A Study on Seven Surfer’s Ears in which External Ear Canal Plasty was Performed

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When the ear canal often gets exposed to cold water, it leads to the formation of a state called external auditory canal exostoses. This condition is known as surfer’s ear because it is commonly seen among surfers. We experienced seven cases of surfer’s ear from March 2008 to October 2012. All these patients were males with more than 15 years’ experience of surfing. These patients consistently complained of having ear-fullness and hearing loss. In all of these cases, a surgical approach was adopted and performed. The posterior ear incision with a trans-canal approach was chosen for all the cases. It might appear to be difficult to approach an anterior elevated exostoses in the wall of the external auditory canal via this approach, but drilling the external auditory canal in a conical shape from the posterior wall could enlarge the access very appropriately.

The method provides a wide field of view and enough space for surgical techniques; therefore it could decrease the risk of sensory hearing loss due to surgical damage.

The post surgical results of the canal formation demonstrated successful enlargement with a good shape in all the cases we have experienced.

Keywords : surfer’s ear, external ear canal plasty, postauricular approach

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Preoperative findings
Each picture in the upper tier shows right ears. Each picture in the bottom tier shows left ears. The number of each picture matches the case number.

Operation findings
The white arrows indicate exostosis. The white arrowhead indicates the annulus tympanicus.
- a: The external ear canal was drilled into a conical shape.
- b: The exostosis was carefully detached from the canal skin and removed with a chisel.
- c: The external ear canal was drilled into the depth of the annulus tympanicus.
- d: Fascial and periosteal flaps were made beforehand and inserted into the external canal.

Postoperative findings (31 months)
Widening of the external ear canal had occurred, making it easy to observe the eardrum.

Details of 7 cases

<table>
<thead>
<tr>
<th>Case number</th>
<th>Age</th>
<th>Sex</th>
<th>Surfing career</th>
<th>Symptoms</th>
<th>Stenosis rate</th>
<th>Preoperative hearing level</th>
<th>Postoperative hearing level</th>
<th>Other side</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>44</td>
<td>M</td>
<td>20 years</td>
<td>Hearing loss (sometimes)</td>
<td>90%</td>
<td>11.7 dB</td>
<td>10.0 dB</td>
<td>60% stenosis</td>
</tr>
<tr>
<td>2</td>
<td>43</td>
<td>M</td>
<td>18 years</td>
<td>Ear fullness</td>
<td>60%</td>
<td>18.3 dB</td>
<td>15.0 dB</td>
<td>— postoperative ear</td>
</tr>
<tr>
<td>3</td>
<td>48</td>
<td>M</td>
<td>29 years</td>
<td>Ear fullness</td>
<td>90%</td>
<td>15.0 dB</td>
<td>—</td>
<td>— postoperative ear</td>
</tr>
<tr>
<td>4</td>
<td>40</td>
<td>M</td>
<td>23 years</td>
<td>Ear fullness</td>
<td>90%</td>
<td>6.7 dB</td>
<td>10.0 dB</td>
<td>case 7</td>
</tr>
<tr>
<td>5</td>
<td>43</td>
<td>M</td>
<td>23 years</td>
<td>Ear fullness</td>
<td>80%</td>
<td>18.3 dB</td>
<td>16.7 dB</td>
<td>case 2</td>
</tr>
<tr>
<td>6</td>
<td>32</td>
<td>M</td>
<td>15 years</td>
<td>Hearing loss</td>
<td>90%</td>
<td>61.7 dB</td>
<td>23.3 dB</td>
<td>70% stenosis</td>
</tr>
<tr>
<td>7</td>
<td>41</td>
<td>M</td>
<td>24 years</td>
<td>Ear fullness</td>
<td>90%</td>
<td>6.7 dB</td>
<td>6.7 dB</td>
<td>case 4</td>
</tr>
</tbody>
</table>

Cases 1–4 are right ears. Cases 5–7 are left ears. They are sorted by operation date. It was just two months after the operation in case 3 and we were not able to evaluate it because the patient had not come back yet.