

## CASE REPORT

### Verrucous Carcinoma in the External Auditory Canal

Chan-Hee Park, Yong-Ho Park

Department of Otolaryngology-Head and Neck Surgery, Research Institute for Medical Sciences, Chungnam National University College of Medicine, Daejeon, South Korea

Verrucous carcinoma arising in the external auditory canal is an extremely rare neoplasm. It is a highly differentiated variant of squamous cell carcinoma. Only 12 cases of verrucous carcinoma involving the temporal bone have been previously reported in English literature. The accurate diagnosis of verrucous carcinoma is a challenge to the most experienced clinician or pathologist because increased keratinocytes and nuclear area may be the only clue to malignancy. Recently, we encountered a case of a 55-year-old man with a verrucous carcinoma in the external auditory canal. This lesion was treated with surgical excision. There were no complications or recurrence during 25 months of follow-up.

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#### Introduction

Verrucous carcinoma is a peculiar clinicopathologic variant of squamous cell carcinoma. It may occur in the oral cavity, larynx, or skin of the head and neck, but its occurrence in the external auditory canal is extremely uncommon. In this paper, we report a case of verrucous carcinoma in the external auditory canal with a review of the related literature.

#### Case Report

A 55-year-old man presented with a left aural fullness. He had a no history of ear disease except for a long standing mild hearing impairment and tinnitus in his right ear. He was a chronic and habitual ear picker. He said that the painless lesion had been growing slowly in the left external auditory canal. He had no other symptoms except for his left ear being plugged.

Physical examination revealed a warty mass occluding the left external auditory canal (Figure 1). The high resolution CT scan showed a 10 x 6 mm soft tissue lesion on the floor of the left external auditory canal (Figure 2). A simple excision with adequate margins was performed. There was no local growth into surrounding tissue, nor was any remnant of the tumor found. Histological examination of the specimen

showed infiltration by verrucous carcinoma cells with marked surface keratinization and parakeratosis. An intact basement membrane was noted in spite of the deeply involved squamous cells with prominent nucleoli and the specimen revealed free tumor margin (Figure 3). There was no evidence of recurrence 25 months after surgical excision.

#### Discussion

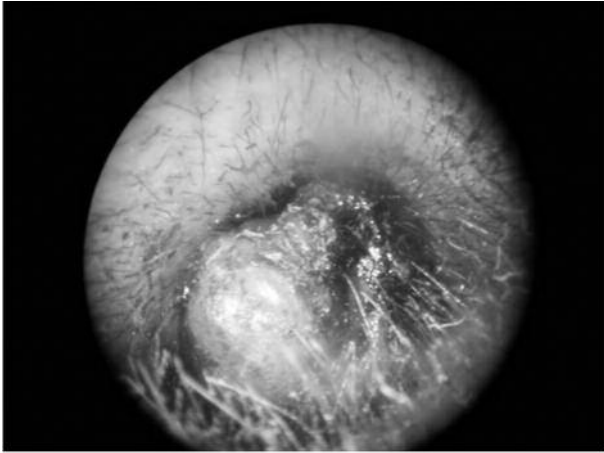
Since Ackerman provided the first case of verrucous carcinoma in the oral cavity in 1948, [1] Ferlito has summarized the diagnosis criteria of verrucous carcinoma. [2] There have been some reports of verrucous carcinoma affecting the head and neck region, but the occurrence of this tumor in the ear was first described by Woodson et al. in 1981. There have been only 12 other cases of verrucous carcinoma involving the ear. [3-7]

The tumor in this study appeared exophytic and warty. It was locally aggressive and invasive, although it had a histologically benign appearance and rarity of metastasis. The etiology of verrucous carcinoma is not well known; however, oral lesion development has been linked to chronic local irritation and with tobacco chewing. [8] Personal habits such as smoking and alcohol use are also considered risk factors for this

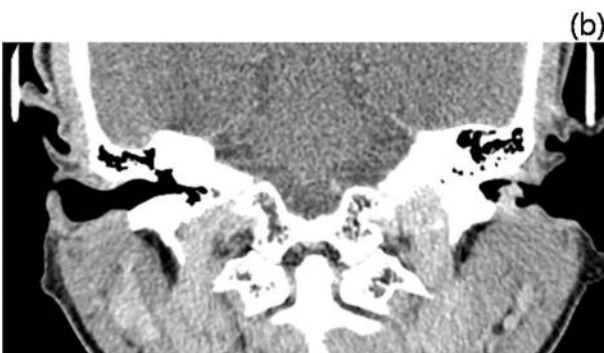
#### Corresponding address:

Yong-Ho Park,  
Department of Otolaryngology-Head and Neck Surgery, Chungnam National University Hospital, 640 Daesa dong, Jung Gu, Daejeon, South Korea  
Phone: +82-42-280-7697 • Fax: +82-42-253-4059  
E-mail: parkyh@cnu.ac.kr

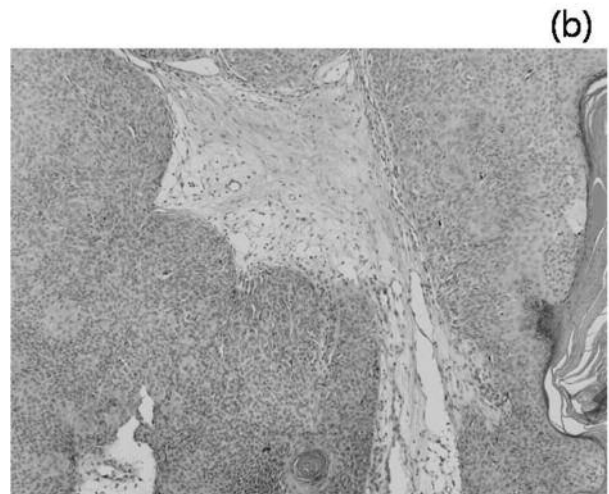
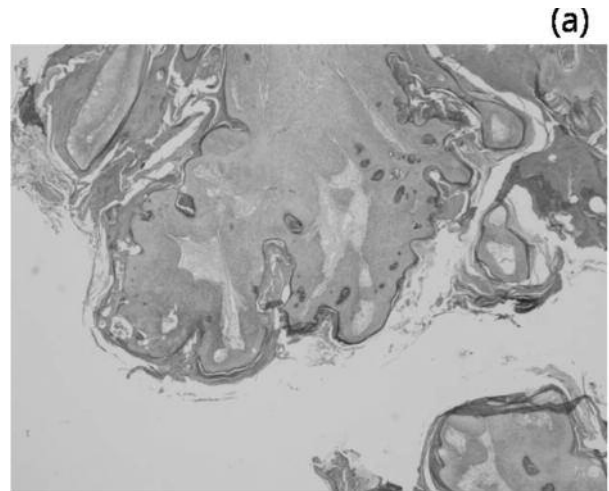
lesion. Human papilloma virus infections are also considered to be a risk factor.



**Figure 1.** Preoperative oto-endoscopy showed a warty mass like lesion in the left side external auditory canal.



**Figure 2.** About 10 x 6 mm sized slightly enhanced lesion was observed on the floor of left side external auditory canal. (a):axial, (b):coronal scan.



**Figure 3.** Photomicrography of surgical specimen with H&E staining. (a) Marked surface keratinization and parakeratosis showed (x40). Intact basement membrane is noted in spite of the deeply involved verrucous carcinoma cells (x100).

Microscopically, verrucous carcinoma often appears as a papillomatous-type lesion with a well-differentiated stratified keratinizing squamous epithelium that is surrounded by connective tissue. The actual epithelium shows no atypia. At the epithelial edge there is a normal maturation sequence with the production of keratin. There is usually only very low mitotic activity that is confined to the basal layer of the tumor. Sometimes a more aggressive, cytologically malignant squamous cell carcinoma may arise in this lesion.

Surgical excision seems to be the preferred therapeutic modality for this tumor. Although it shows a relatively low rate of lymph node metastasis, many of the oral

verrucous carcinomas can present at an advanced stage. One report stated that lymph node involvement can be as high as 30% (31/101).<sup>[9]</sup> Some management such as a supraomohyoid neck dissection should be considered for oral verrucous carcinoma. Radiation therapy can be used as another treatment modality, but it shows a relatively lower local control rate than does conventional surgery and also has a risk for anaplastic transformation.

Previously only 12 cases of verrucous carcinoma of the ear had been reported. In the literature, almost all ear lesions were limited to the middle ear, external auditory canals, and mastoid cavities except one case which had extended into the posterior cranial fossa. All of those lesions were surgically treated. And there was some case that was treated surgically followed by radiotherapy.<sup>[4]</sup> None of these reports, including our case, demonstrated cervical or distant metastasis. According to the reports, the prognosis of patients with verrucous carcinoma of the ear seems to be related to extratemporal spread.<sup>[5,6]</sup>

The true incidence of verrucous carcinoma of the ear may be underestimated because many of the cases may have been misdiagnosed as “aggressive” cholesteatoma or “low grade” squamous cell carcinoma. Therefore, this uncommon tumor should be considered in the differential diagnosis of squamous lesions of the ear, particularly when locally aggressive behavior contradicts a histologically benign appearance. Careful cooperation between the clinician and the pathologist continues to be essential for accurate diagnosis.

## References

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