Air CT Cisternography of Anterior Inferior Cerebellar Artery Loop Simulating an Intracanalicular Acoustic Neuroma

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Acoustic neuromas larger than 1 cm are usually apparent on routine computed tomography (CT) after contrast enhancement, but smaller lesions escape detection [1, 2]. Metrizamide CT cisternography can demonstrate small lesions, but it is not accurate for the detection of intracanalicular lesions [1, 3]. Pantopaque meatocisternography can detect intracanalicular lesions but has a high percentage of inconclusive results [4]. Air CT cisternography is considered to be the most sensitive procedure for the demonstration of very small and totally intracanalicular acoustic neuromas [5, 6]. A case is presented where partial filling of the internal auditory canal, simulating an intracanalicular tumor, was due to a loop of the anterior inferior cerebellar artery (AICA).

Case Report

A 51-year-old man had progressive right hearing loss over 5 years. He also complained of occasional loss of balance and tinnitus, especially when exposed to loud noise. There was no history of ear infection or labyrinthitis. Audiovestibular examination was consistent with a right retrocochlear lesion and the left ear was normal.

Air CT was performed in each canal in the appropriate lateral decubitus position. After the introduction of 7 mm³ of air via a lumbar puncture, 2 mm sections were obtained with a Picker Synerview 600.

The left canal showed normal filling with air (fig. 1A), but, on the right side (fig. 1B), there was soft tissue occupying the medial half of the canal, with air filling the lateral segment. This was interpreted as representing an intracanalicular acoustic neuroma.

At translabyrinthine exposure the AICA was seen to form a loop within the canal and was placed between the superior vestibular nerve and the facial nerve. No tumor was noted.

Discussion

Air CT cisternography is considered a safe and simple procedure with a high degree of accuracy in detecting acoustic neuromas [5, 6]. Nonfilling of the canal during
Pantopaque meatocisternography may be due to a narrow canal, arachnoid webs, an abnormal arterial loop, or tumor [4, 7].

In a dissection of cadaver temporal bones, Mazzoni [8] found the AICA loop close to the internal auditory canal in 80% of specimens. The apex of the convexity of the vascular loop extended into the canal in 40% of specimens and approached the porus acou sicus in 27% of specimens.

The loop of the AICA is well visualized on high-resolution air CT examinations as it lies in the cerebellopontine angle or porus acou sicus [9]. To our knowledge the AICA loop has not been demonstrated on air CT when it lies well within the canal.

Nonfilling of the internal auditory canal due to arachnoid adhesions simulating an acoustic neuroma has been reported [10]. Partial filling of the internal auditory canal with air would be expected with some small intracanalicular neuromas, but in such a situation the possibility of a vascular loop within the canal simulating a tumor must be considered. Air CT scanning after a bolus of intravenous contrast material may differentiate the vascular structure from an intracanalicular tumor.

REFERENCES