



## A Case of Nasal Squamous Cell Carcinoma with the Clinical Symptom of Recurrent Epistaxis in a Case of Nasal Squamous Cell Carcinoma

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### Abstract

Malignant tumors in the nasal cavity and the paranasal sinus account for 1% of all cancers in the body. The majority of malignant tumors in the nasal cavity and the paranasal sinus are squamous cell carcinoma, accounting for approximately 60% of cancers in these locations. In August 2014, an 80-year-old woman sought treatment at the Department of Otolaryngology (Ear, Nose & Throat), Taichung Tzu Chi Hospital, with the main complaint of a 40-year history of recurrent Epistaxis in the right nasal cavity. The endoscopic examination revealed bleeding tumors in the right nasal cavity. The computed tomography examination revealed that the right nasal cavity and the right paranasal sinus were filled with homogeneous tumors. The patient underwent an endoscopic resection of the tumors in the paranasal sinus in October 2014. The pathological examination confirmed a diagnosis of squamous cell carcinoma. After explaining the pathological result to the patient's family, follow-up radiotherapy and chemotherapy were recommended for the patient, but the proposed treatment was rejected by the family members because the patient was old and weak. Squamous cell carcinomas in the nasal cavity and the paranasal sinus are rare; therefore, this case is report edhere. This case is unique because the patient was older (80 years old) and had a long history of recurrent Epistaxis (40 years). The patient had never sought treatment for this disease at any hospital or clinic and had never received any related examination, treatment, or surgery. This case was unique because it allowed for the observation of the original features of nasal malignant tumors after 40 years of growth.

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**Keywords:** Squamous cell carcinoma; Epistaxis; Paranasal sinus; Homogeneous

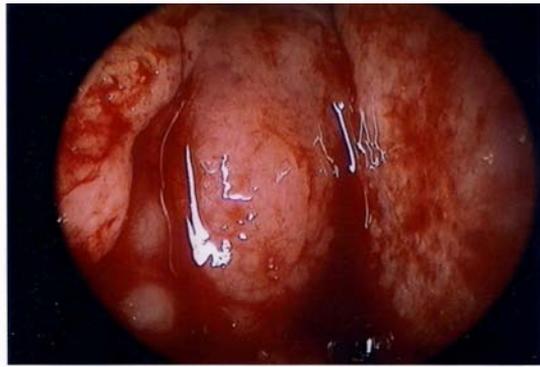
### Introduction

The nasal cavity and the paranasal sinus are closely related. They not only are in close proximity anatomically but also contain similar epithelial tissue. The paranasal sinus has a natural ostium that connect sthethnasal cavity. Therefore, malignant tumors that occur in the nose can easily directly invade the adjacent anatomical structures and continuously increase the extent of the disease. In the case reported in this study, the nasal cavity and the paranasal sinus contained a large amount of tumor tissue.

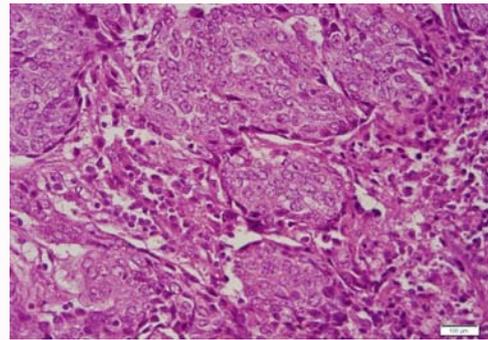
Malignant tumors in the nasal cavity and paranasal sinus account for 1% of all cancers in the body, and the incidence of these cancers in descending order is as follows: squamous cell carcinoma, adenoid cystic carcinoma, and adenocarcinoma. The main symptoms include nasal congestion, nasal bleeding, facial swelling, facial pain, and possibly headache, diplopia, or proptosis if the tumor involves the skull base or the orbit. The early symptoms are not obvious and are often ignored by the patient, leading to a later diagnosis, which results in delayed medical treatment. For example, in the present case, because the recurrent nose bleeding was not severe, the patient had not sought any related medical treatment for 40 years. At the first visit, the right nasal cavity and the right paranasal sinus contained a large number of tumors. CT scan reveal that the tumor invades some surrounding structures and erodes bone (medial wall of maxillary sinus, skull base, nasal septum).

### Case Presentation

In August 2014, an 80-year-old female patient sought treatment for the first time at the Department of Otolaryngology (Ear, Nose & Throat) of our hospital, with the main complaint of a 40-year history of recurrent epistaxis in the right nasal cavity. She had no history official trauma,



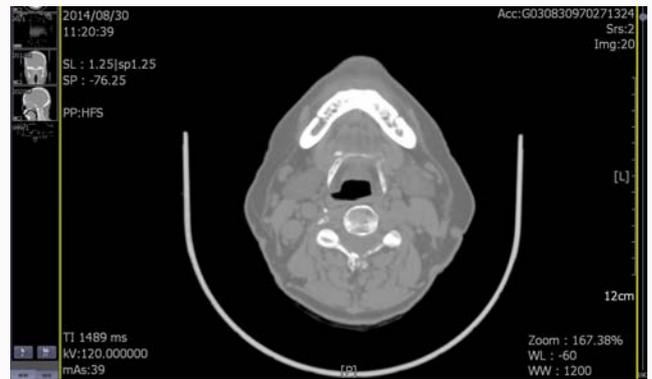
**Figure 1:** The right nasal cavity contained many bleeding tumors.



**Figure 4:** Increased nuclei and hyper chromatic chromatin were observed in the pathological microscopic sections.



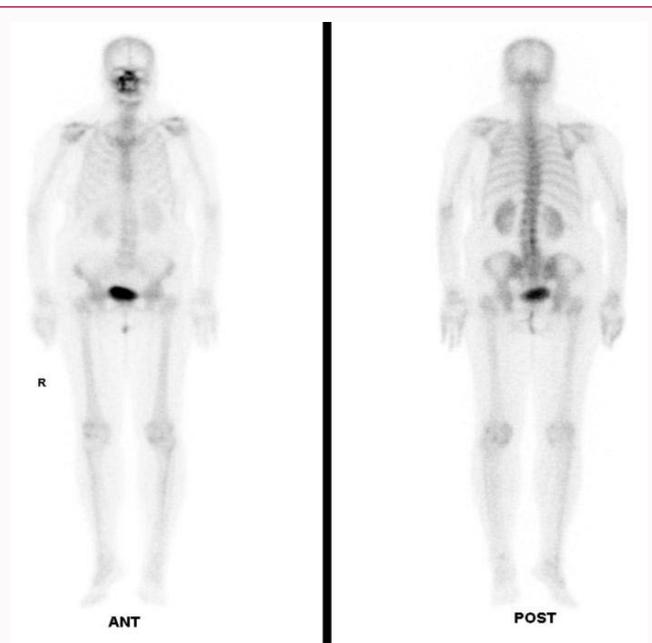
**Figure 2:** The right nasal cavity and the right paranasal sinuses contained many homogeneous low-density tumors.



**Figure 5:** Neck CT.



**Figure 3:** A total of 80 tumor sections were removed.



**Figure 6:** Skeletal scans.

had never been in any hospital or clinic for related treatment, and had never received any related examination, treatment, or surgery. On the day of her initial visit, an endoscopic examination revealed bleeding tumors in the right nasal cavity (Figure1), and a computed tomography examination revealed that the right nasal cavity and right paranasal sinus contained many homogeneous low-density tumors (Figure2). CT scan reveal that the tumor invades some surrounding structures and erodes bone (medial wall of maxillary sinus, skull base, nasal septum). In October 2014, the patient underwent an endoscopic resection of the tumors in the paranasal sinus with general anesthesia, and many neoplastic pieces tumors were removed (Figure 3). The results of the pathological examination indicated squamous cell carcinoma, and increased nuclei and hyper chromatic chromatin were observed in the pathological microscopic sections (Figure 4).

Neck CT Figure 5 reveal no cervical lymph node metastasis (No). Skeletal scan Figure 6 and chest X-ray Figure 7 show no distant metastasis (Mo). The tumor tissue had extended into the nasal cavity, maxillary sinus, frontal sinus, and ethmoid sinus, indicating a clinicalstageofcT4aNoMo. Because the family of the patient refused subsequent radiotherapy and chemotherapy, follow-up evaluations every six months were recommended.



Figure 7: Chest X-ray.

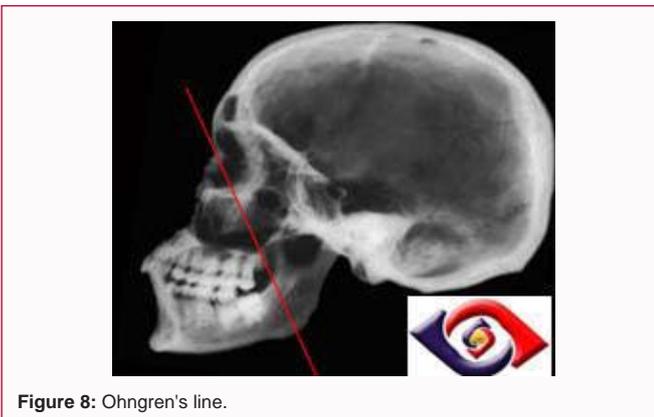


Figure 8: Ohngren's line.

## Discussion

Malignant tumors of the nasal cavity and paranasal sinus account for 1% of all cancers in the body and 5% of head and neck cancers. The most common histological type is squamous cell carcinoma, and the most common site is the maxillary sinuses [1]. The lesions of malignant tumors produce histological components in areas of the nasal cavity and the paranasal sinuses such as the Schneiderian mucosa, salivary glands, neural tissue, and lymphatics. The locations of malignant tumors in descending order of incidence include the maxillary sinus (60%), the nasal cavity (20%), the ethmoid sinus (5%), and the frontal and sphenoid sinuses (3%) [2]. Malignant tumors in the nasal cavity and paranasal sinus are more likely to occur in men, with a male to female ratio of 2.26:1. Racially, these tumors occur more frequently in Caucasians. Studies have confirmed that the occurrence of malignant tumors in the nasal cavity and paranasal sinus related to Epstein-Barr virus [3], and the development of squamous cell carcinoma is related to human papilloma virus [4].

Malignant tumors in the nasal cavity and paranasal sinus may not have any symptoms. Symptoms may be observed only when the tumor has invaded the adjacent organs. The common clinical symptoms include nasal congestion, nasal bleeding, palate mucosal ulceration, loose or lost teeth, facial swelling, facial pain, diplopia, and proptosis. The symptoms of malignant tumors in the nasal cavity and paranasal sinus are not obvious; therefore, early diagnosis is difficult. The disease is usually in an advanced stage at the time of diagnosis, with a five-year survival rate of 30%-40%. Similar to other malignancies, the clinical manifestations of malignant tumors in the nasal cavity and paranasal sinus include (1) regional symptoms such as neck lumps, diplopia, and epiphora; (2) local symptoms such as

nasal obstruction and epistaxis; and (3) distant metastasis of the bone [5]. The survival rate of patients with distant metastasis is the lowest of all cases. Dulguerov et al. found that the survival rate of the patients in the T4 stage was the lowest of all cases [3].

For malignant tumors in the nasal cavity and paranasal sinus, localized lymph node metastasis is more likely to occur in T2 tumors than in T3 and T4 tumors [6] because T2 tumors invade the floor of the maxillary sinus. A T2 tumor may involve in the following areas: (1) the hard palate mucosa, (2) the upper gingiva mucosa, and (3) the inferior nasal cavity mucosa. These three structures contain a dense, rich lymphatic network, while the mucosa of the paranasal sinus lacks of this feature; in terms of the incidence of lymph node metastasis, the behavior of T2 tumors is more similar to that of oral cancer than that of paranasal cancer. If the tumor tissue has invaded key structures (the skull base, dura mater, brain, orbit, cavernous sinus, and infra-temporal fossa), the survival rate will be significantly reduced [7].

Treatment mainly consists of surgery combined with radiotherapy and chemotherapy. The so-called tri modality therapy consists of the following three methods [8]: (1) partial maxillectomy, (2) intra-arterial chemotherapy, and (3) radiotherapy. The intra-arterial chemo therapy regimen includes cisplatin (100 mg/m<sup>2</sup>, four times weekly), and the median irradiation dose of radiotherapy is 70Gy [9]. For patients with an advanced tumor stage (T3 or T4), most scholars recommended prophylactic radiotherapy (50Gy) on the non-metastatic cervical lymph nodes [7]. Except for lymphoma, radiotherapy and chemotherapy have shown no direct efficacy on malignant tumors [5]. The role of radiotherapy is to control the "regional symptoms" and "local symptoms," and the role of chemotherapy is to reduce the "tumor growth," i.e., radiotherapy and chemotherapy are clinically performed as adjuvant therapies for surgery.

For early stage tumors (stage I and stage II), radical resection is the best surgical approach; for advanced stage tumors (stage III and stage IV), adjuvant postoperative radiotherapy and chemotherapy are necessary for a better prognosis. Endoscopic surgery is also an alternative approach for early stage tumors. Many studies have reported that endoscopic surgical treatment achieves excellent efficacy for treatment of early stage malignant tumors in the nasal cavity and paranasal sinus [10]. The advantages of endoscopic surgery include (1) a small incision, less bleeding, and a reduced chance of post operative infection; (2) no surgical scar on the face; and (3) a shorter hospitalization period. Although the endoscopic surgery approach has obvious advantages, it is not recommended for the following cases: (1) the lesion involves the frontal sinus, (2) the lesion involves the bone structure of the maxillary sinus, (3) the ulceration at the bottom of the nasal cavity has extended to the upper jaw, and (4) the lesion has invaded the orbit and skull base. The boundary of the tumor should be assessed before the surgery. Computed tomography and magnetic resonance imaging are the routine imaging examinations used for these cases.

The straight line from the medial canthus of the eye to the angle of the mandible is called Ohngren's line [2] (Figure 8). This line divides the paranasal sinuses into anterior-inferior (infrastructure) and superior-posterior (supra structure) sections. A carcinoma in the infrastructure has a better prognosis, while a carcinoma in the supra structure has a worse prognosis because the supra structure carcinoma could extend into the eye orbit, skull base, and pterygoid and infra-temporal fossae. Patients with early stage tumors may have no symptoms, and advanced stage tumors could invade the bone

structures of the orbit and skull base, leading to diplopia, proptosis, and cerebrospinal fluid rhinorrhea.

The prognostic factors that affect local recurrence and distant metastasis include (1) an advanced disease stage, (2) a non-surgical treatment, (3) an aggressive histological types, (4) an intra-cranial extension, and (5) a cervical lymph node metastasis; of which, cervical lymph node metastasis is the most important prognostic factor. According to the clinical statistics, cervical lymph node metastasis occurs in 7% to 15% of patients.

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