INDEX COPERNICUS INTERNATIONAL

CASE STUDY

Malignant mucosal melanoma of the frontal sinus – case report

Czerniak zatoki czołowej – opis przypadku

Authors' Contribution:
A – Study Design
B – Data Collection
C – Statistical Analysis
D – Data Interpretation
E – Manuscript Preparation
F – Literature Search
G – Funds Collection

Jan Szlęzak[EF], Andrzej Skorek[EF], Dmitry Tretiakow[EF]

Clinical Department of Otolaryngology, AMISNS Academy in Elbląg, Nicholas Copernicus Hospital in Gdańsk, Poland

Article history: Received: 06.11.2024 Accepted: 04.09.2025 Published: 04.09.2025

ABSTRACT:

Introduction: Sinonasal mucosal melanoma (SNMM) is a rare and aggressive cancer of the head and neck. Due to its asymptomatic onset, the disease is often diagnosed in an advanced stage, which prevents treatment by radical surgery.

Case report: We are presenting the case of a 67-year-old patient with extensive tumor infiltration involving the facial skeleton and cerebral meninges. Since radical resection was not possible, systemic treatment in the form of combination immunotherapy (ipilimumab + nivolumab) was used. The administered treatment led to a reduction in the tumor mass and stabilization of the disease.

Conclusions: Modern therapies, such as immunotherapy and ongoing clinical trials, are opening up new treatment options for patients with advanced forms of SNMM and may improve the prognosis in this clinically difficult group of patients.

KEYWORDS: immunotherapy, mucosal melanoma, sinus tumors

STRESZCZENIE:

Wstęp: Czerniak błony śluzowej jam nosa i zatok (ang. *Sinonasal Mucosal Melanoma*; SNMM) to rzadki i agresywny nowotwór głowy i szyi. Ze względu na bezobjawowy początek choroby, często diagnozowany jest w zaawansowanym stadium, co utrudnia zastosowanie radykalnego leczenia chirurgicznego.

Opis przypadku: Autorzy przedstawiają przypadek 67-letniego pacjenta z rozległym naciekiem nowotworowym obejmującym twarzoczaszkę oraz opony mózgowe. Z uwagi na brak możliwości radykalnej resekcji zastosowano leczenie systemowe w postaci immunoterapii skojarzonej (ipilimumab + niwolumab). Doprowadziło ono do zmniejszenia masy guza oraz stabilizacji choroby.

Wnioski: Nowoczesne terapie, takie jak immunoterapia oraz prowadzone badania kliniczne, otwierają nowe możliwości leczenia pacjentów z zaawansowanymi postaciami SNMM i mogą poprawić rokowanie w tej trudnej klinicznie grupie chorych.

SŁOWA KLUCZOWE: czerniak błony śluzowej, immunoterapia, nowotwory zatok przynosowych

ABBREVIATIONS

SNMM – sinonasal mucosal melanoma
CT – computed tomography
MRI – magnetic resonance imaging
ENT – ear, nose, and throat
VAS – Visual Analogue Scale

INTRODUCTION

Primary sinonasal mucosal melanoma (SNMM) is a rare, aggressive malignancy of the head and neck. It accounts for about 4–8% of all malignant tumors of the maxillo-ethmoid complex. Only isolated reports have been published on lesions being located within the frontal sinus [1]. The standard treatment of SNMM involves surgery with adjuvant radiotherapy [1, 2]. Due to its initially asymptomatic course and low specificity of symptoms, the disease is often diagnosed at a stage that prevents radical resection. A major opportunity for a cure in these patients lies in clinical trials focusing on immunotherapy [1–3].

CASE REPORT

A 67-year-old male patient presented to the hospital Emergency Department with a headache (VAS 7/10) and a non-painful protrusion within the region of the left upper eyelid and the nasal root. The patient denied nicotine use while reporting many years of working on building renovations without adequate upper

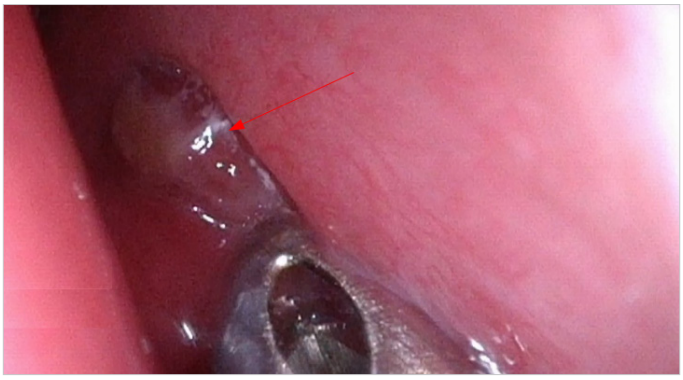


Fig. 1. Endoscopic image of the left nasal cavity (pathology indicated by the arrow).

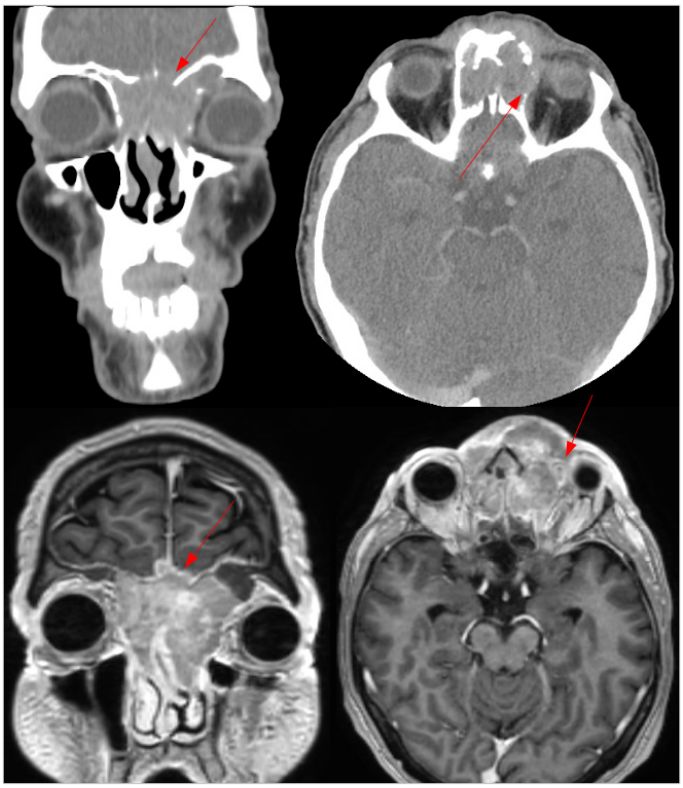


Fig. 2. CT (top) and MRI (bottom) of the facial skeleton at diagnosis.

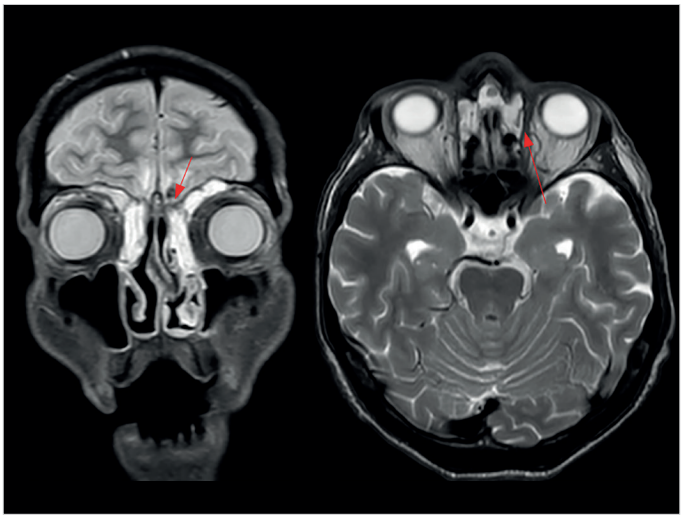


Fig. 3. MRI scan of the facial skeleton after 4 months of immunotherapy.

respiratory protection. Physical examination revealed asymmetrical positioning of the eyeballs with no anomalies in eye mobility and no double vision when looking in all directions. Anterior rhinoscopy, as performed after mucosal anemization, revealed a pink polypoid lesion at the border of the middle and upper nasal passages, with no signs of infiltration of the surrounding tissues. A computed tomography (CT) scan showed a homogeneous, solid soft-tissue lesion with extensive osteolysis of the bony structures within the craniofacial region, mainly the frontal and ethmoid bones. The lesion infiltrated the anterior cranial fossa, orbits, and soft tissues of the face. Due to the patient's short medical history and the extent of the proliferative process on imaging studies, the patient was qualified for urgent biopsy of the lesion under endoscopic guidance (Fig. 1.). A diagnosis of SNMM was made upon histological examination. The diagnostic procedures were extended to include magnetic resonance imaging (MRI) of the brain, facial skeleton, and neck, revealing infiltration of cerebrospinal meninges progressing into the craniofacial region (Fig. 2.). The extent of the neoplastic process prevented radical resection of the tumor. Following dermatological consultation and exclusion of the secondary nature of the lesion, the patient was qualified for immunotherapy with ipilimumab + nivolumab. Treatment was started on a regimen of nivolumab 1 mg/kg + ipilimumab 3 mg/kg administered intravenously every 3 weeks. After 4 cycles, the regimen was switched to nivolumab in monotherapy at a dose of 240 mg every 2 weeks. Follow-up MRI scans acquired 4 months after initiation of immunotherapy revealed a reduction in the size of the proliferative lesion (Fig. 3.), with stabilization of the radiological image after 1 year (Fig. 4.). As a complication of the treatment, the patient developed hypopituitarism and therefore remains under endocrine care. A follow-up endoscopy of the left nasal cavity one year after the inclusion of treatment revealed multiple adhesion--like lesions with no apparent proliferative character. The patient remains under constant care at the ENT and oncology clinics. Subsequent endoscopic and imaging examinations over a period of two years have shown no signs of cancer progression.

DISCUSSION

López et al. [4] identify the maxillary sinus as the most common location of sinonasal mucosal melanoma. Less commonly, lesions are located within the ethmoid sinus, while only sporadically developing within the sphenoid and frontal sinuses. In the available literature, the 1997 report by Jayaraj et al. [5] describes a case of a patient with an advanced lesion infiltrating the frontal lobes.

The gold standard of SNMM treatment consists in the resection of the tumor with a surgical margin of 1.5 cm. However, Flukes et al. observed a decreasing number of patients undergoing primary surgical treatment [6]. This may be due to the worldwide trend to avoid surgical interventions that lead to a significant decrease in quality of life, as well as to the availability of immunomodulatory treatment options. Despite a decline in the rate of surgical procedures, an improvement in the survival of patients who had been operated on before the inclusion of immunomodulatory treatment continues to be observed [7]. The main disease severity--related exclusion criteria for surgical treatment include intracranial

infiltration and orbital involvement. Few data can be found in the available literature on the surgical treatment of residual SNMM lesions after immunotherapy. Within the series of four cases described by Chao et al., the best therapeutic effect was achieved by performing endoscopic resection of the primary focus following incomplete response to immunotherapy [8].

CONCLUSIONS

In presenting a report on the course of the disease in our patient, we want to highlight the potential of immunotherapy as an effective therapeutic option for patients presenting with advanced SNMM and not qualifying for standard surgical treatment. A significant reduction in tumor volume was observed in the presented patient, confirming the promising role of immunotherapy in the treatment of this rare cancer. Due to the low prevalence of SNMM, the collection of a complete set of clinical data is a challenge which translates to difficulties in the optimization of treatment strategies. Further clinical trials and case reports are needed to evaluate the long--term efficacy and safety of immunotherapy in patients with this cancer. Further development of immunotherapies and targeted therapies offers hope for improving the prognosis and quality of life of patients with this aggressive malignancy.

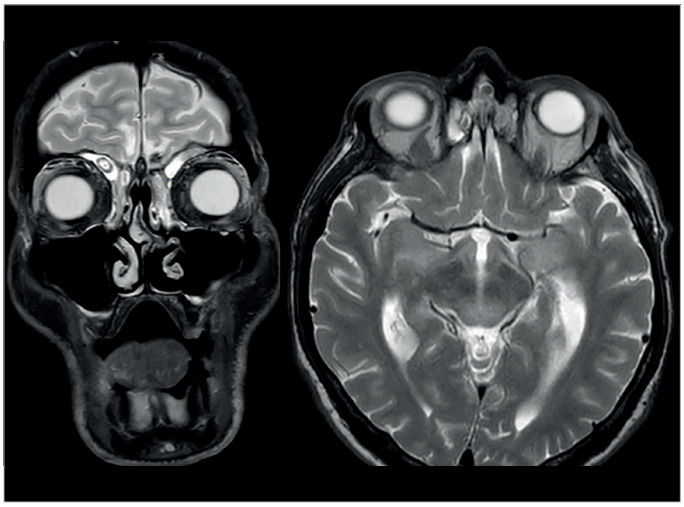


Fig. 4. MRI scan of the facial skeleton after 1 year of treatment.

REFERENCES

1. Gilain L., Houette A., Montalban A., Mom T., Saroul N.: Mucosal melanoma of the nasal cavity and paranasal sinuses. Eur Ann Otorhinolaryngol Head Neck Dis., 2014; 131(6): 365–369. doi: 10.1016/j.anorl.2013.11.004.
2. Na'ara S., Mukherjee A., Billan S., Gil Z.: Contemporary Multidisciplinary Management of Sinonasal Mucosal Melanoma. Onco Targets Ther., 2020; 13: 2289–2298. doi: 10.2147/OTT.S182580.
3. Richa T., Lee A., Cohen M.A.: Evolution in Sinonasal Mucosal Melanoma Management. J Neurol Surg Rep., 2022; 83(1): e1–2. doi: 10.1055/s--0041-1741380.
4. López F., Rodrigo J.P., Cardesa A., Triantafyllou A., Devaney K.O. et al.: Update on primary head and neck mucosal melanoma. Head Neck., 2016; 38(1): 147–155. doi: 10.1002/hed.23872.
5. Jayaraj S.M., Hern J.D., Mochloulis G., Porter G.C.: Malignant melanoma arising in the frontal sinuses. J Laryngol Otol., 1997; 111(4): 376–378. doi: 10.1017/S0022215100137363.
6. Flukes S., Lohia S., Barker C.A., Cracchiolo J.R., Ganly I. et al.: Are our patients doing better? A single institution experience of an evolving management paradigm for sinonasal mucosal melanoma. Oral Oncol., 2021; 112: 105006. doi: 10.1016/j.oraloncology.2020.105006.
7. Sun C.Z., Li Q.L., Hu Z.D., Jiang Y.E., Song M. et al.: Treatment and prognosis in sinonasal mucosal melanoma: A retrospective analysis of 65 patients from a single cancer center. Head Neck., 2014; 36(5): 675–681. doi: 10.1002/hed.23355.
8. Chao T.N., Kuan E.C., Tong C.C.L., Kohanski M.A., Grady M.S. et al.: Surgical Treatment of Sinonasal Mucosal Melanoma in Patients Treated with Systemic Immunotherapy. J Neurol Surg B Skull Base., 2021; 82(Suppl 3): E148–154. doi: 10.1055/s-0040-1701219.

Table of content: https://otorhinolaryngologypl.com/issue/17179 Tables: – Figures: 4 References: 8

Copyright: Some rights reserved: Polish Society of Otorhinolaryngologists Head and Neck Surgeons. Published by Index Copernicus Sp. z o.o.

Competing interests: The authors declare that they have no competing interests.

The content of the journal „Polish Society of Otorhinolaryngologists Head and Neck Surgeons" is circulated on the basis of the Open Access which means free and limitless access to scientific data.

This material is available under the Creative Commons – Attribution-NonCommercial 4.0 International (CC BY-NC 4.0). The full terms of this license are available on: https://creativecommons.org/licenses/by-nc/4.0/legalcode

Corresponding author: Jan Szlęzak; Clinical Department of Otolaryngology, AMISNS Academy in Elbląg, Nicholas Copernicus Hospital; Gdansk, Poland; E-mail: jszlezak@copernicus.gda.pl

Cite this article as: Szlezak J., Skorek A., Tretiakow D.: Malignant mucosal melanoma of frontal sinus – case report; Pol Otorhino Rev 2026; 14 (1): 1–3; DOI: 10.5604/01.3001.0055.2634