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구개부 타액선 기원 종양과 유사한 비강에 발생한 비각화 편평상피세포암종: 증례보고

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〈Abstract〉

Non-Keratinizing Squamous Cell Carcinoma from the Nasal Cavity Mimicking Palatal Salivary Gland Tumor: Case Report

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Non-keratinizing squamous cell carcinoma (NKSCC) is a rare malignancy of the nose and paranasal sinuses which is characterized by a unique anastomosing ribbon-like growth pattern with absent of limited maturation and keratinization. NKSCC accounts for 10-27% of sinonasal squamous cell carcinomas and some of the NKSCCs are reported to be associated with high risk-HPV infection. Advanced lesion can involve the oral cavity with oral symptoms of palatal bulging, surface ulceration mimicking salivary gland tumors. Herein, we report a case of NKSCC of a 46-year old male, which clinically presented as a bulging mass on the mid palate and mimicked a palatal salivary gland tumor. We reviewed the clinical and histopathological considerations required for differential diagnosis of sinonasal carcinoma involving the oral cavity.

Key words: Non-keratinizing squamous cell carcinoma, Sinonasal carcinoma, Human papillomavirus, p16, Mucoepidermoid carcinoma

Ⅰ. INTRODUCTION

Non-keratinizing squamous cell carcinoma (NKSCC) is a rare malignancy of the nose and paranasal sinuses which is characterized by a unique anastomosing ribbon-like growth pattern with absent of limited maturation and keratinization.[1)] According to the WHO classification, it has many synonyms including Schneidrian carcinoma, transitional cell carcinoma, cylindrical cell carcinoma, Ringertz carcinoma, and respiratory epithelial carcinoma.[2)]

NKSCC accounts for 10-27% of sinonasal squamous cell carcinomas and some of the NKSCCs are reported to be associated with high risk-HPV infection.[3)] Several studies have found that the involvement of HPV infection in NKSCC may be associated with improved disease-specific patient survival than HPV negative SCC.[4),5)] Better prognosis has been dem-

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onstrated both in patients treated with surgery or with radiation therapy.[6),7)] Its common clinical symptoms and signs are nasal obstruction, discharge, epistaxis, pain, fullness feelings and eye-related symptom in orbit-involving cases. Furthermore, advanced NKSCC can involve the oral cavity with oral symptoms of ulceration, tooth mobility and referred pain.[8)]

In this case report, we will report a case of NKSCC with oral cavity involvement, which clinically presented as a bulging mass on the mid palate and mimicked a palatal salivary gland tumor.

Ⅱ. CASE REPORT

A 46-year old male visited our clinic with chief complaints of palatal mass, bilateral nasal obstruction, intra oral pus discharge and epistaxis since one month. On local physical examination, bulging mass on mid palate with induration tendency was present. The overlying palatal mucosa showed redness than normal range with surface ulceration. (Fig.1) The patient had smoking history for 20 years with no other specific medical or dental history. Computed tomography (CT) and magnetic resonance imaging (MRI) showed a large soft tissue filling both nasal cavity and paranasal sinus, accompanying destruction of palatal bone and inferior nasal concha. (Fig. 2A, B) Positron emission tomography(PET-CT) showed intense fluorodeoxyglucose (FDG) uptake involving hard palate and nasal cavity, consistent with malignancy. (Fig. 2C) No other significant abnormal FDG uptake was seen on other sites.

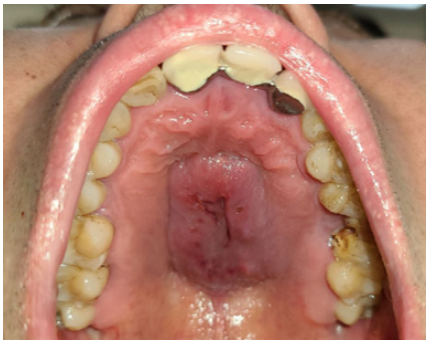

Fig. 1. Bulging mass on mid palate with induration tendency.

Incisional biopsy was performed on palatal mass via intraoral approach. Histopathological examination revealed that the tumor was consisted of epithelial sheets which were separated from the superficial mucosal epithelium. (Fig.3A) Focal areas of the tumor showed keratinization, comedo-type necrosis. (Fig.3B) Most tumor cells showed ample faint cytoplasm with vesicular nucleus and distinct cellular outline, which were sparsely positive for mucicarmine special staining. (Fig.3C) Also, There were areas of clear cell change. (Fig. 3D) The diagnosis was solid type mucoepidermoid carcinoma because tumor had multiple spectrum from mucin-containing mucous cell to epidermoid cells.

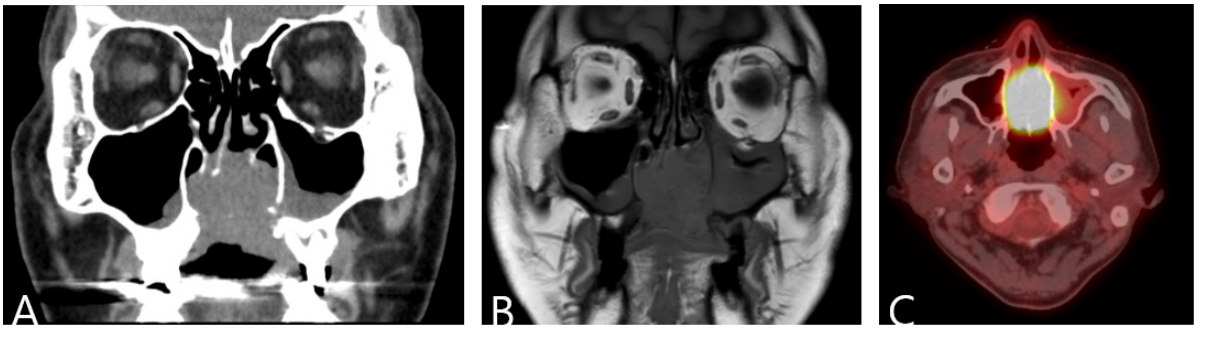

Fig. 2. (A) Computed tomography(CT) in coronal view
(B) Magnetic resonance imaging (MRI) in coronal view (T1-weighted)
(C) Positron emission tomography (PET-CT) in axial view

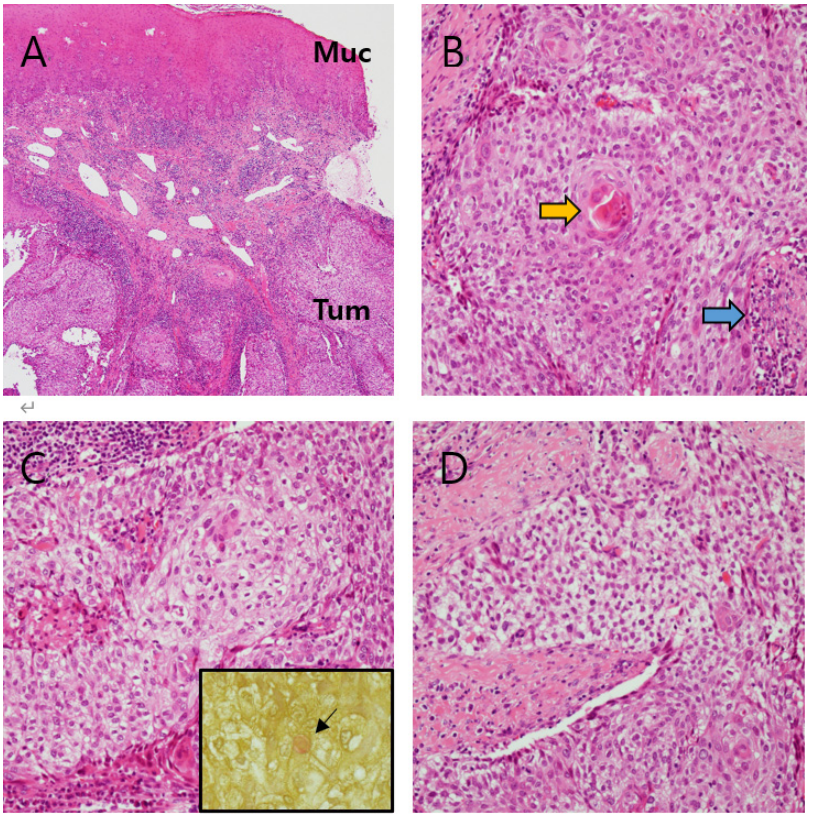

Fig. 3. Histopathologic examination of incisional biopsy specimen.
(A) The overlying palatal mucosa didn't show any dysplastic features. Tumorous growth is noticed in the submucosa (Hematoxylin and eosin, original magnification x40).
(B) The tumor showed solid epithelial growth with nest and sheet patterns. Also, it showed focal keratinization (Yellow arrow) and comedo-type necrosis (Blue arrow) (H&E, original magnification, x200).
(C) Tumor cells had distinct cellular border and abundant cytoplasm. A few cells were positive by mucicarmine staining (inlet, arrow) (H&E, original magnification x200, inlet: mucicarmine, original magnification x400).
(D) Some tumor cells showed clear cell change (H&E, original magnification, x200).

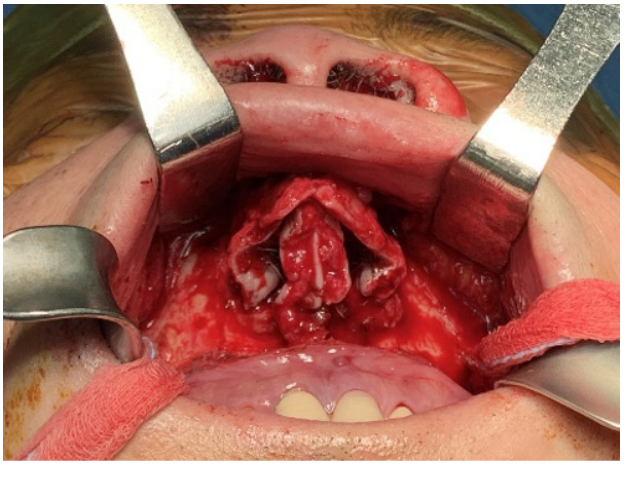

Fig. 4. Clinical image of the lesion after wide excision via mid face degloving approach.

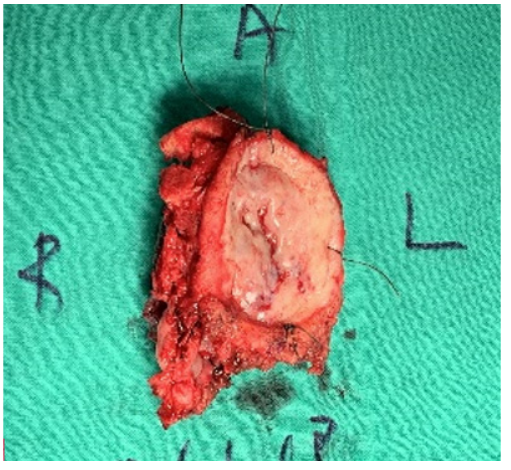

Fig. 5. Tumor mass after surgical excision.

The patient underwent wide excision including subtotal maxillectomy via mid face degloving approach under general anesthesia. (Fig.4) The specimen was sent for histopathologic evaluation. (Fig.5) Reconstruction of maxilla defect with radial forearm free flap was done.

Histopathologic examination of the surgical specimen revealed a huge mass destructing the hard palate and nasal cavity. Superficial palatal mucosa was intact and had no dysplastic features, suggesting that the tumor was not derived from the oral mucosa. (Fig.6A) The pathologic features of the superficial palatal part of the tumor was similar

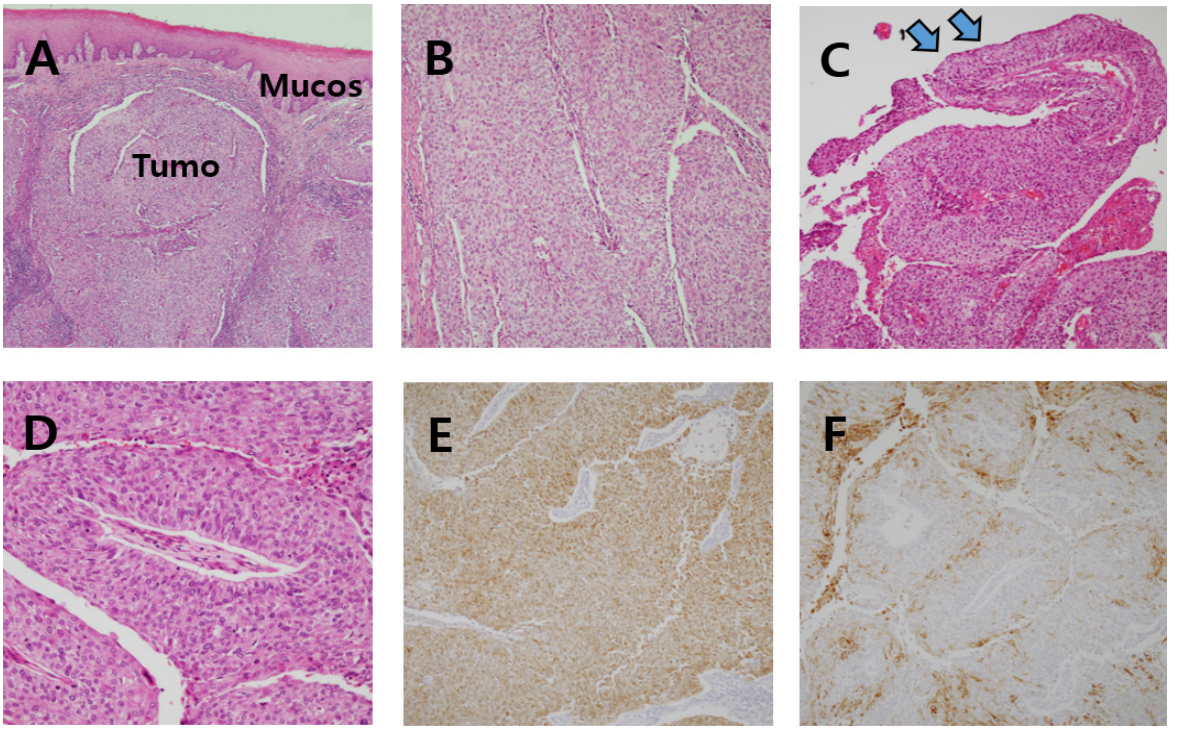

Fig. 6. Histopathologic examination and molecular pathologic results of the surgical specimen.
(A) Superficial palatal mucosa was intact and had no dysplastic features, suggesting once again that the tumor was not of oral mucosa origin (H&E, original magnification x40).
(B) The deep part of the resected tumor showed a non-keratinizing anastomosing ribbon-like growth pattern that was not seen in the incisional biopsy (H&E, original magnification x100)
(C) Nasal mucosal surface showed dysplastic features (Blue arrow), suggesting tumor was derived from the nasal mucosa (H&E, original magnification x100)
(D) Anastomosing tumor strand was consisted of columnar palisading basal cell, which was getting flattened upon maturation. But it was almost lack of keratinization (H&E, original magnification x200)
(E) Tumor cells showed diffuse nuclear and cytoplasmic positive for p16 (IHC, p16, original magnification x100).
(F) Tumor cells showed patchy positive for CK7 (IHC, CK7, original magnification x100).

to the previous incisional biopsy, but the portion of deep palate and nasal cavity was different in several aspects. The tumor showed an anastomosing long strand growth pattern, typically called ribbon-like growth pattern. (Fig.6B, D) The nasal mucosa showed papillary downward growth with dysplastic cellular features, suggesting that the tumor had originated from the nasal mucosal epithelium. (Fig.6C) The tumor cells were consisted of palisading columnar basal cells, gradually flattened upon maturation without keratinization. (Fig. 6D) Immunohistochemical staining for p16 was diffusely positive in tumor cells (Fig.6E), but cytokeratin (CK) 7, which diffusely stains in salivary gland-derived epithelium, was patchy positive. (Fig.6F) The final diagnosis was non-keratinizing squamous cell carcinoma of nasal cavity, considered histo-morphological features and staining results.

The patient was referred to department of oncology and radiation oncology for post-operative concurrent chemoradiotherapy.

Ⅲ. DISCUSSION

NKSCC is a rare malignancy of the nose and paranasal sinuses which is characterized by a unique anastomosing ribbon-like growth pattern with absent of and limited maturation keratinization. Advanced lesion can involve the oral cavity with oral symptoms of palatal bulging, ulceration mimicking salivary gland tumors. If the incisional biopsy is performed only on the palatal surface as in this case, the unique histopathological features of NKSCC may not be observed. Although it may be minimal, NKSCC can contain keratinizing squamous cells and mucous cells, which can be confused with the solid component of mucoepidermoid carcinoma. In addition, variants of HPV-related NKSCC that is histologically similar to adenoid cystic carcinoma are recently reported.[9] For the above reasons, if nasal cavity involvement is observed in aggressive palatal tumor, ruling out nasal origin tumor can be considered through additional auxiliary examinations. The most common method is immunohistochemical staining. Mucoepidermoid carcinoma shows strong positives on CK7, whereas NKSCC does not. CK5/6, a high molecular cytokeratin, appears positive in most NKSCC cases, but in salivary gland tumors, it is positive in basal cells or myoepithelial cells, and negative in the glandular epithelium. In addition, p16 positive result suggests high possibility of NKSCC, as approximately 40% of NKSCC cases are related with high-risk HPV infection.

In conclusion, oral cavity involvement of sinonasal carcinoma should be in mind in the diagnosis of palatal salivary gland tumor. Clinical and radiological correlation with immunohistochemistry examination is recommended.

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