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Case report

Post-traumatic pseudomeningocele presenting as a cyst of external auditory canal: Report of a case

Jae Ho Jeong, Seong Ki Ahn *, Sea Yuong Jeon, Jung Je Park, Jin Pyeong Kim, In Sung Park

Department of Otolaryngology and Neurosurgery, College of Medicine, GyeongSang National University, Jinju, 660-702, South Korea

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Abstract

Pseudomeningoceles are formed by extravasation of cerebrospinal fluid through a dural defect into soft tissue. They mostly form as a result of surgical trauma to the dural covering of the lumbar or cervical spine surgery, especially during laminectomy. Howerver, post-traumatic pseudomeningocele rarely occurs in the head and neck. A 32-year-old female presented with a 10-year history of right ear fullness following head trauma. A soft, non-pulsatile and cystic mass was noted in the right external auditory canal. The MRI scan demonstrated the connection between subarachnoid space and cyst of the right external auditory canal. The right ear was explored and mastoid antrum was partially filled with a cyst connected to the dural defect. The extradural portion of the mass was removed, the dural defect was repaired with a temporalis fascia-cartilage graft. Clinical manifestations, diagnosis and surgical approaches for post-traumatic pseudomeningocele arising in the head and neck region are briefly discussed.

Keywords: Meningocele; External auditory canal; Cyst

1. Introduction

Pseudomeningocele is a disease caused by the extravasation of the cerebrospinal fluid through the dura mater or the defect of subarachnoidal membrane and manifests as a fibrous capsule in the space of subcutaneous tissues [1,2]. It has been reported that this disease develops primarily after back surgery as iatrogenic or in children. However, post-traumatic pseudomeningocele occurred after head trauma appears to develop in the head and neck [3–5]. We report a case of the post-traumatic pseudomeningocele presenting as a cyst of the external auditory canal with a review of the related literatures.

2. Case report

A 32-year-old female patient presented a private clinic with a 10-year history of right ear fullness. Accidentally, a mass in the external auditory canal was detected, and thus she was transferred to our hospital. Except for ear fullness, the patient did not present with specific characteristics such as otalgia, aural discharge, headache, etc. In her medical history, she had the history of the treatment of head trauma caused by a traffic accident 10 years ago. A diagnosis of brain contusion of temporoparietal area was made. Since then, she has been doing well without any problems. During physical examination, a soft, non-pulsatile and oval-shaped cystic mass was detected in the right external auditory canal, and because of it, the eardrum could not be detected (Fig. 1A). The cyst in the right external auditory canal was painless and non-pulsatile, the size change of the cyst according to the Valsalva maneuver was not detected. Pure tone audiometry revealed a mild conductive hearing loss (Fig. 2). Speech discrimination score was 100%, and speech

* Corresponding author. Fax: +82 55 759 0613.
E-mail address: skahn@gshp.gsnu.ac.kr (S.K. Ahn).

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reception threshold was 34 dB. MRI scan was performed and on T1, cystic mass had a low signal intensity and on T2, the mass had a high signal intensity. The size of the mass was 1.5 cm × 0.6 cm × 1 cm. The fluid retention was detected in the middle ear cavity, the cystic mass located in the external auditory canal was found to be a pattern connected to the subarachnoid space. In addition, high contrast that was thought to be the brain contusion caused by previous head trauma was detected in the temporal lobe (Fig. 3A and B). Based on physical examination and radiological findings, meningocele was suspected. The patient underwent, under general anesthesia, removal of the mass via transmastoid approach. The cystic mass detected in the external auditory canal was connected to the part of mastoid and the epitympanum area, passed between the malleus and the incus, extended into the defect of tegmen tympani. As shown in MRI scan, the cyst was connected to the cranial defect area by forming a narrow neck. During the procedure of removing the cyst, the leakage of cerebrospinal fluid was detected, hence, the defect area was reconstructed by using the temporalis muscle fascia and conchal cartilage and reinforced with the temporalis muscle and fibrin glue. Histopathologic examination revealed as a cyst with fibrous capsule, and brain tissues or the meninx

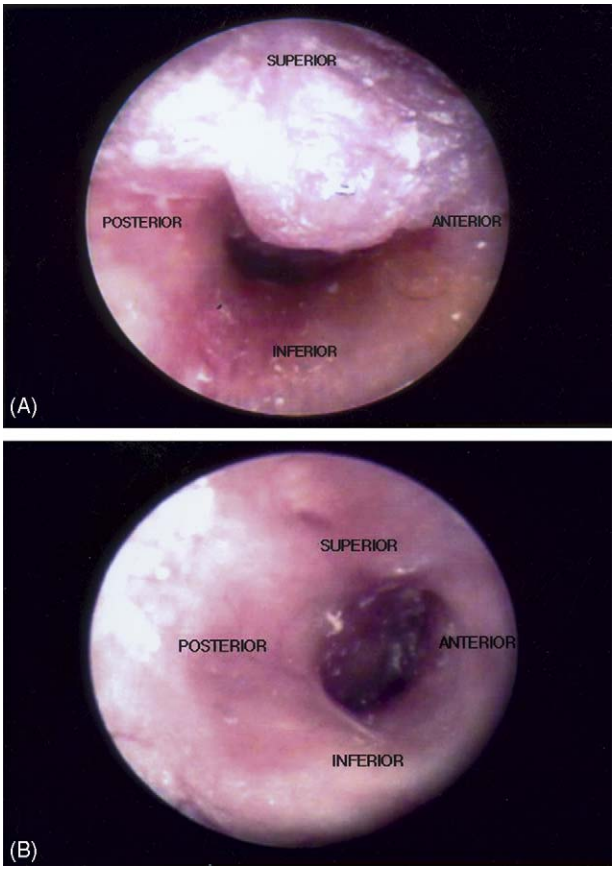

Fig. 1. Preoperative (A) and postoperative (B) endoscopic finding. A: A cystic mass was located in the right external auditory canal. B: After 2 months, auditory canal was completely healed. There is no evidence of recurrence.

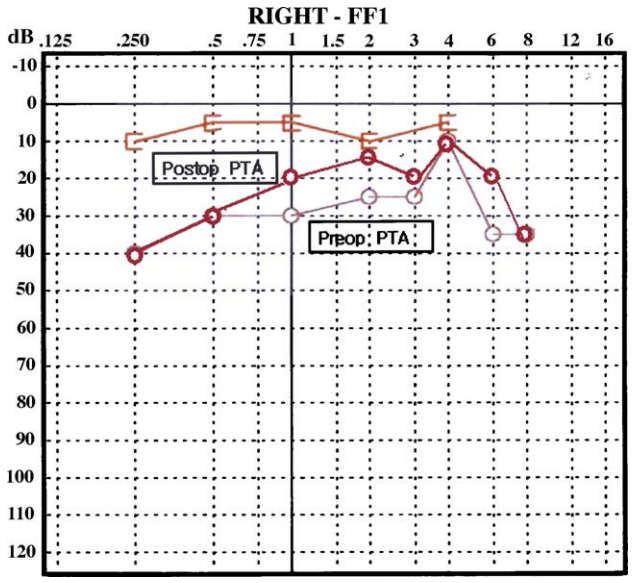

Fig. 2. Preoperative and postoperative pure tone audiometry. Both of them show mild conductive hearing loss.

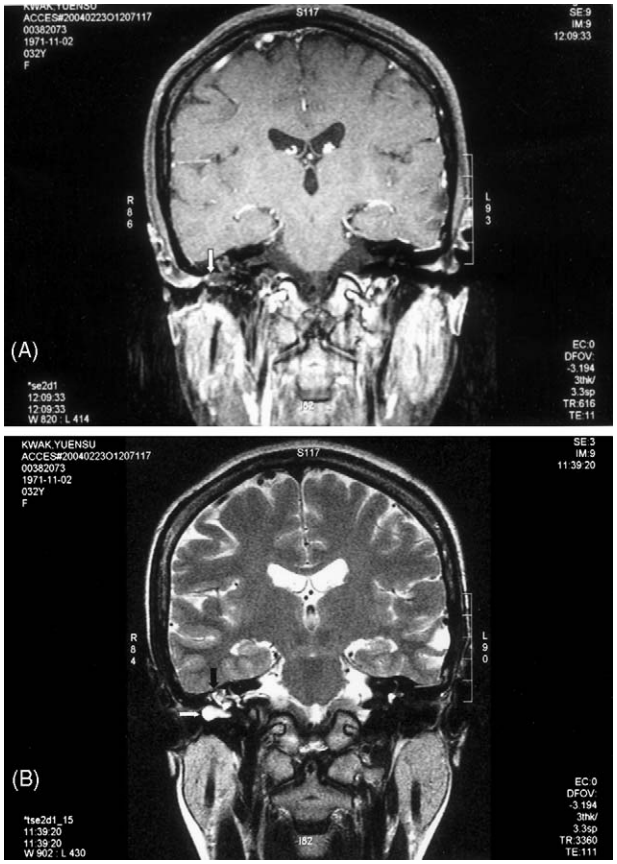

Fig. 3. Preoperative temporal bone MRI scan findings. A: T1-weighted coronal MRI shows low signal intensity mass (white arrow) of the right external auditory canal. B: T2-weighted coronal MRI shows about 1.5 cm × 0.6 cm × 1 cm sized high signal intensity mass (white arrow) and the connection (black arrow) between subarachnoid space and cyst of the right external auditory canal.