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Case Report

Naso-sinus Sarcomas: Literature Review of a Case in the Radiotherapy Department of Fès

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Abstract

Background: *Naso-sinus sarcomas are rare tumors, often diagnosed at advanced stages due to nonspecific symptoms. They represent approximately 3% of cancers of the upper aerodigestive tract.*

Case presentation: *We report a 27-year-old male with a left naso-sinus sarcoma presenting with recurrent epistaxis and facial mass. Imaging revealed a locally advanced tumor invading adjacent structures without intracranial involvement. Histopathological analysis confirmed a high-grade undifferentiated sarcoma. The patient received induction chemotherapy (MAI regimen + G-CSF), achieving partial tumor regression, followed by VMAT radiotherapy (50 Gy/25 fractions), leading to clinical stabilization.*

Conclusion: *Management of naso-sinus sarcomas requires a multidisciplinary approach. While surgery remains the gold standard for resectable cases, a combination of chemotherapy and radiotherapy offers meaningful control for inoperable tumors. Emerging targeted and immunotherapies represent promising future options.*

Keywords: *Naso-sinus sarcoma, Radiotherapy, Chemotherapy, Case report, Head and neck cancer.*

Introduction

Naso-sinus sarcomas are exceptionally rare tumors arising in the nasal cavity and paranasal sinuses, accounting for around 3% of cancers of the upper aerodigestive tract (1). Their rarity and the anatomical complexity of the region often lead to delayed diagnosis. Clinical manifestations such as epistaxis, nasal obstruction, or facial pain are nonspecific and frequently result in diagnosis at an advanced stage (2–4). The management of these tumors requires a multidisciplinary approach combining surgery, radiotherapy, and chemotherapy, as well as emerging strategies such as targeted and immunotherapies (5–8). Here, we report a case of naso-sinus sarcoma treated in the Radiotherapy Department of CHU Hassan II in Fès, followed by a review of the relevant literature.

Case Report

A 27-year-old man, with no significant medical history, presented with moderate unilateral left-sided epistaxis and a progressively enlarging nasal mass evolving over three months. Clinical examination showed a conscious, hemodynamically stable patient (WHO 0). Anterior rhinoscopy revealed a friable, bleeding mass occupying the left nasal cavity. Magnetic resonance imaging (MRI) demonstrated an aggressive, locally advanced left naso-maxillary tumor with extension into the orbit, pterygo-maxillary and infratemporal fossae, without perineural or intracranial involvement. Histopathology confirmed a high-grade undifferentiated sarcoma. Given the inoperable status, the patient underwent induction chemotherapy (3 cycles of MAI protocol + G-CSF), achieving partial regression. After six cycles, VMAT radiotherapy was delivered with a total dose of 50 Gy in 25 fractions. The 3-month post-radiotherapy CT scan showed disease stabilization and notable clinical improvement.

Discussion

Sinonasal malignancies represent less than 1% of all cancers and approximately 3–5% of head and neck tumors (4). The annual incidence ranges from 0.2 to 1 per 100,000 individuals, with variations based on geography and occupational exposure (5,6). These cancers predominantly affect men aged 50–65 years (7,8), making our 27-year-old patient an unusual case. Occupational exposure to wood dust, leather, nickel, and chromium is well-established as a major etiological factor (11–13), while tobacco plays a secondary role (14). HPV infection has been implicated in undifferentiated and non-keratinizing carcinomas (15,16). Molecular alterations involving SMARCB1, IDH2, EGFR, and NUTM1 genes have been identified, opening perspectives for targeted therapy (17,18). No cause was found in our patient; we did not investigate molecular alterations either.

Clinical presentation is often misleading. Unilateral nasal obstruction and recurrent epistaxis are the most frequent symptoms , , which are exactly the signs presented by our patient (19,20). Endoscopic examination with biopsy confirms the diagnosis (21). CT scan is essential for bone evaluation (22), while MRI provides superior soft-tissue contrast, particularly for orbital or skull base extension (23). PET-CT using ^{18}F-FDG assists in staging and monitoring treatment response (24).

Histologically, squamous cell carcinoma is the predominant type, followed by adenocarcinoma, undifferentiated carcinoma, and esthesioneuroblastoma (25–31). Sarcomas, such as in our case, are rare but highly aggressive. Immunohistochemical analysis is critical for accurate classification (32). Differential diagnoses include inverted papilloma and chronic granulomatous diseases (33,34).

Prognosis depends on tumor stage, histological type, and resectability. The 5-year overall survival varies between 30–50% (35–39). Adenocarcinomas fare better (50–70%), whereas undifferentiated carcinomas and sarcomas show poorer outcomes (20–40%). Advanced local extension, orbital involvement, and positive margins are major adverse prognostic factors (35,36).

For resectable tumors, surgery remains the cornerstone of treatment, preferably through endoscopic-assisted techniques (39,40). Adjuvant radiotherapy (IMRT or VMAT) is indicated in cases of close/positive margins or bone/perineural invasion (41). For locally advanced or inoperable tumors cases such as our patient, induction chemotherapy followed by concurrent radiotherapy is recommended (42,43). Innovative therapies, including PD-1 inhibitors and molecular targeted agents (EGFR, BRAF/MEK inhibitors), are under investigation and show promising outcomes (46,47). Multidisciplinary tumor board discussion remains essential to tailor individualized treatment plans (48).

Conclusion

Naso-sinus sarcomas are uncommon malignancies with challenging diagnosis and management due to their deep anatomical location and nonspecific symptoms. Early multidisciplinary intervention is vital to improve outcomes. Advances in molecular characterization and targeted therapies are reshaping the therapeutic landscape, offering new hope for patients with inoperable or recurrent disease.

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