Case Report / Olgu Sunusu

CT and MRI Findings of a Transitional Cell Carcinoma Case Located at Sino-nasopharyngeal Junction

Sinonazofaringeal Bileşkede Yerleşen Transizyonel Hücreli Karsinomun BT ve MRG Bulguları

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ABSTRACT

Nonkeratinizing carcinoma (transitional cell carcinoma) accounts for 1 to 20% of carcinomas of the sinonasal tract. Most of transitional cell carcinomas develop de novo, but a few may arise from preexisting inverted papillomas. Although histopathological findings of transitional cell carcinomas are well documented in the literature, detailed information on imaging findings is scarce. In the present study, CT and MRI findings of a de novo developed transitional cell carcinoma located at sino-nasopharyngeal junction are presented

Key words: computed tomography, magnetic resonance imaging, nonkeratinizing carcinoma, transitional cell carcinoma

ÖZET

Nonkeratinize karsinom (transizyonel hücreli karsinom) sinonazal trakt karsinomların %1-20'sini oluşturur. Tranzisyonel hücreli karsinomların çoğu de novo gelişir fakat altta yatan inverted papillomalardan da gelişebilir. Her ne kadar transizyonel hücreli karsinomların histoptolojik bulguları literatürde iyi tanımlanmış olsa dagörüntüleme bulguları hakkında yeterli very yoktur. Bu çalışmada sinonazal bileşkeden de novo gelişmiş bir transizyonel karsinomun BT ve MRG bulguları sunulmaktadır.

Anahtarkelimeler: Bilgisayarlı tomografi, nonkeratinize karsinom, manyetik rezonans görüntüleme, transizyonel hücreli karsinom.

INTRODUCTION

Primary tumors of paranasal sinuses and nasal cavity are relatively rare tumors of head and neck area and account for only 3% of all respiratory tract tumors (1). Keratinizing squamous cell carcinoma (KSCC) constitutes the majority of carcinomas in nose and paranasal sinuses. Nonkeratinizing carcinoma (NKCa), adenocarcinoma, and undifferentiated sinonasal carcinoma are less frequently observed. NKCa has also been named as cylindrical cell carcinoma, Schneiderian carcinoma, and transitional cell carcinoma (2).Transitional cell carcinoma accounts for 1% to 20% of carcinomas of the sinonasal tract (1-4).

There has been no study in the literature to report CT and MRI imaging of transitional cell carcinomas of sinonasal or sino-nasopharyngeal junction origin. In this study we aim to present a denovo transitional cell carcinoma located at sino-nasopharyngeal junction in the light of literature.

CASE REPORT

A 65 year-old female patient admitted with the complaints of occasional oral bleeding with clots and hearing loss in left ear. Endoscopic examination was performed and a vegetan mass protruding from sinonasopharyngeal junction to nasopharyngeal air space was detected.

Contrast-enhanced nasopharyngeal MRI examination was performed using a 1.5 Tesla (Signa excite HD; GE Healthcare, Milwaukee, WI, USA). MRI examination revealed a large soft tissue mass, 40x39x23mm in size, located in the left lateral aspect of posterior nasopharynx which extended sinonasal cavity, eustachian orifices and bilateral lateral pharyngeal recesses.However the tumor was seen homogeneous, slightly lobule contoured, non-infiltrative mass, it obliterated choanas and narrowed the nasopharyngeal air passage. The tumor has a long relaxation time and was slightly hyperintense relative to muscle on T2 weighted images and isointense on T1 weighted images. After contrast administration, the lesion was homogeneous and mildly contrast enhanced (Fig 1 and 2).

Endoscopic punch biopsy was performed and the pathology was reported as severe dysplasia. 45 days later, contrast enhanced CT examination was performed for preoperation. CT examination detected a slight increase in the dimensions of the tumor (Fig 3).

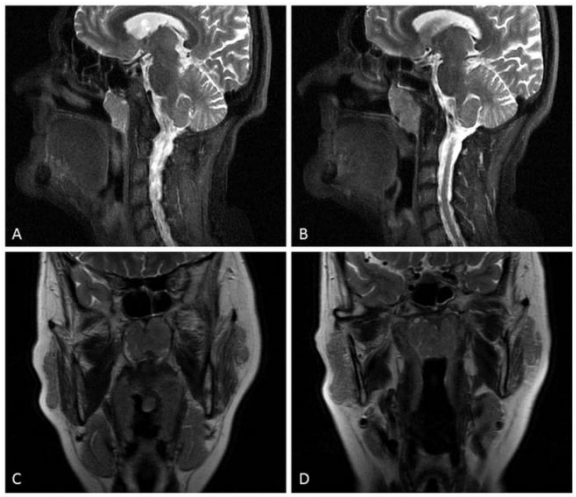

Figure 1. A,B) STIR sequence in Sagittal plane C,D) Slightly lobule contoured relatively homogenous interior structured, solid mass lesion of cerebral gray matter-like intensity, narrowing nasopharyngeal air passage, is seen in coronal plane of T2-weighted MRI.

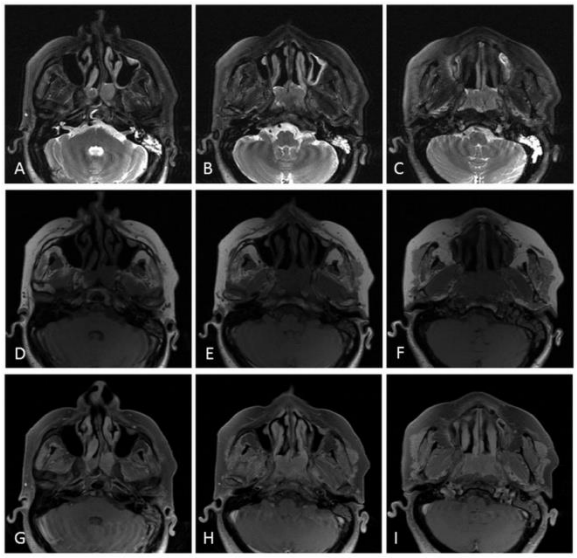

Figure 2. A-C) Axial plane of fat-suppressed, T2-weighed MRI showing that the mass occupies sino-nasopharyngeal junction, filling nasopharyngeal air passage and reaching lateral nasopharyngeal recesses and Eustachian orifices, but not invading nasopharyngeal muscle planes.In addition, there are fluid signals in middle ear cavity and mastoid air cells on the left. D-F) The mass is seen as isointense with homogenous muscle tissue in T1-weighted images. G-I) The mass is seen as homogenous, mildly contrasted, fat suppressed T1-weighted images.

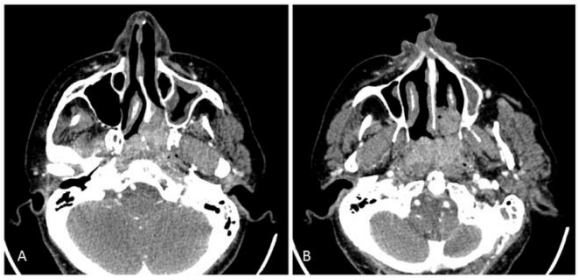

Figure 3. A,B) Contrast-enhanced CT images in axial plane where homogenously contrasted mass is seen to grow slightly and reach to left nasal passage and indented towards middle concha.

The tumor resected by endoscopic sinus surgery. After resection it was reported as transitional cell carcinoma. Histologically the tumor was composed of ribbons of stratified cylindrical cells with nuclear atypia and frequent mitoses but there was no keratinization. The underlying stroma was infiltrated by variable numbers of lymphocytes and plasma cells (Fig 4).

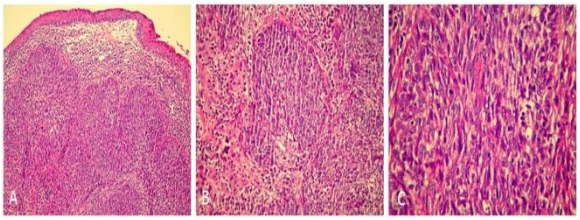

Figure 4. A) Ribbon-like growth pattern in the tumor (H-E, x100). B) Focal invasion and inflammatory infiltrate in the stroma (H-E, x200). C) Higher magnification showing a significant degree of nuclear atypia and frequent mitoses in the tumor (H-E, x400).

In operative mucosal biopsy specimens, right surgical margin was positive. Postoperative 40 days later, MRI examination was performed for planning radiotherapy. MRI revealed a recurrent mass, 12x10x7 mm in size, protruding from lateral wall of right sinonasopharyngeal junction to air passage(Fig. 5).

DISCUSSION

Based on The current World Health Organization classification and Armed Forces Institute of Pathology Atlas of Tumor Pathology,NKCais a variant of squamous cell carcinoma (2).NKCa is separately classified not only because of its histological differences but also due to the observations that it is more sensitive to radiation and hasfewer tendencies to spread via lymphatics compared to the traditional KSCC (2).

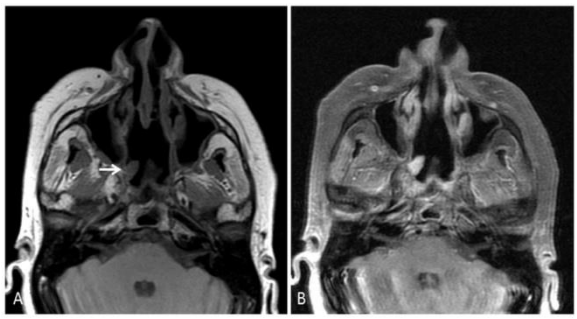

Figure 5. A) Axial plane of T1-weighted MRI showing recurrent mass in right sino-nasopharyngeal junction (arrow). B) Contrast-enhanced, fat-suppressed T1-weighted MRI showing the intense contrasting of recurrent mass.

Microscopically, NKCahas an invaginating epithelial growth andforms ribbons and a garland-like pattern with anevident epithelial-stromal interface. The tumor cells are of columnar or basaloidtype and may have palisading of the basal cell layer. They commonly have high mitotic activity and areas of necrosis. Most of them develop de novo, although a few may originate from preexisting inverted papillomas. High-risk human papilloma virus DNA, particularly type 16 and 18, has been found in 4 to 40% of all histopathological carcinoma subtype cases of the sinonasal tract (2).

Transitional cell carcinomas account for 1 to 20% of the sinonasal tract carcinomas (1-4). Sinonasal transitional cell carcinoma was observed in 48 of the 642 patients with sinonasal tract neoplasm (7.7%) studied by Robin et al. (4) during the period of 1957-1972. Of those 48 patients, 29 were male and 19 female. Average age at which tumor was detected was 57.8 years for men, while 70.4 for women. The investigators attributed the earlier tumor appearance in males to the facts that the tumor could be resulted from papillomas which more frequently appear in younger males and that males are exposed to strong exogenous etiological factors. Katz et al. found that only one of the 78 patients with sinonasal malignancy (except for nasal vestibule and maxillary sinus regions) to whom they applied radiotherapy

during 1964-1998 period had transitional cell carcinomas. Similarly, Khademi et al. detected transitional cell carcinoma in only one of the 71 patients with sinonasal malignancy whom they treated using radiotherapy in 2000-2008 period.

There is no detailed information in literature about the imaging properties of transitional cell carcinomas. To our best knowledge, we have not come across in literature with a case report in which a transitional cell carcinoma is presented with CT and MRI findings. In our case, there was not any characteristic or typical imaging finding for transitional cell carcinoma. As in many other sinonasal tumors, lesion had the tendency to fill sino-nasopharyngeal sinuses and appeared as a mass not causing an evident destruction in the peripheral soft tissue (non-aggressive). However, both histological findings and the observation of a recurrent mass of 1 cm diameter in the post-operative, fortieth day follow-up MRI examination indicated that it had a high mitotic activity. In conclusion, although no typical CT and MRI findings were observed in our case, CT and MRI findings of more cases should be reported in order to discuss in detail the imaging features of transitional cell carcinomas.

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