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Clinical Record

# Squamous cell carcinoma in situ of the external auditory canal

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**Abstract**

We report two cases of carcinoma in situ in the external auditory canal (EAC), presenting with symptoms such as pain, long-term itching of the ear, easy contact bleeding, canal otorrhea and hearing loss. Otoscopic examination revealed granulation tissue and a greyish-black tumour with irregular surface. The first patient had previously been diagnosed with otitis externa with persistent ear itching for the past three years. The second patient had received tympanoplasty for treatment of chronic otitis media on the right ear ten years ago. The first case was treated with wide excision, whereas the second patient received resection of the skin of the EAC together with its adjacent soft tissue, followed by skin grafting. No tumour recurrence was noted in the fourth and third post-operative year for the first and second patient respectively. We suggest that EAC carcinoma can be detected early and treated.

**Key words: Ear Canal; Carcinoma in Situ, Squamous Cell Carcinoma; Otitis Externa**

## Introduction

Carcinoma of the external auditory canal (EAC) is rare. The outcome of this disease is related to the stage of the lesion.[1] Among EAC carcinomas, squamous cell carcinoma (SCC) is the most common malignant tumour at this site.[1,2] Early presentation of symptoms and signs makes early diagnosis and intervention possible. In this paper we present two cases of carcinoma in situ of the EAC.

## Case reports

### *Case 1*

A 37-year-old woman, presenting with left ear pain for two days was referred from another clinic for examination. According to the information given, she complained of left ear itching for the past three years. When reviewing her previous records, this female patient visited our department twice before, also due to the aforementioned complaints, two and three years ago. Upon the latter visit, a blood clot was found in her left EAC. With the impression of chronic otitis externa with acute exacerbation, it was treated as such.

Physical examination revealed an erythematous and swollen area with severe contact pain at the upper portion of the meatal orifice, and a greyish-black mass with irregular surface measuring $0.7 \times 0.7$ mm in size, at the anterio-inferior portion of the EAC, adjacent to the cartilage-bony junction (Figure 1). The ear canal was further characterized by easy contact bleeding. Audiogram and serological examinations were unremarkable. The initial impressions were otofuruncle and an ear tumour, suspected naevi. She underwent tumour wide excision. Histological examination was interpreted as Bowen's disease and amyloid (Figures 2 and 3). The amyloid was confirmed by Congo stain. Four years after the operation there was no evidence of recurrence.

### *Case 2*

A 74-year-old man, complaining of right ear pain and hearing loss for half a year, visited our department for consultation. Previously ear drops had been prescribed, but yielded no improvement of symptoms. When reviewing his chart, this male patient received tympanoplasty for treatment of right sided chronic otitis media ten years ago. After surgery the operated ear was persistently wet for half a year. Then he was lost to follow up for eight years, until now.

Physical examination revealed granulation and otorrhea with contact bleeding in the right external ear canal (Figure 4). There was no cervical or postauricular lymphadenopathy. The audiometric examination revealed a 50 dB conductive hearing loss in his right ear. Biopsy of the right EAC granulation tissue was suggested and performed. Histological examination of the biopsy specimen indicated it as squamous cell carcinoma in situ. The patient underwent resection of the skin of the EAC together with its adjacent soft tissue, followed by tympanoplasty and skin graft. Histological examination of the lesion showed a particularly florid and exophytic carcinoma in situ. (Figure 5 and 6).

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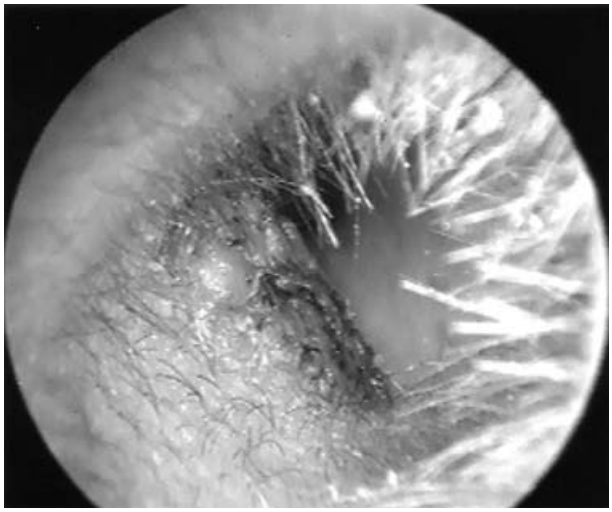

FIG. 1
A mass light black in colour and with an irregular surface at anterior-inferior portion of the external auditory canal (ECA).

There was no evidence of recurrence three years after the operation.

## Discussion

Carcinomas of the external auditory canal include SCC, basal cell-, adenoid cystic-, ceruminous-, microcystic adnexal carcinoma, and adenocarcinoma.[1,3] Among them the SCC represents the most common form of EAC carcinoma.

The aetiology of SCC arising in the EAC is unclear. Chronic ear discharge and infection with aspergillus and pseudomonas,[1,4] and radiation may be regarded as risk factors of inducing SCC at this site.[4] Most of the patients reported have had a positive history of chronic ear infection.[1,5,6] The symptoms were otorrhea, otalgia, hearing loss and aural fullness.[1,6,7] These symptoms mimic those of otitis externa, which is a highly prevalent inflammatory process. Therefore patients are usually treated as having such. In this report, case one had ear itching and frequent crust formation in the ear canal for more than three years and was treated as having chronic otitis externa (COE). Case two had a positive history of chronic otitis media

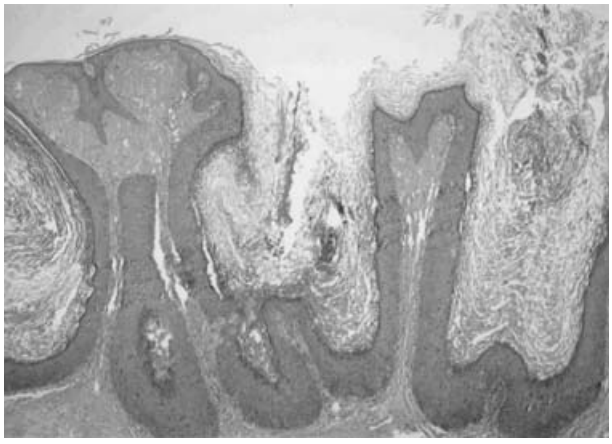

FIG. 2
A basal cell papilloma-like lesion was seen under low power field (H&E; ×40).

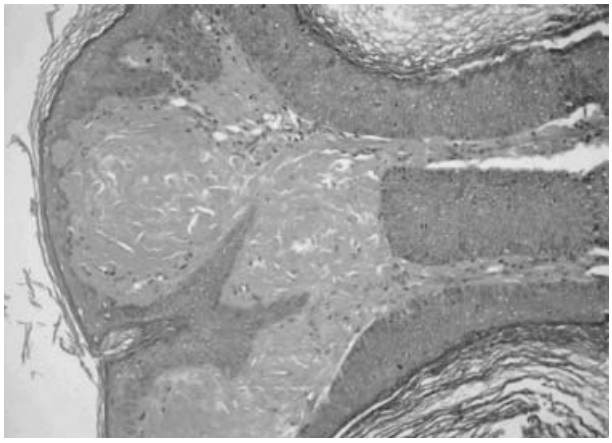

FIG. 3
Neoplastic squamous cells with hyperchromatism, frequent mitoses and occasional dyskeratosis occupying the whole thickness of epidermis were noted in the concave craters of the lesion (right half). The superficial dermis also revealed deposition of amyloid (H&E; ×200).

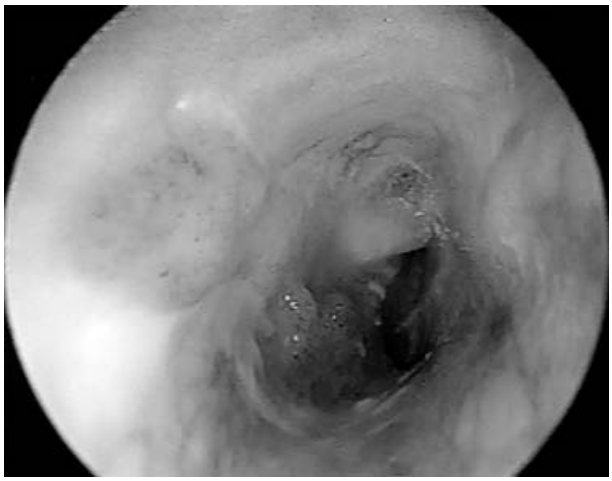

FIG. 4
Granulation and discharge in the medial portion of EAC.

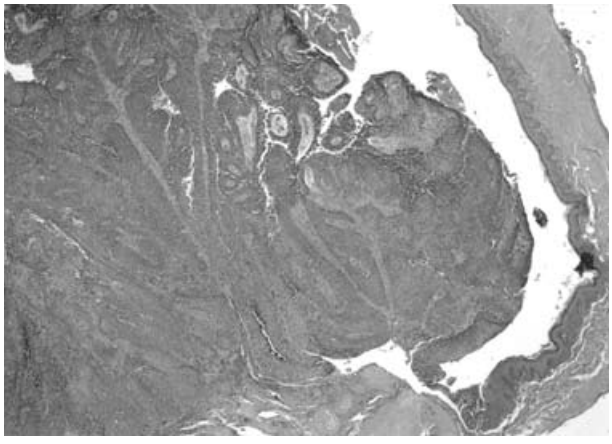

FIG. 5
The fungating lesion at the external ear canal was composed of crowded and complex papillae covered with stratified cells with various degrees of atypia (H&E; ×40).

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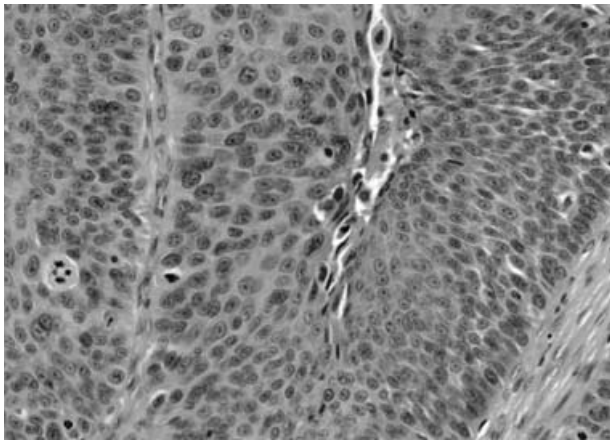

FIG. 6

Whole-layered atypia of the squamous cells without stromal invasion was present in places that are different from papillary squamous cell carcinoma and can be classified as a particularly florid and exophytic carcinoma in situ (H&E; ×400).

(COM) with canal discharge for years before receiving tympanoplasty.

Local findings of an ear canal carcinoma include irregular protuberances and appearance of canal skin,[5] presence of squamous debris, and granulation of the canal wall.[6] The diagnosis of EAC cancer is often not confirmed until six months or longer following the onset of symptoms.[1,8] A high index of suspicion for SCC is necessary if the symptoms persist despite adequate treatment for an inflammatory process.[6]

Early identification of the disease is essential to limit tumour extension. A delay in both diagnosis and treatment may provide these lesions with the opportunity to progress.[6] In general wide excision is enough for carcinoma in situ.[9]

Local canal resection of the cartilaginous portion, with or without partial bony wall, is indicated for cancer at an early stage. Partial temporal bone resection, subtotal temporal bone resection, and total temporal resection are indicated for advanced stages.[1,10]

The outcome is related to the stage of the disease at time of diagnosis. The prognosis of surgical treatment is good, if the tumour is limited to the ear canal, while it is poor in advanced stages and where making a subtotal temporal bone resection is necessary.[11] The mortality is 9 per cent and 100 per cent for early stage and advanced stages, respectively.[1] The overall 5- and 10-year survival rate was 74 per cent for the former and 60 per cent for the latter.[12]

## Conclusion

The symptoms and signs of EAC carcinoma in situ may appear very early. The ear canal can be easily examined by means of an otoscope. Patients with an early cancer stage might benefit from a less aggressive surgical approach and have a good prognosis, if the diagnosis can be made early. It is therefore of utmost importance to keep this disease in mind, in order not to underdiagnose and delay the treatment, thereby causing irreversible sequelae.

- **This paper describes two cases of carcinoma in situ of the external auditory canal, presenting with symptoms and signs suggestive of otitis externa**
- **Both cases were successfully treated with local resection**
- **Patients with external auditory canal carcinoma, when detected early, may benefit from a less aggressive approach. Early diagnosis is crucial**

## References


1 Nyrop M, Grentved A. Cancer of the external auditory canal. *Arch Otolaryngol Head Neck Surg* 2002;**128**:834–7
2 Choi JY, Choi EC, Lee HK, Yoo JB, Kim SG, Lee WS. Mode of parotid involvement in external auditory canal carcinoma. *J Laryngol Otol* 2003;**117**:951–4
3 Ozbek C, Celikkanat S, Beriat K, Uluoglu A, Ozdem C. Microcystic adnexal carcinoma of the external ear canal. *Otolaryngol Head Neck Surg* 2004;**130**:148–50
4 Kuhel WI, Hume CR, Selesnick SH. Cancer of the auditory canal and temporal bone. *Otolaryngol Clin North Am* 1996:**29**:827–52
5 Pulec JL, Deguine C. Squamous cell carcinoma of the external auditory canal. *ENT Journal* 2004;**83**:9
6 Wolfe SG, Lai SY, Bigelow DC. Bilateral squamous cell carcinoma of the external auditory canals. *Laryngoscope* 2002;**112**:1003–5
7 Arriaga M. Hirsch BE, Kamerer DB, Myers EN. Squamous cell carcinoma of the external auditory meatus (canal). *Otolaryngol Head Neck Surg* 1989;**101**:330–7
8 Lewis JS. Surgical management of tumors of the middle ear and mastoid. *J Laryngol Otol* 1983;**97**:299–311
9 Saunders WH, Paparella MM, Miglets AW. Surgery for neoplasms and cysts of the ear. *Atlas of Ear Surgery*, 3rd edn. St Louis: Mosby, 1980;105–148
10 Gracek RR, Goodman M. Management of malignancy of the temporal bone. *Laryngoscope* 1997;**89**:1622–34
11 Prasad S, Janecka IP. Efficacy of surgical treatment for squamous cell carcinoma of the temporal bone a literature review. *Otolaryngol Head Neck Surg* 1994;**110**:270–80
12 Knegt PP, Ah-See KW, Meeuwis CA, Van Der Velden LA, Kerrbijn JDR, De Boer MF. Squamous carcinoma of the external auditory canal: a different approach. *Clin Otolaryngol* 2002;**27**:183–7



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