Management of Stage IVA Sinonasal Carcinoma Infiltrating Skin of Cheek: A Case Report

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ABSTRACT
Advanced stage of sinonasal carcinoma that infiltrating skin of cheek is rarely found, surgery is still the main modality since the cancer has not penetrated the intracranial. Based on the distribution, Ohngren is divided into: suprastructure and infrastructure. To report the diagnosis and management of stage IVA sinonasal ccarcinoma. A 59-year-old female with a mass in the right nasal cavity since a year ago. Initially, cancer was in the right nasal cavity, then became progressively enlarged and infiltrated the skin of the right cheek. Computed tomography (CT) scan of paranasal sinuses revealed a mass infiltrating the right and left nasal cavities to the anterior cutis of the nasal region and destroying the nasal region and the medial wall of the maxillary right sinus, nasal bone and nasal septum. The histopathologic result was non-keratinizing squamous cell carcinoma. The patient had been managed by partial maxillectomy with Weber-Ferguson + Dieffenbach approach incision and wide excision. Using PubMed, Medline, manual research to search for the evidence and literature. The removal of the tumor had been performed maximally, closure of the defect using a paramedian forehead flap + cervicofacial flap was planned for adjuvant radiotherapy. Management of stage IVA suprastructure sinonasal carcinoma with the extensive defect is challenging, due to the difficulty of closing the defect and ensuring tumor-negative margins.
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Keywords: *Sinonasal carcinoma, non-keratinizing squamous cell carcinoma, surgery.*

1. INTRODUCTION

Sinonasal carcinoma is a malignant tumor found in the nasal cavity and paranasal sinuses. Malignant tumors in the sinonasal region most commonly arise from the maxillary antrum, lateral wall of the nasal cavity, septum and ethmoid air cells. Although primary tumors rarely arise from the sphenoid and frontal sinuses, their involvement, as well as the skull base, is not uncommon for extension of adjacent disease from other paranasal sinuses [1-3].

Squamous cell carcinoma is the most common sinonasal tumor (90%) followed by adenocarcinoma (6%). Sinonasal carcinoma most affect the maxillary sinus (about 60%), followed by nasal cavity (about 22%), ethmoid sinus (about 15%) frontal and sphenoid sinuses (<3%) [4,5]. Symptoms that usually arise are nasal congestion, epistaxis, rhinorrhea and facial pain. The location of the primary tumor is most often in the maxillary sinus or nasal cavity. The histology of sinonasal squamous cells may vary. Lewis et al, stated that keratinized squamous cells and non-keratinized squamous cells occurred in 83% of the sinonasal squamous cell subtype and the rest were other types. The epithelial immunohistochemistry system is critical for differentiating subtypes of squamous cell carcinoma, often using p63, p40 and cytokeratin to determine the variant. A definite diagnosis can be established through histopathological examination [3,6,7].

Management for sinonasal carcinoma according to the NCCN 2020 guidelines varies greatly depending on staging, general condition of the patient, comorbidities and based on tumor type. Surgery depends on the location of the tumor and the extent of the tumor. Tumor size T1 and T2 surgery only can be selected, while T3 and T4 tumors should continue adjuvant radiotherapy. Lesions with low risk, early stage, easily accessible

location, can be considered as a single treatment modality, surgery (open or endoscopic), followed by adjuvant radiotherapy if found that are difficult to reach at the time of surgery. Advanced stage sinonasal carcinoma that extends to the pterygopalatine and infratemporal fossa is best treated with surgical resection and adjuvant radiotherapy [8].

2. CASE REPORT

A 59-year-old female patient with a mass in the right nasal cavity since a year ago. Initially, cancer was in the right nasal cavity, then it became progressively enlarged and infiltrated skin of the right cheek since 6 months ago. On examination of the nasal cavity, there was a mass coming out of the right nasal cavity 1.3 x 2 x 2 cm, dense, irregular surface and tends to bleed (Figure 1).

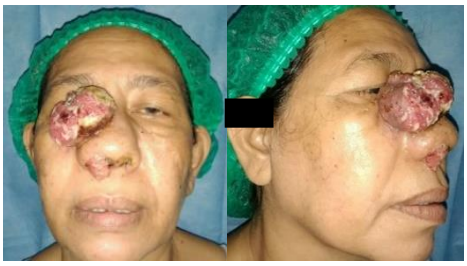


Figure 1. Clinical appearance of patient

Nasoendoscopy did not performed due to extensive mass on both nasal cavities. Chest X-rays and complete blood laboratory were within normal limits. We performed external punch biopsy and the histopathologic result was non-keratinizing squamous cell carcinoma.

CT scan of paranasal sinuses revealed mass were seen infiltrating the right and left maxillary sinuses, right and left ethmoid sinuses, right and left sphenoid sinuses, right and left frontal sinuses, infiltrating the right and left nasal cavities to the anterior cutis of the nasal region and destroying the nasal region and the medial wall of the maxillary right sinus, nasal bone and nasal septum (Figure 2).

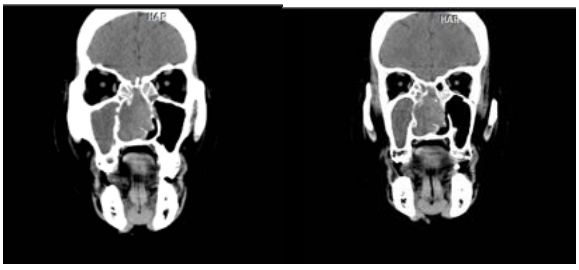
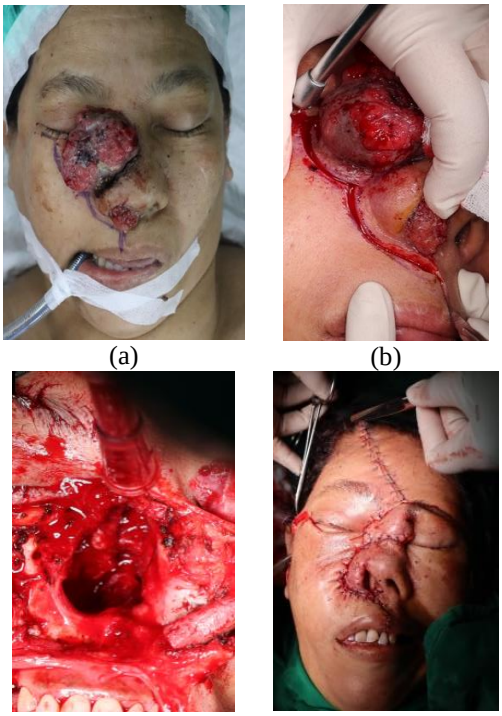


Figure 2. CT Scan SPN showing mass infiltrating the right and left nasal cavities to the anterior cutis of the nasal region and destroying the nasal region and the medial wall of the maxillary right sinus, nasal bone and nasal septum

The patient was diagnosed with sinonasal carcinoma (T4aN0M0) and we were planning to choose surgery and followed by adjuvant radiotherapy. We performed the partial maxillectomy with the Weber-Ferguson + Dieffenbach incision approach and wide excision, during surgery we found that all sinuses involved and almost reach skull base, the rim orbital and lamina papyracea was intact, nasal septal was destructed. The upper border of the defect was base of craniid, the right lateral border was the right maxillary wall, as well as the lower border was the intact palate and closure of the defect using paramedian forehead flap dan cervicofacial flap, the patient was planned to undergo adjuvant radiotherapy immediately after wound closure was good (Figure 3).



(a) (b) (c) (d)

Figure 3. (a) Weber-Ferguson + Dieffenbach incision marker; (b) incision 1 cm below the inferior palpebral margin to the mass in the cheek and continues to the philtrum; (c) tumor mass extends to the cheek removal; and (d) closure of the defect using paramedian forehead flap and cervicofacial flap

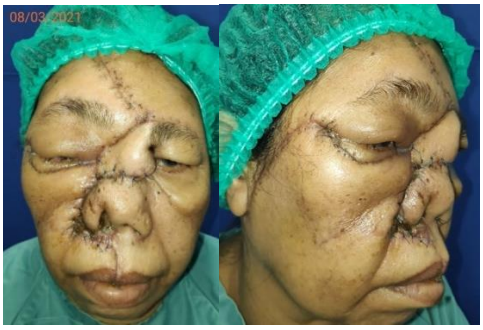


Figure 4. 18 days post-surgery follow up

3. METHODS

Literature search was conducted on Mei 3rd 2021, with the keywords " Sinonasal carcinoma AND non-keratinizing squamous cell carcinoma". Results of research on ScienceDirect and PubMed to search for the evidence.

The literature search was performed using the following inclusion criteria: 1) Partial maxillectomy; 2) Infiltrating skin of cheek; 3). Weber-Ferguson + Dieffenbach incision approach. The management of stage IVA sinonasal carcinoma infiltrating skin of cheek may have promising result with surgery followed by adjuvant radiotherapy. The literature about other treatment is excluded from the analysis.

4. RESULT

Management for sinonasal carcinoma according to the NCCN 2020 guidelines varies greatly depending on staging, general condition of the patient, comorbidities and based on tumor type.[5] Squamous cell carcinoma is the most common sinonasal tumor (90%) followed by adenocarcinoma (6%). Sinonasal carcinoma

most affect the maxillary sinus (about 60%), followed by nasal cavity (about 22%), ethmoid sinus (about 15%) frontal and sphenoid sinuses (<3%) [4,5].

Sinonasal squamous cell carcinoma (NSCC) represents the most common histology observed in the sinonasal tract, the rare nature of this pathologic entity makes analysis of trends in therapeutic management, adherence to treatment recommendations, and benefits of treatment difficult to assess. Primary surgery with adjuvant therapy (RT or CRT) represents the preferred treatment approach for carcinoma sinonasal stages T1–T4a [8].

5. DISCUSSION

Reported a case of a female patient, 59 years old who was sinonasal carcinoma (T4aN0M0) and we were planning to choose surgery and followed by adjuvant radiotherapy. The diagnosis is based on history, physical examination, radiological investigations and histopathology. Tumors occur predominantly in men (twice as commonly as in women) in their 50's and 60's [3].

Sinonasal malignancies were more common in males then female with a ratio 2:1 [2]. Based on the anamnesis of sinonasal carcinoma, the initial symptoms of cancer of the nasal cavity and paranasal sinuses such as nasal congestion, epistaxis, symptoms are unilateral, olfactory disturbances and physical examination obtained a typical of sinonasal carcinoma is a mass that can be expansive of several paranasal sinuses, the mass is usually It occurs in the nasal cavity, ethmoid or maxillary sinuses. This is following the clinical symptoms and physical examination found in the patient, with complaints of nasal congestion in the right nose, bleeding from the right nose. In this patient, initially cancer was in the right nasal cavity, then it became progressively enlarged and infiltrated the skin of the right cheek [10].

Ohngren's line, which is an imaginary plane between the medial canthus of the eye and the angle of the mandible. The suprastructure is situated superior to this plane and the infrastructure is located inferior to this plane. In patients with infrastructural lesions, symptoms are generally seen more quickly after surgery with excellent results. On the other patients with lesions involving the suprastructure, symptoms develop slowly. These tumors are technically difficult to resect because they often extend into the infratemporal fossa, pterygomaxillary fossa, orbit, skull base, and/or anterior cranial fossa. Tumors of the maxillary antrum infrastructure may extend through the floor of the antrum into the oral cavity, through its medial wall into the nasal cavity, through the anterior part of the wall into the soft tissues of the cheek, or the lateral wall into the masticatory space. In addition, the superstructure tumor spreads by extension through the posterior wall of the antrum into the pterygomaxillary space, infratemporal fossa, and middle cranial fossa; through the roof of the antrum to the orbit; or the ethmoid cavity into the anterior cranial fossa. Primary malignant tumors of the nasal cavity may invade the hard palate, maxillary antrum, ethmoid cavity or orbit with local extension. Ethmoid tumors may extend into the sphenoid sinus, anterior cranial fossa, orbit, nasal cavity or nasopharynx, or into the maxillary antrum [5].

CT scan of paranasal sinuses revealed mass were seen infiltrating the right and left maxillary sinuses, right and left ethmoid sinuses, right and left sphenoid sinuses, right and left frontal sinuses, infiltrating the right and left nasal cavities to the anterior cutis of the nasal region and destroying the nasal region and the medial wall of the maxillary right sinus, nasal bone and nasal septum. The patient had histopathological biopsy results obtained non-keratinizing squamous cell carcinoma from the postoperative examination results. Non-keratinizing versus keratinizing squamous cell carcinoma (KSCC) (35-50% vs 4-25%, respectively). Several studies have shown a strong aetiological relationship between non-keratinized squamous cells and a high risk of human papillomavirus, which is characterized by immunoreactivity at p16. Classification based on the 2018 AJCC, from the results of the above examination, in this case, the tumor had affected the skin of the cheek, no regional/clinically palpable metastases were found and there were no distant metastases so the staging, in this case, was T4aN0M0 with stage IVA [9,11,13].

Based on the NCCN 2021 guidelines, it is recommended that the management of T1-T4a sinonasal carcinoma, namely surgical resection with or without postoperative radiation or chemoradiotherapy is the standard treatment. Concurrent treatment with systemic chemotherapy and radiotherapy. According to this case, the patient underwent surgical resection with medial maxillectomy with Weber Ferguson + Dieffenbach incision and Wide excision followed by adjuvant radiotherapy [8].

Hee Lee et al revealed similar results, a 5-year survival rate of 60% and a recurrence rate of 31%. Based on the location of the lesion according to Ohgnren Line, the lesion in this case, was a suprastructural lesion and prognosis was poor [14].

6. CONCLUSION

Management of stage IVA suprastructure sinonasal carcinoma with the extencive defect is challenging, due to the difficulty of the defect closure and ensuring tumor-negative margins.

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