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Cholesterol granuloma presenting with facial nerve paralysis following translabyrinthine surgery: A case report

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ABSTRACT

Background: Cholesterol granuloma (CG) is a foreign body giant cell inflammatory reaction to blood degradation products, and clinically presents as a cyst with a thick fibrous lining filled with brownish-yellow fluid. We report an unusual case of CG with facial nerve paralysis 9 years after translabyrinthine (TL) surgery for vestibular schwannoma (VS) removal.
Case: A 70-year-old woman, who underwent TL surgery previously, presented with left facial palsy (FP). CT findings revealed devastated cochlea and uncovered facial nerve, and progression of FP up to House–Brackmann grade 6 was observed. Therefore, we suspected recurrence of cystic VS or facial schwannoma, although MRI was inconsistent with that of schwannoma. The cyst was completely surgically excised, and histopathology confirmed CG diagnosis. Postoperatively her facial movement improved to grade 4. Recurrence has not been encountered since 7 years.
Conclusion: During follow-up after TL surgery for VS, care should be taken for possibility of CG occurring.

1. Introduction

A cholesterol granuloma (CG) is histopathologically a foreign body giant cell inflammatory reaction to blood degradation products composed of globular material, lipids, and cholesterol crystals and clinically presents as a cyst with a thick fibrous lining filled with brownish-yellow fluid [1]. CG has been reported to occur throughout the temporal bone, i.e., the middle ear, mastoid, and petrous apex. Inside the middle ear, CG often develops with auditory tube dysfunction or after surgery for chronic otitis media or cholesteatoma. CG following translabyrinthine (TL) surgery for vestibular schwannoma (VS) has never been reported; this surgery is usually performed in a well-pneumatized temporal bone. Furthermore, CG in the middle ear and/or mastoid is non-aggressive, in contrast to CG in the petrous apex, and thereby does not frequently damage neural structures.

We present an extremely rare case of CG that resulted in facial nerve paralysis 9 years after TL surgery was performed for VS removal.

2. Case report

A 70-year-old woman was referred to the Tokai University Hospital because of left facial palsy lasting over 4 months. According to her medical records, the patient had undergone TL surgery for the removal of the left VS 9 years previously. She already had ipsilateral facial palsy assessed as House–Brackmann (H-B) grade 2 before VS removal and facial movement was unchanged even after surgery. After 9 years of follow-up, her facial palsy suddenly worsened and showed no sign of recovery.

At the first visit, the patient's facial palsy was complete and was assessed as H-B grade 6. She reported deafness in the left

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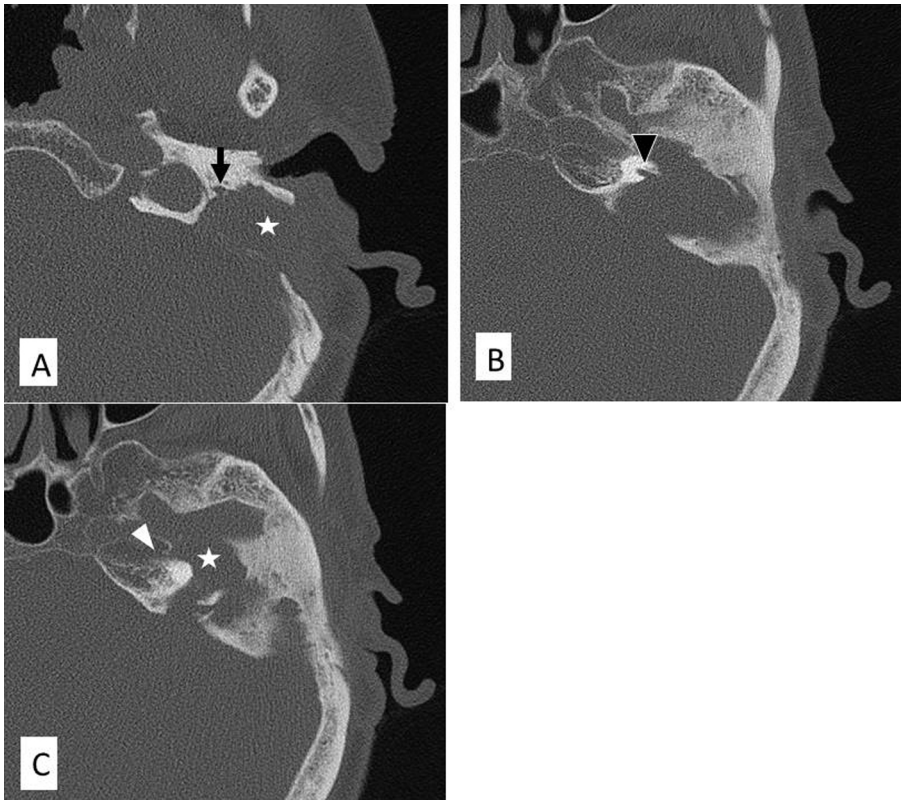

Fig. 1. High resolution computed tomography (HRCT). (A) The left mastoid was widely exenterated, and a soft tissue density mass was exhibited (star). The facial nerve was suspected to be exposed in its mastoid segment and adhered to the mass (arrow). (B) The basal turn of the cochlea was devastated (arrowhead). (C) The soft tissue density mass (star) extended to the bone marrow at the petrous apex (white arrowhead).

ear and had no medical history of otitis media. A high resolution computed tomography (HRCT) scan (Fig. 1) demonstrated that the left mastoid cells were widely exenterated, and a soft-tissue density mass was exhibited and extended to the petrous apex. The facial nerve was observed to be exposed to that mass in its mastoid segment, and the basal turn of the cochlea was found to be devastated. The right ear seemed to have good pneumatization. Magnetic resonance images (MRIs) showed slightly high T1 images and obviously high T2 images of an epidural cystic lesion in the left mastoid; the capsule was enhanced using gadolinium (Fig. 2). From these findings, CG or recurrence of the cystic schwannoma was suspected. The facial nerve was suspected to be compressed by the cyst and was thought to be the reason for her facial movement not recovering.

Tumor resection with pathological diagnosis was decided, and facial nerve exploration by surgical decompression was thought necessary. Therefore, a surgical intervention was selected. Following the skin and musculoperiosteal incision, a large cyst was found in the exenterated mastoid cavity after

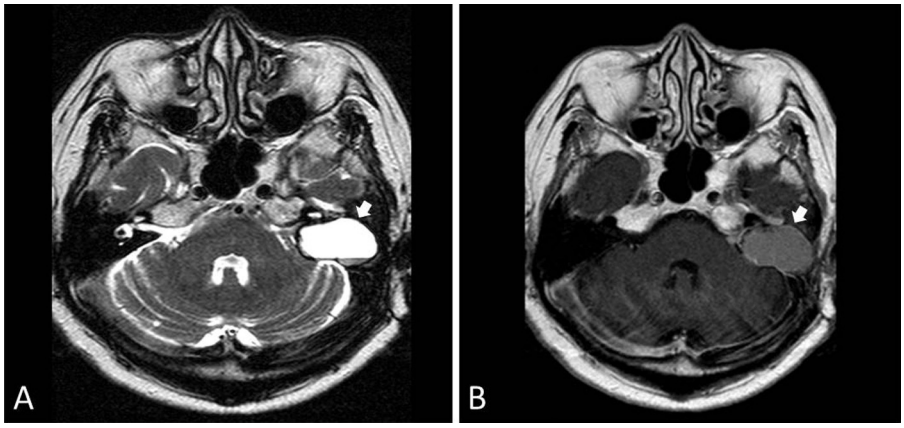

Fig. 2. Magnetic resonance image (MRI) findings. T2-weighted image (A) and gadolinium-enhanced T1-weighted image (B). Contents of the epidural cyst in the left mastoid (arrows) showed slightly high intensity in T1-weighted images and obvious high intensity in T2 images. The cyst capsule was slightly enhanced by gadolinium.

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