

Sinonasal Undifferentiated Carcinoma: A Case Report

Case Report

Malika El Omri, Bellakhdher Mouna, Oumaima Gabsi, Ameni Mallat, Jihene Houas, Abir Meherzi, Ghammem Monia, Wassim Kermani and Mohamed Abdelkefi

Department of Ear, Nose, Throat and Head and Neck Surgery, Farhat Hached University Hospital, Sousse, Tunisia

ABSTRACT

Sinusal undifferentiated carcinoma is a rare tumor of para-sinonasal tract. It is characterized by its aggressive local behavior, its potential of metastasis and difficulties in its management. The aim was to describe the clinical and histological presentations of Sinonasal undifferentiated carcinoma and to reveal the therapeutic modalities reported in the literature. We report a case of a 56-years old male complained of pain and swelling in the left side of face since three months associated with recurrent epistaxis with unilateral nasal obstruction. Nasal endoscopy revealed a tumoral formation filling the left nasal cavity. Computed Tomography scan and Magnetic Imaging Resonance showed a tissular process in the left nasal cavity extended to the ethmoid and orbit. biopsy concluded to a sinonasal undifferentiated carcinoma.

Key Words: Chemotherapy radiotherapy, Malignant tumors, sinonasal undifferentiated carcinoma.

Received: 15 January 2023, **Accepted:** 13 May 2023

Corresponding Author: Malika El Omri, PhD, Department of Ear, Nose, Throat and Head and Neck Surgery, Farhat Hached University Hospital, Sousse, Tunisia. **Tel.:** 56043690, **E-mail:** Omri.malika6@gmail.com

ISSN: 2090-0740, 2023

INTRODUCTION

Sinonasal undifferentiated carcinoma (SNUC) is a rare entity specific to the nasal cavities and paranasal sinus. SNUC is poorly differentiated and aggressive malignancy of the nasal cavity and paranasal sinuses first reported by Frierson *et al.* In 1986^[1]. SNUC had non specific symptoms such as epistaxis, nasal obstruction and headache for a short duration^[2]. Therefore 70% to 100% of tumors were classified T4 at presentation^[3,4]. Thus optimal management of this entity is still unclear guided by few cases series with restrict number of patients^[4]. Long term survival rates were deceiving reaching 50% in the best cases^[5]. The aim of this case report was to insist on the main clinical and histological presentations of the disease and to discuss the possible treatment modalities reported in the literature.

Patient and observation

Patient informations

A 56-year-old man came to the outpatient department. He complained of pain and swelling in the left side of face since three months. He also gave history of nasal obstruction with recurrent epistaxis. He had no prior medical and surgical history. The patient was a heavy smoker.

Clinical findings

Clinical examination found a left paranasal swelling arasing extending to the left eyeball and nasal pyramid (Figure 1), an hypoesthesia in the left V2 territory and diplopia were found. There were no cervical lymph node.

Nasal endoscopy concluded to a fungating red formation filling the left nasal cavity and bleeding in contact.



Fig. 1: Left paranasal swelling arasing extending to the left eyeball and nasal pyramid deformation

Timeline of current episode

The symptoms were present since three months and they were spontaneous.

Diagnostic assessment

Computed Tomography (CT) scan showed an anterior ethmoidal expansive tissular process lateralized to the left with left intra-orbital extension and upwards towards the frontal sinuses and the cribriform plate with bone invasion of the anterior level. Urgent biopsy was performed under local anesthesia. Microscopic examination of the biopsy

specimen coupled to immunohistochemistry (IHC) concluded to a sinonasal undifferentiated carcinoma (SNUC) with (Protein S100 (PS100)-, cytokératine +, Epithelial membrane Antigen (EMA)+) The patient was p63 and Epstein Barr Virus (EBV) negative. Magnetic resonance imaging (MRI) showed a tissular process of left nasal cavity and the anterior ethmoid that extended to the left orbit, with hyposignal in T1 and hypersignal in T2 with gadolinium enhancement (Figure 2). Chest, abdominal and pelvis CT scan was negative for metastatic disease. Bone scintigraphy showed no bone metastases.

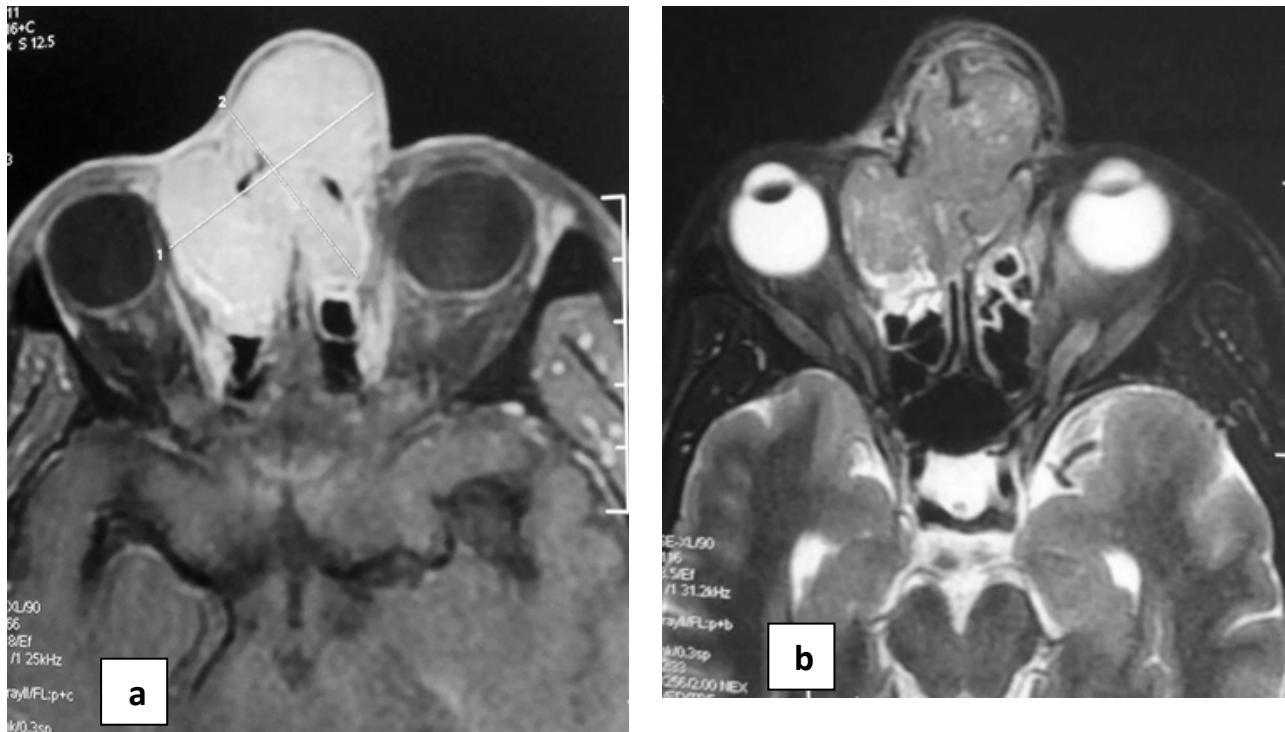


Fig. 2: MRI, axial cut, T1 with gadolinium (a) and T2 (b): a tissular process of left nasal cavity and the anterior ethmoid that extended to the left orbit, heterogenous hypersignal in T2 and enhancement in T1 with gadolinium.

Diagnosis

Sinonasal undifferentiated carcinoma was the diagnosis.

Therapeutic interventions

The patient was staged T4N0M0 and the case was discussed at a Multidisciplinary tumor board given the complex nature of the case. Given the large tumor burden and locally advanced disease, the decision was made to proceed with Neo-adjuvant chemotherapy, followed by concurrent chemotherapy using cisplatin and radiation therapy. The patient was initiated on Docetaxel/Cisplatin/5 FU (TPF) the same week, and completed 3 cycles without complication.

Follow-up and outcome of interventions:

The patient noted significant clinical improvement. No recurrence was found. The patient is now on a regular follow-up for the past three years.

DISCUSSION

In 1986, Frierson and al reported a cases series, including 8 patients who had advanced disease with cerebral and orbital extension, they were treated with chemo-radiation therapy. Only 3 patients were survivor after one year^[1]. Recently, Kuo and al reported a series of 435 patients and his series presented the largest cohort ever reported , he found that SNUC was more frequent in males with a sex ratio near to 1.7. The age ranged between 18 and 85 years and 50% of patients were younger than 55 years^[6]. Worthy, there is a lack of consensus regarding optimal management in these cases and many clinical and therapeutic features are still unclear. In addition to its uncertain histogenesis, the etiology of SNUC is to date unknown. The role of previous radiation therapy and tobacco was not demonstrated.

Symptoms are non specific with nasal obstruction, epistaxis, ophthalmological manifestations and headache. Therefore, 70% to 100% were staged T4 at presentation and 10 to 30% had metastatic cervical lymph nodes^[4]. According to an American review by Caroline C Xu, neurologic symptoms were present in 45% of cases, orbital involvement in 42,3% and epistaxis in 25%^[7]. In our case, trigeminal pain, epistaxis and paranasal swelling were present at the first consultation without a cervical lymph node or distant metastases. Histological examination and IHC were necessary to establish the diagnosis. The disease is characterized by a high mitotic index, important necrosis tumor, vascular emboli, and absence of glandular differentiation^[8]. The IHC is distinct from other sinonasal tumors such as mucosal melanoma lymphoma, olfactory neuroblastoma and neuroendocrine carcinoma. Cytokeratin 7,8, EMA staining is positive, like in our case, while staining for S-100 protein, leucocyte common antigen (LCA), vimentin, in situ hybridization for Epstein-Barr encoded RNA (EBER), S-100 protein synaptophysin and calretinin are generally negative^[9].

According to literature, there are no optimal treatment guidelines due to the restricted number of reported cases series and other reasons including: advanced stage (tumors are typically advanced stage at presentation with 70-100% of tumors being T4 and 10–30% of tumors having involving neck lymph nodes) and proximity to critical structures^[4,6]. Studies have shown that an aggressive multimodality therapy including combinations of surgery, chemotherapy, and/or radiation is highly recommended to eradicate diseased tissues and avoid local recurrence^[6,9,10]. Surgery consists usually of mutilating and aggressive craniofacial resection with maxillectomy, orbital exenteration, and eventually neurosurgical involvement^[6]. According to Mussy and al, these tumors are no longer surgical if one or many of the following structure are invaded: brain, orbital cone, cavernous sinus and infratemporal fossa^[5]. Neoadjuvant Chemotherapy is indicated in advanced stage, like in our case, The trimodality approach was evaluated by Mourad *et al.*, in a retrospective study of 18 patients with SNUC. Neoadjuvant chemotherapy included TPF every 3 weeks for 2 to 3 cycles. Cisplatin was used at a dose of 100 mg/m² every 3 weeks for 3 cycles in patients treated with concurrent chemoradiation. The trimodality approach improve local contrôle. It provided 83% LC and 33% Distant Metastases-Free (DM) survival whereas other therapeutic strategies provided 50% LC and 33% DM-free survival^[9]. Morand *et al.* performed a case-series, systematic review and meta-analysis of the data involving treatment strategies for patients with SNUC, evaluating a total of 390 cases. 80% of them presented with a T4 stage tumor and 16% with lymph

node metastases at presentation. Single modality treatment (radiation therapy or surgery alone) had reduced survival compared to double modality (chemoradiation therapy or surgery associated to radiation) which was correlated to the best survival rate in univariate and multivariate analysis according to the same authors^[6, 9, 10]. In this specific study, it was noted that trimodality was not superior than the double modality^[9]. Systematic radiation therapy of the cervical lymph node compartments for patients who has no lymph node metastases is recommended by some authors due to the disease aggressiveness^[4, 5]. The 5-years survival rate is low. Kuo found 41,5% as cumulative 5-years survival rate^[6]. Close survival rate was found in other cases- series^[8].

CONCLUSION

SNUC is a rare disease of sinonasal tract. Optimal treatment remains unclear due to its aggressive local extension and its regional and distant metastasis. At this time treatment can only be based on reported small number of retrospective studies, and therefore it is important to continue to evaluate different institutions' modalities of treatment and to determine the most effective combination of therapies. There is no evidence that aggressive therapies offer better survival. Therefore, a better comprehension of the disease and the search for new therapeutic modalities remain necessary.

CONFLICT OF INTEREST

There are no conflicts of interest.

REFERENCES

1. Frierson HF, Jr., Mills SE, Fechner RE, Taxy JB, Levine PA. Sinonasal undifferentiated carcinoma. An aggressive neoplasm derived from schneiderian epithelium and distinct from olfactory neuroblastoma. *Am J Surg Pathol.* 1986;10(11):771-9.
2. Ejaz A, Wenig BM. Sinonasal undifferentiated carcinoma: clinical and pathologic features and a discussion on classification, cellular differentiation, and differential diagnosis. *Adv Anat Pathol.* 2005;12(3):134-43.
3. Rischin D, Porceddu S, Peters L, Martin J, Corry J, Weih L. Promising results with chemoradiation in patients with sinonasal undifferentiated carcinoma. *Head Neck.* 2004;26(5):435-41.
4. Tanzler ED, Morris CG, Orlando CA, Werning JW, Mendenhall WM. Management of sinonasal undifferentiated carcinoma. *Head Neck.* 2008;30(5):595-9.

5. Musy PY, Reibel JF, Levine PA. Sinonasal undifferentiated carcinoma: the search for a better outcome. *Laryngoscope*. 2002;112(8 Pt 1):1450-5.
6. Kuo P, Manes RP, Schwam ZG, Judson BL. Survival Outcomes for Combined Modality Therapy for Sinonasal Undifferentiated Carcinoma. *Otolaryngol Head Neck Surg*. 2017; 156(1):132-6.
7. Xu CC, Dziegielewski PT, McGaw WT, Seikaly H. Sinonasal undifferentiated carcinoma (SNUC): the Alberta experience and literature review. *J Otolaryngol Head Neck Surg*. 2013; 42:2.
8. Enepkides DJ. Sinonasal undifferentiated carcinoma: an update. *Curr Opin Otolaryngol Head Neck Surg*. 2005; 13(4):222-5.
9. Morand GB, Anderegg N, Vital D *et al*. Outcome by treatment modality in sinonasal undifferentiated carcinoma (SNUC): A case-series, systematic review and meta-analysis. *Oral Oncol*. 2017;75:28-34.
10. Mourad WF, Hauerstock D, Shourbaji RA *et al*. Trimodality management of sinonasal undifferentiated carcinoma and review of the literature. *Am J Clin Oncol*. 2013;36(6):584-8.