. doi: 10.1002/hed.2890040509.
169 [PubMed]
- 170 11.Jayaraj SM, Hern JD, Mochloulis G, Porter GC. Malignant melanoma arising in the
171 frontal sinuses. *J LaryngolOtol* 1997;111:376-8.
- 172 12.Berthelsen A, Andersen AP, Jensen S, Hansen HS. Melanomas of the mucosa in the oral
173 cavity and the upper respiratory passages. *Cancer* 1984;54:907-12.
- 174 13. Kingdom TT, Kaplan MJ. Mucosal melanoma of the nasal cavity and paranasal sinuses.
175 *Head Neck*. 1995;17:184–189. doi: 10.1002/hed.2880170303. [PubMed]
- 176 14. Owens JM, Roberts DB, Myers JN. The role of postoperative adjuvant radiation therapy
177 in the treatment of mucosal melanomas of the head and neck region. *Arch Otolaryngol*.
178 2003;129:864–868. doi: 10.1001/archotol.129.8.864. [PubMed]
- 179 15.Temam S, Mamelle G, Marandas P, Wibault P, Avril MF, Janot F, Julieron M, Schwaab
180 G, Luboinski B. Postoperative radiotherapy for primary mucosal melanoma of the head and
181 neck. *Cancer*. 2005;103:313–319. doi: 10.1002/cncr.20775. [PubMed]

- 182 16. Saida T, Kawachi S, Takata M, et al. Histopathological characteristics of malignant
183 melanoma affecting mucous membranes: a unifying concept of histogenesis. *Pathology*. 2004
184 Oct. 36(5):404-13. [\[Medline\]](#).
- 185 17. Vandenhende C, Leroy X, Chevalier D, Mortuaire G. Sinonasal mucosal melanoma:
186 retrospective survival study of 25 patients. *J Laryngol Otol*. 2012;126:147–151. doi:
187 10.1017/S0022215111002519. [\[PubMed\]](#)
- 188 18. Huang SF, Liao CT, Kan CR, Chen IH. Primary mucosal melanoma of the nasal cavity
189 and paranasal sinuses: 12 years of experience. *J Otolaryngol*. 2007;36:124–129. doi:
190 10.2310/7070.2007.0010. [\[PubMed\]](#)
- 191 19. Sanderson AR, Gaylis B. Malignant melanoma of the sinonasal mucosa: Two case reports
192 and review. *ENT-Ear, Nose & Throat Journal*. 2007;86:287-290
- 193 20. Patel SG, Prasad ML, Escrig M, et al. Primary mucosal malignant melanoma of the head
194 and neck. *Head Neck*. 2002 Mar. 24(3):247-57. [\[Medline\]](#).
- 195 Mucosal melanoma of the nasal cavity and paranasal sinuses



Fig 1 Post Operative photograph of the patient.

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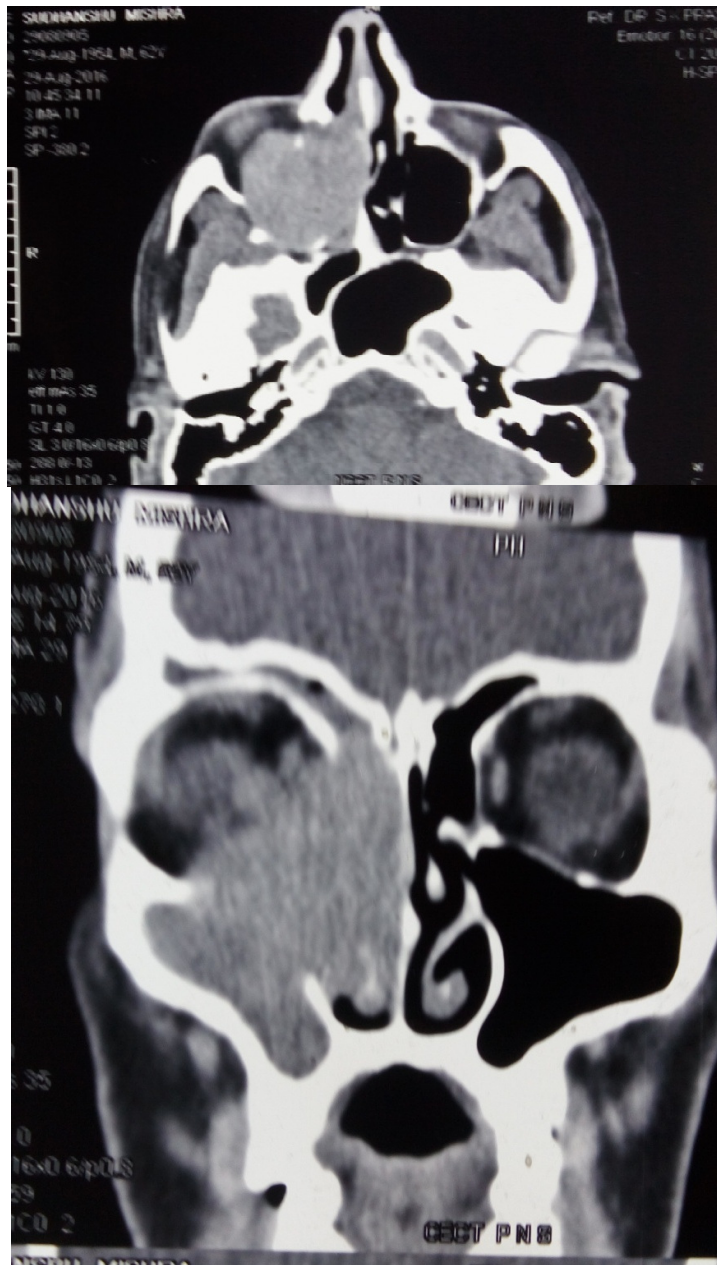


Fig 2 : Pre-operative CT images of the patient.

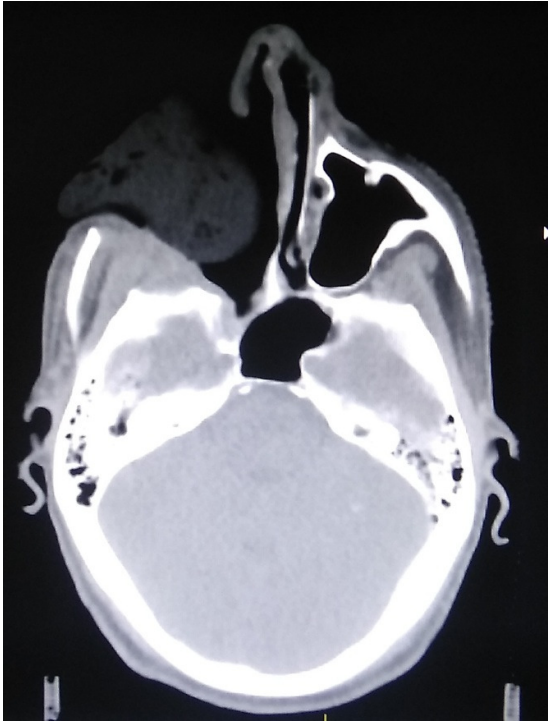
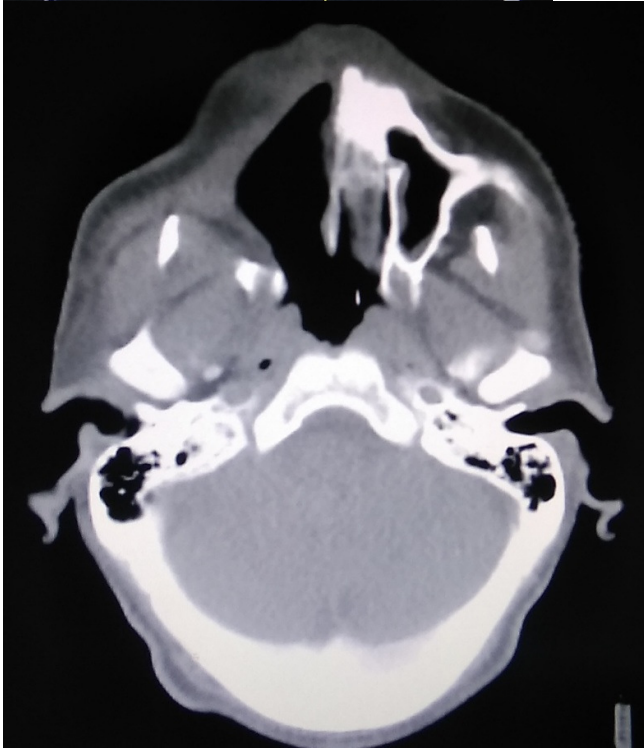


Fig 3 A : Post-operative CT images with Tissue equivalent prosthesis ins

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