



Sinonasal Undifferentiated Carcinoma with Failed Response to Induction Chemotherapy

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Abstract

Keywords

- ▶ sinonasal undifferentiated carcinoma
- ▶ induction chemotherapy
- ▶ endoscopic craniofacial resection
- ▶ review

Sinonasal undifferentiated carcinoma (SNUC) is a rapidly growing malignancy with a propensity for extensive local invasion. Multimodal therapy, including surgery, radiotherapy, and chemotherapy, is the standard approach to treatment, but the optimal sequence and combination of these modalities are uncertain. Induction chemotherapy is being increasingly utilized based on recent reports that show better outcomes for patients who respond to chemotherapy and the ability to determine further course of treatment. We present a unique case of a patient with locally advanced SNUC that did not respond to induction chemotherapy and a review of the available literature relating to the management of this rare malignancy.

Introduction

Sinonasal undifferentiated carcinoma (SNUC) is a rare, highly aggressive epithelial malignancy that is often locally advanced at presentation. Multimodality treatment is standard,^{1–5} and the role of primary surgery is limited by the extent of intracranial extension. In selected patients, the response of SNUC to induction chemotherapy (IC) can be used to guide subsequent therapy.³

Case Report

A 68-year-old male presented with nasal congestion, rhinorrhea, and a right nasal cavity mass. Computed tomography and magnetic resonance imaging (MRI) demonstrated extension into the ethmoid, sphenoid, and right frontal sinuses and through the cribriform plate (▶Fig. 1A, B). Biopsy was consistent with SNUC. After full workup, the

tumor was staged as T4bN0M0. IC was initiated with two cycles of cisplatin and docetaxel. Interval MRI revealed no significant reduction in tumor size (▶Fig. 1C, D). Endoscopic craniofacial resection was attempted. Although gross total resection was achieved, the margins were positive on the brain. Skull base defect was reconstructed by acellular dermal matrix and nasal septal flap (▶Fig. 2A, B). The patient then received chemoradiation therapy (CRT). CRT was discontinued after two doses of carboplatin and 38 Gy due to patient intolerance. At 9 months posttreatment, MRI revealed persistent disease (▶Fig. 2C, D). Biopsy was consistent with SNUC. Given the low likelihood of success with additional surgery, palliative options were recommended.

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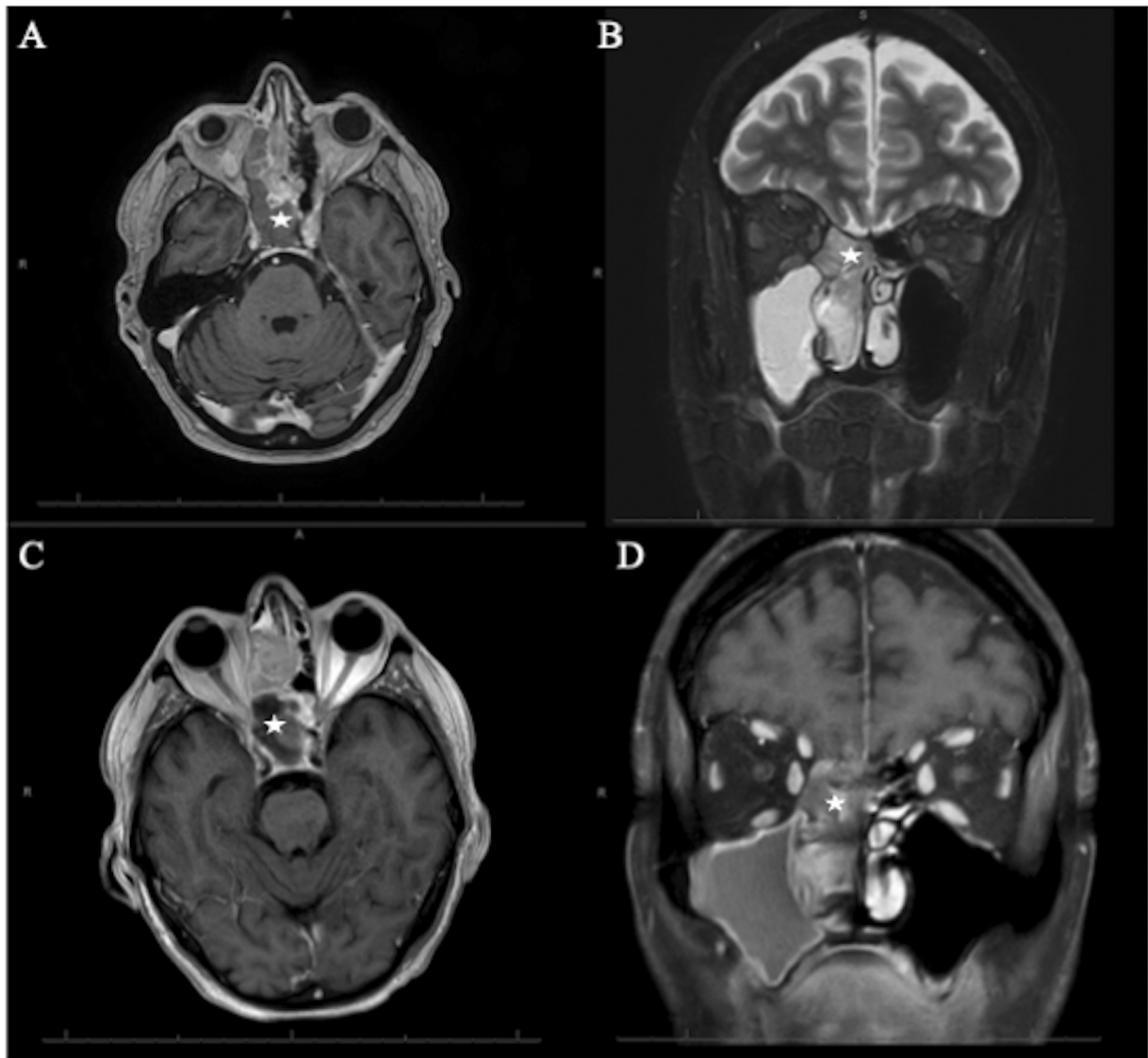


Fig. 1 Pre-treatment computed tomography (A) and magnetic resonance imaging (MRI) (B) images of right nasal cavity sinonasal undifferentiated carcinoma (star) with extension into ethmoid, sphenoid, and frontal sinus and through cribriform plate. Postinduction chemotherapy MRI (C, D) of same patient shows no significant reduction in tumor size.

Literature Review

SNUC is a rapidly progressive malignancy with an estimated 5-year overall survival (OS) of 35%.⁶ Given its rarity, the optimal management of SNUC is unknown.⁷ Multimodality therapy is associated with increased OS, but the sequence and combination of therapies are debated.^{1,3,5}

When negative margins are achieved, surgery with adjuvant therapy has demonstrated improved survival compared with CRT.^{8–11} Historically, tumor extirpation required open craniofacial resection; however, endoscopic approaches have shown reduced morbidity and comparable survival outcomes.^{12,13} Henceforth, endoscopic techniques have been adopted widely in appropriate scenarios. When achiev-

ing negative margins is unlikely, primary surgical resection does not provide a survival benefit.⁸

IC has emerged as an important aspect of therapy. Potential benefits include organ preservation and cytoreduction, potentially enabling complete resection and the ability to address disseminated disease.⁴ IC may also help guide the choice of definitive locoregional therapy as patients who have a complete response can be consolidated with CRT. In a recent large study, Amit et al showed that patients who responded to IC had improved 5-year survival when IC was followed with CRT compared with surgery. Conversely, nonresponders to IC have a significantly worse prognosis. In this subgroup, surgery plus adjuvant therapy can be considered but discussion of palliative options is also appropriate.³

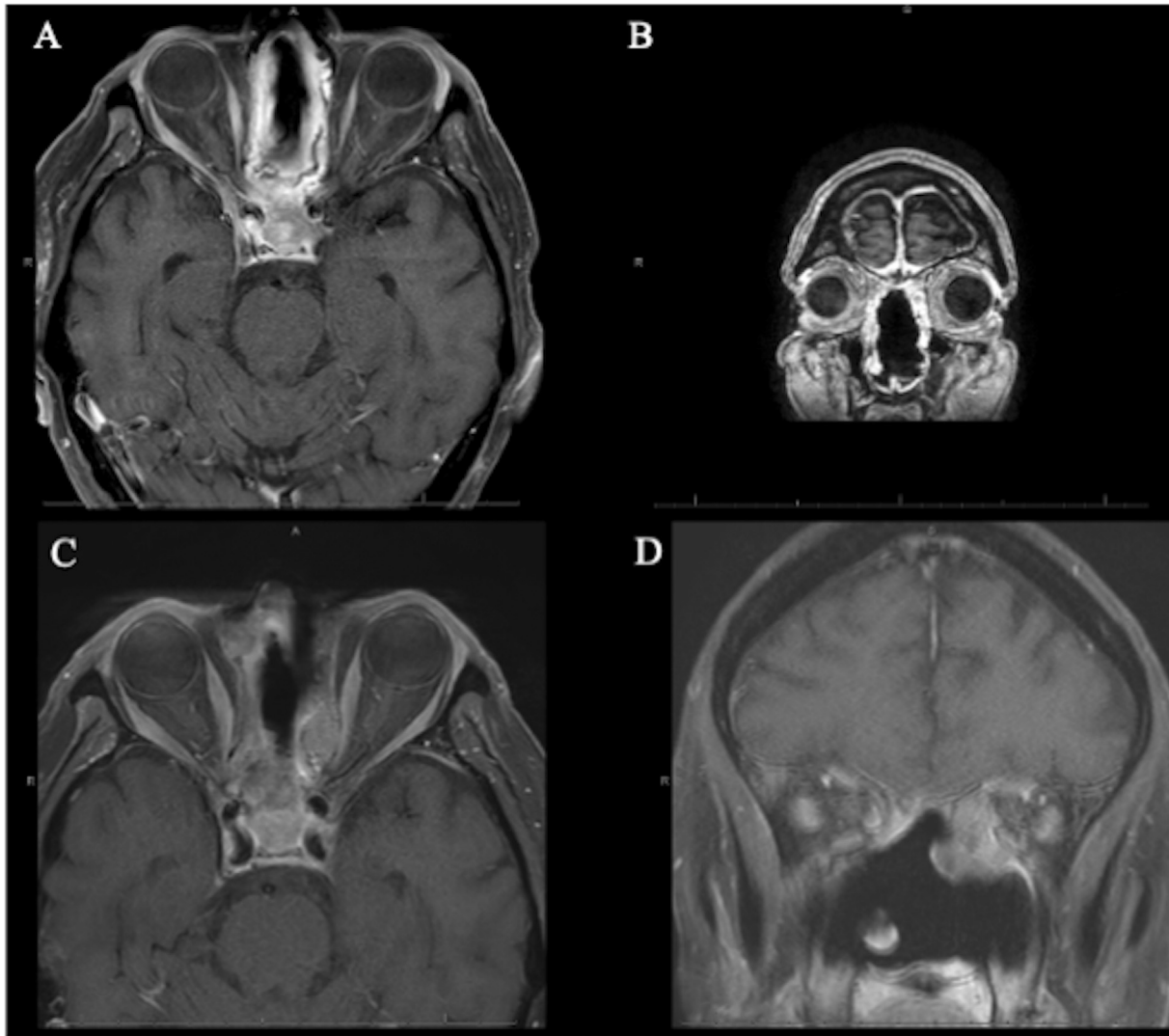


Fig. 2 Postoperative magnetic resonance imaging (MRI) (A, B) demonstrating changes consistent with extensive sinonasal surgery with skull base reconstruction. Post-incomplete chemoradiation therapy MRI (C, D) demonstrating recurrence of sinonasal tumor.

Locoregional recurrence following primary treatment is associated with a poor prognosis.^{10,11} As such, elective neck treatment is recommended for most patients with advanced stage tumors (T3/T4), even if they present with an NO neck.¹⁴

Conclusion

The optimal treatment regimen for SNUC has not been tested in a clinical trial. IC, followed by response-based further treatment, might prove to be a better paradigm. Prospective, multi-institutional studies, if possible, are needed to further validate this approach.

Conflict of Interest
None declared.

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