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Meningiomas are common generally benign tumors that arise from meningothelial cells of the arachnoid layer. The cerebellopontine angle (CPA) tumors are masses situated in the region between the cerebellum and pons and its location affects the clinical outcome. The most common presenting symptoms of CPA meningiomas are hearing loss, tinnitus, dizziness and imbalance (Kane et al., 2011). A recent case report showed presence of auditory processing disorder in a patient with a cerebellopontine lesion with extension to the right internal auditory canal (Iliadou and Eleftheriadis, 2017). The mass may put pressure on the brainstem structure influencing the transduction of the auditory information through the central auditory pathway.

This case is highly educational as it shows the presence of spatial processing disorder and dichotic listening deficit in a patient with a 1.9x0.9cm cerebellopontine angle meningioma.

Case presentation

A 67-year old female music teacher was referred to our Neuro-otology clinic presenting with a two-year history of tinnitus, significant problem with the perception of music and understanding speech in the presence of background noise. She also explained that certain piano notes are distorted. Her MRI scan showed presence of a meningioma at the right cerebellopontine angle. She was referred for auditory processing assessment.

### Test Results

#### Pure Tone Audiogram
- Bilateral mild to moderate sensorineural hearing loss

#### Auditory Brainstem Response
- Right ear: Absent wave I. Delayed absolute latencies wave III and V. Delayed III-V interpeak latencies

#### Speech Audiometry
- All conditions are outside normal range and the graph shows a spatial processing pattern.

#### Dichotic Digits

<table>
<thead>
<tr>
<th>Right ear</th>
<th>Left ear</th>
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<td>30/40 – 75%</td>
<td>35/40 – 87.5%</td>
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Both ears outside normative data (normative data >95%).

#### Otocoustic Emissions

- Right ear: Present but reduced
- Left ear: Present but reduced

DPOAEs were bilaterally present but reduced.

### Conclusion

- All audiological tests exhibited deficits strictly limited to the right ear, which was consistent with the patient’s presenting complaint.
- This case demonstrates the presence of spatial processing disorder and dichotic listening deficit in the cerebellopontine angle lesions.
- The lesion may disrupts the neural representation of sound and may therefore impair processes contingent upon inter-aural comparison.
- This case provides evidence that evaluation of auditory function should be part of the standard clinical protocol in individuals with cerebellopontine angle lesions.
- It appears the current diagnostic APD test battery is efficient in revealing the lesional causes of central APD.

### Reference