Sinonasal Carcinoma Extirpation with Midfacial Degloving Approach

Veni Rosita Dewi [1,2*] and Denny Satria Utama [1,2]

[1] *Department of Otorhinolaryngology Head and Neck Surgery, Faculty of Medicine, Sriwijaya University*
[2] *Dr. Mohammad Hoesin Hospital, Palembang, Indonesia*
[*] *Corresponding author. Email: dewirositaveni@gmail.com*

ABSTRACT
Nasal and paranasal sinus (sinonasal) malignancies are rare cases, accounting for only 1% of all malignancies of the body and 3% of malignancies of the head and neck. Patients with sinonasal tumors usually present with an advanced stage and generally have extended to the surrounding tissue. Surgery with the Midfacial Degloving approach is one of the treatment choices of sinonasal masses. In this study we present a case of 57-year-old woman with sinonasal masses treated with midfacial degloving approach. The aimed of this study to evaluate the outcomes of surgical treatment for sinonasal carcinoma with midfacial degloving approach and it is hoped that this procedure will produce a good cosmetic result. We search the evidence through bibliorapic database (Medline, Pubmed, Cochrane and Google Scholar) with defined the keywords based on PICO and filtered with eligibility criteria. This study presents a case of 57-year-old woman who reffered to Dr. Mohammad Hoesin Hospital with progressive mass in the right nose as the chief complain. The patient also experienced right nasal congestion, nasal bleeding, clear discharge, hyposmia, and diplopia. Based on history taking, physical examination, nasoendoscopy, and radiological examination the patient diagnosed with right sinonasal carcinoma WHO II Stg IV A (T4N0Mx) with pansinusitis. The patient underwent Midfacial degloving approach for extirpation of the maxillary sinus mass. The histopathology study on the maxillary nose revealed a melanoma maligna. The patient is plan for chemoradioteraphy after this surgical procedure. The prognosis of sinonasal mass is influenced by various factors including a proper and accurate treatment. Surgical procedure using midfacial degloving procedure is one of the treatment choices of sinonasal masses. This approach provides a wide view of midfacial bones, paranasal sinuses and anterior skull base. Furthermore, this procedure has a better cosmetic result.

Keywords: *Sinonasal carcinoma, Midfacial degloving procedure, maxillary sinus tumour*

1. INTRODUCTION

Sinonasal and nasopharyngeal masses are common findings in ENT out patient department. But, neoplasms of the sinuses and nasal cavity only account for 0.2-0.8% of all carcinomas. The maxillary sinus remains the most common site of paranasal sinus malignancies accounting for 50% to 70%, followed by the nasal cavity for 15% to 30% and ethmoid sinus for 10% to 20% [1,2].

Masses in nasal cavity, paranasal sinuses and nasopharynx form a group of lesions with a broad spectrum of histopathological features. Malignancies such as squamous cell carcinoma, sinonasal undifferentiated carcinoma, and mucosal melanoma are known to be aggressive [1].

Mucosal melanoma maligna of the paranasal sinuses is a rare tumor with poor outcome. Accounting for less than 1% of all melanoma and up to 4% of all sinonasal malignancies. The risk factor and etiology of mucosal melanoma remain unclear. However, it is clear that mucosal melanoma present in the mucosa that have migrated neuroectodermal derivatives in the ectodermal mucosa. Melanomas originating from the respiratory mucosa and those originating from the squamous mucosa have different clinical and histopathological features, but share a similar prognosis. The most common sites for the development of mucosal melanoma are the nasal cavity and paranasal sinuses [3-6].

The aggressiveness of mucosal melanoma may be explained by its late presentation and delayed diagnosis, the vascularity of the mucous membranes, which promotes hematogenous metastases, or by cellular and molecular differences that have been shown to exist between cutaneous and mucosal melanoma.

Diagnosis is based on anatomopathological and immunohistochemical findings. The treatment of choice is surgical resection, while radiotherapy and chemotherapy serve to control local and metastatic disease [3, 4].

The aim of this report to present a case of sinonasal carcinoma revealed as melanoma malignant and surgical resection using midfacial degloving approach as the initial treatment of choice.

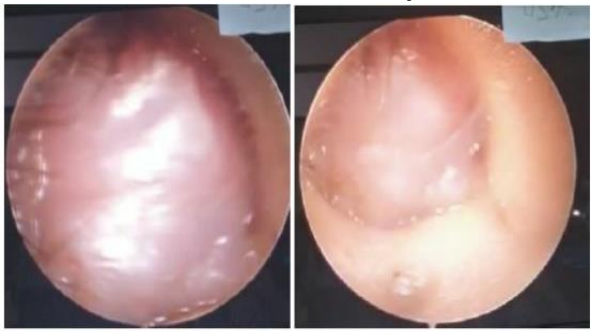
2. CASE REPORT

A 57 year old female was reffered to RSUP Dr. Mohammad Hoesin Palembang with a big mass in her right face extending to the right nose as her chief complain. The patient has been also experiencing recuring nasal congestion in right nose since 2 years ago, runny nose, nosebleeds, decrease in smelling function, double vision, facial pain, and headache. These complaints felt worst in the last 4 months. The patient does not experience cough, sore throat, difficulty on swallowing, and mass on other region such as neck and armpit area.

Figure 1. Initial patient condition

Previously, 2 years ago the patient already visiting ENT doctor with nasal obstruction as her chief complaint. Later, the patient underwent biopsy in RS Prabumulih and the result was Differentiated non keratinizing SCC of the nasal cavity (WHO II). The patient planned for operative procedure in RSUP Dr.Mohammad Hoesin. But she refuse the procedure because the symptom felt relieved.

On physical examination, the general condition was good. The patient was full alert, normal heart rate (82x/min), normal temperature (36,7ºC), and normal respiration rate (24x/min). Facial inspection showed an extensive mass from the right nose to the right facial area. The mass was 11x10x3 cm in size, the surface was bent, firm boundaries, immobile, painless, have the same colour as the surrounding tissue and nose deviation to the left side. The neck examination showed no lumps or enlargement of node lymph, and no abnormalities on the ears and throat examination. The patient underwent rhinoscopy anterior and telesoendoscopy and revealed a narrow right nasal cavity with a big, brittle, and easily bleed mass. Another finding was serous discharge, but osteomeatal complex, concha, and nasopharynx can't be examined. The examination of the left nasal cavity showed narrow



cavity, serous discharge, and osteomeatal complex, concha, and nasopharynx can't be examined. The rhinoscopy posterior examination showed normal palatum without palatal deviation, uvula in the middle, narrow posterior nares with a lobulated mass.

Figure 2 Tele-nasoendoscopy anterior rhinoscopy showed narrow right nasal cavity with large, pink, brittle and easily bleed mass.

Figure 3. Tele-endoscopy posterior rhinoscopy

The patient underwent sinus paranasal (SPN) Computed Tomography (CT) Scan on 8th December 2020 which showed a sinonasal mass in left maxillary, left ethmoid, left sphenoid and bilateral frontal sinuses. Visible destruction on the sinus wall, extends into right orbital cavity. The patient also underwent Chest and chest x-ray and showed no abnormality. The patient diagnosed with right sinonasal carcinoma WHO II Stage IV A (T4N0Mx) with Pansinusitis. Hereafter, the patient

planned for extirpation of the right maxillary mass with Midfacial Degloving Approach.

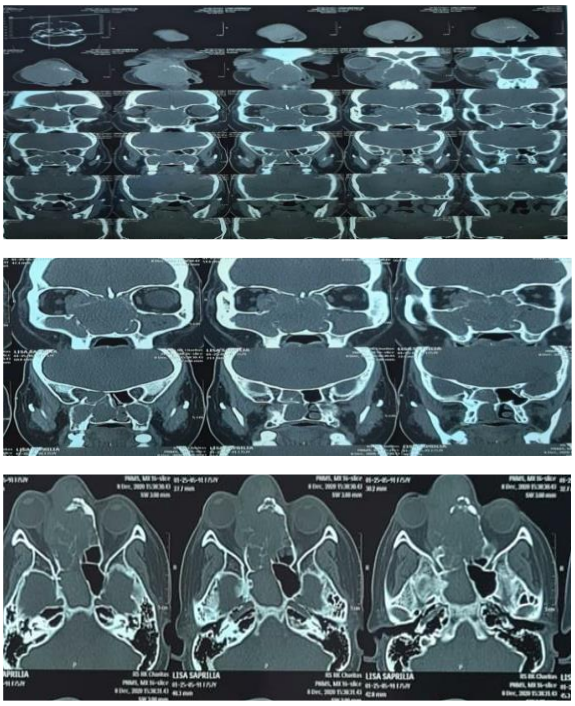


Figure 4. Sinus paranasal CT-Scan showed sinonasal mass from the right maxillary, right ethmoid, right sphenoid and bilateral frontal sinuses.

The patient underwent pre-operative complete blood count on 4th January 2021. The result was hemoglobin 14.3 g/dL, hematocrit 43%, leucocyte 16,790, platelet 320,000/mm3, APTT 33 sec, PT 14 sec, Blood glucose 106mg/dL, Sodium 138 mmol/L, Potasium 4 mmol/L, ureum 21 mg/dL, creatinine 0.78 mg/dL. During the covid-19 all patient scheduled for operative procedure must undergo covid-19 PCR. The patient PCR swab result was negative. Afterward, the patient approved for surgery by anesthesiologist.

Figure 5. Intra-operative Midfacial Degloving approach showing irregular sinonasal mass.

The surgery performed under general anesthesia. A bilateral, sublabial incision is made straight down to bone, running from the maxillary tuberosity to the opposite maxillary tuberosity to gain maximal access. The periosteum and soft tissues of the cheek are raised and taking care with the exposure of the infraorbital nerves and allowing the infraorbital margin to be clearly identified. Continued with Right intercartilaginous incision which give access to the soft tissues on the dorsum of the nose, which are elevated with the dissection extending laterally onto the anterior face of the maxilla to meet the subperiosteal approach. The intercartilaginous incisions are continued into a transfixion incision along the dorsal and caudal borders of the cartilaginous septum, separating it from the medial crura of the lower lateral cartilages. Next, the incision is continued across the floor of the nose to join the intercartilaginous incision laterally. Further careful dissection of the skin and soft tissues of the dorsum of the nose now allows the middle third of the face to be degloved completely and gives excellent access to the sinonasal mass. The sinonasal mass become exposed. The sinonasal mass removed and sent to hitopathological lab. The result was Melanoma maligna.

Figure 6. The sinonasal mass from the right maxillary sinus. The mass was irregular and 7.5x4cm in size.

Six hours post-operative follow up, the patient complaining pain on the surgical site, there's local swelling from the right maxillary region to dorsum nasi. Pallor (-), tenderness (+), and hypoesthesia (+) from the supralabia to the maxillary region. The patients vital sign stable. The patient applied with belloq tampon and antimicrobial tampon in the right nasal cavity, but only antimicrobial tampoon in the left nasal cavity. Throat examination normal. The sticthes visible in the gingivobuccal sulcus of the superior gingival region, there are no bleeding and clots. Patient prescribed with ketorolac drip 60 mg on ringer lactate 20dpm, ceftriaxone IV 1 gram every 12 hours, ranitidine IV 20 mg every 12 hours, methylprednisolone IV 125mg every 12 hour and normal dietary (rice). Close observation for bleeding sign, vital sign.

Figure 7. Six hours post-operative follow-up.

Day-2 post-operative follow up, the surgical site pain relieved, minimal swelling and normal eye movement. The patients vital sign stable. No visible bleeding and clots in the stitched area. The patient continues ceftriaxone and ranitidine teraphy. The methylprednisolone teraphy start to tapering off with 125 mg dose every 24 hour.

Figure 8. Seven Day post-operative follow-up.

During day-7 post-operative follow up, the patient felt no pain and minimal swelling on the surgical site. The patient discharged and will be planned for chemoradioteraphy treatment.

"Does midfacial degloving approach was the best option in sinonasal carcinoma case?"

3. METHODS

In this case report, we will report and analyze the best surgical treatment for sinonasal carcinoma. We formulated our clinical question: (P) Patient with sinonasal carcinoma; (I) Diagnostic approach and type of surgery (C); (O) Survival and complication for sinonasal carcinoma. We defined the keywords based on PICO and search the evidence through biblioraphic database (Medline, Pubmed, Cochrane and Google Scholar) and filtered with eligibility criteria. The inclusion criteria were the study of systematic review, original research and article, case control, case series or case report study. The selection based through last 10 years publication dates, English language with full text. The exclusion criteria were study include metastatic disease, cranial base involvement and review, studies, case reports, case series with non-English articles.

4. RESULTS AND DISCUSSION

4.1 Results

After conducting literature searching on the database based on our criteria, we found 15 articles were published in last 10 years and found about 3 articles related to our term. Meng et al. study about impact of different surgical and postoperative adjuvant treatment modalities on survival of sinonasal malignant melanoma conclude that open approach (lateral rhinotomy, Caldwell-Luc, transpalatal, and midfacial degloving) had similar survival outcome as compared to endoscopic approach. The same result was found in Saedi et al. study. In their study, a total of 160 patient with sinonasal tumour were compared based on their surgical treatment choice (open surgical vs endoscopic). They conclude that endoscopic approach for sinonasal malignancy could be equivalent to the conventional open surgical approach if the tumout in the early stages. In addition, based on retrospective study conducted by Vandenhende et al. endoscopic procedure will give a good outcome if performed by an expert and for appropriate indication. While transfacial approach will give an advantage in larger sized tumour [7-9].

4.2 Discussion

The subject of this case report was 57 years old female with progressive mass on her right nose since 4 months prior to admission as the chief complaint. The patient also experiencing nasal congestion unaffected by activity and climate, difficulty on smelling, runny nose, nose bleed, blurry vision on the right eyes, headache. Complaint such as lump on neck and armpit were absent, and no complaint on throat and both ears.

Unilateral obstruction and epistaxis accounted for 85-90% of the sinonasal melanoma maligna. Pain and facial deformity was encountered in advance stage. In the series of Freedman et al, which comprised 56 sinonasal melanoma, 88 % of patient had nasal obstruction and or epistaxis as the symptom. In the same series 16% presented with pain and 9% had facial deformity. In harrison's series of 40 patients, only 2 (0.5%) had facial deformity and virtually all presented with obstruction of epistaxis, but non had pain. In the series of Andersen et al., 83% had obstruction and 67% had epistaxis, whereas pain was not recorded as a symptom by any other patients [5,10-12].

Detailed physical examination must be conducted in sinonasal carcinoma patient. The physical examination including sinonasal region, eye, cranial nerve, and nasoendoscopy. Oral cavity examination may help in assessing the tumor extend. NCCN guideline suggesting a complete head and neck exam, mirror and fiberoptic examination, histopathology using appropriate staining (HMB-45, S-100, Melan-A) and CT with contrast

and/or MRI with contrast to determine anatomic extent of disease. Other modality such as chest/abdominal/pelvic CT can be considered to rule out metastic disease [13]. In this subject we perform a complete head and neck exam, nasoendoscopy, and SPN CT-scan to assessing the extent of the sinonasal tumour. But we only can perform chest X-ray to rule out the lung metastatic disease. Finally, the patient diagnosed as Right sinonasal carcinoma WHO II Stage IV A (T4N0Mx) with Pansinusitis [4].

The patient planned for surgical procedure with midfacial degloving approach for tumor removal. Midfacial degloving is an operative technique for sublabial access to the deeper midfacial regions, particularly to the nasal cavities, the paranasal sinuses, the nasopharynx, the retrotnaxillary space, the base of the skull and the clivus. The access is suitable for large benign tumours (such as nasopharyngeal fibromas or inverted papillomas), but can also be used for malignant tumours. It can be enlarged by supplementary incisions to meet the demands of tumour surgery. This technique will provide a great view of the patients sinonasal mass, since the tumor were large in size. Another advantage was this approach leave no visible scar, since the incision was made in the sublabial [14].

After the tumor removal, the sample sent for histopathology examination. The result was melanoma maligna. The treatment for melanoma maligna was described by NCCN guideline. The primary treatment for T4N0 was resection and continued by systemic radiochemoterahphy. After the patient underwent surgical procedure, the chemotherapy was planned [13].

5. CONCLUSSION

In conclusion, midfacial degloving approach is a suitable method for an extent sinonasal carcinoma to provide a great view and cosmetic purpose.

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