**Persistent Petrosquamosal Sinus in Chronic Otitis Media**

- **Aim**
  To determine the prevalence of the petrosquamosal sinus (PSS) in adult patients with chronic otitis media using a high resolution CT scan.

**Abstract**

Objectives: The petrosquamosal sinus (PSS) is an emissary vein that connects the transverse sinus and the external jugular vein. Recent studies have shown that a PSS can be identified on high resolution CT scan when it is contained within a bony canal [1]. The persistent PSS is a potential risk of bleeding in middle ear surgery. The aim of this study is to determine the prevalence of the PSS in patients with chronic otitis media.

Methods: Between Feb 2011 and April 2012, 88 ears (79 patients) underwent CT scan before surgery for chronic otitis media. Patients younger than 15 years were excluded. Another patient underwent high resolution CT scan. These patients were used as control. Among them, patients younger than 15 years were excluded. Another patient with temporal bone malformation was also excluded from the study. Finally, 88 ears (79 patients) were included in the analysis. During the same period, 39 patients with peripheral facial palsy underwent high resolution CT scan. These patients were used as control.

**Data acquisition**

All patients underwent high resolution CT scan (0.5 mm slice thickness) before surgery. The prevalence of persistent PSS was evaluated using CT scan. A bony canal is diagnosed as a PSS when it branches at the junction of sigmoid and transverse sinus, courses anteriorly at the union of petrous and squamous portion of the temporal bone, and enters into the middle fossa dura or the glenoid fossa. The diameter of the PSS was measured using GE Centricity Enterprise Web Viewer (GE, USA), and was classified into 3 groups (small: <1.0 mm, medium: 1.0 – 2.0 mm, and large: > 2.0 mm).

**Statistical analysis**

The prevalence of the PSS was compared between in patients with chronic otitis media and in patients with peripheral facial palsy using chi square test.

**Materials and Methods**

Subject

Between Jan 2011 and April 2012, 88 ears (79 patients) underwent surgery for chronic otitis media at Kyoto university hospital. Among them, patients younger than 15 years were excluded. Another patient with temporal bone malformation was also excluded from the study. Finally, 88 ears (79 patients) were included in the analysis. During the same period, 39 patients with peripheral facial palsy underwent high resolution CT scan. These patients were used as control.

**Results**

Among the 88 ears with chronic otitis media, a PSS was detected in 22 ears (78%) on CT scan. Among them, the PSS was identified during the surgery in four ears. The incidence was similar in the two ears (right ear: 13/50, left ear: 9/38) and two genders (male: 12/43, female: 10/45). In patients with facial palsy, a PSS was found in 9 of 78 ears.

Conclusion: The persisted PSS was frequently detected in patients with chronic otitis media. Care should be taken to avoid damaging this vein during the mastoid surgery.

**Cadaver study about the PSS**

- Seven bilateral and 19 unilateral PSS out of 44 adult cadavers (Knott, 1881 [2]).
- Five PSS in 26 human temporal bones (San Millan Ruiz, et al., 2006 [3]).

**References**

