

Auditory symptoms in whiplash patients

Could earwax occlusion be a benign cause?

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BACKGROUND

Excess cerumen (earwax) in the external auditory canal is associated with symptoms of earache, fullness in the ears, and diminished hearing. These symptoms, and tinnitus, are commonly associated with whiplash injury.

METHODS

Eighty-six whiplash patients were examined to determine if there was a correlation between symptoms of earache, fullness in the ear, diminished hearing, and tinnitus, and the degree of cerumen occlusion. Cerumen occlusion was measured by visualisation of the tympanic membrane and graded according to a 4 point scale.

RESULTS

Of 71 subjects reporting no acute onset (within 7 days of the collision that caused their whiplash) earache, fullness in the ears, hearing loss, or tinnitus, 62 had little or no cerumen occlusion. Of seven subjects reporting tinnitus but no other auditory symptoms, none had greater than moderate cerumen occlusion. Of eight subjects reporting one or more of acute onset earache, fullness in the ears, diminished hearing, and tinnitus, seven had complete cerumen occlusion in the affected ear.

DISCUSSION

The findings suggest high grade cerumen occlusion frequently occurs in the ear affected by acute auditory symptoms. However, tinnitus alone has no apparent association with cerumen occlusion. It is possible that a significant number of acute onset auditory symptoms reported in whiplash patients have a benign cause.

Excessive cerumen (earwax) in the external auditory canal is associated with symptoms of earache, fullness in the ears, and diminished hearing.¹ Earache, fullness in the ears, diminished hearing, and tinnitus are commonly associated with whiplash injury with attributions including temporomandibular injury.^{2,3} The objective of this study was to assess the role of cerumen as a benign explanation for these symptoms in whiplash patients. Consecutive acute whiplash patients were examined to determine if there was a correlation between symptoms of acute onset (within 7 days of the collision that caused their whiplash) earache, fullness in the ears, diminished hearing, and tinnitus, and the amount of cerumen occlusion.

Ethics approval for this study was obtained from the University of Alberta Health Ethics Research Board.

Methods

Over a period of 12 weeks, 86 whiplash patients were studied. One patient was diagnosed with grade 3 whiplash associated disorder (WAD) according to the Quebec Task

Force Classification of WADs⁴ and 85 were diagnosed with grade 2 WAD. None of the subjects wore hearing aids. No hearing tests were conducted. Pre-existing hearing disorders and history of ear, nose and throat (ENT) surgery were not specifically verified. The mean age of the subjects was 32 years (range 17–81); 64% were women. Subjects' cerumen occlusion (impaired vision of the tympanic membrane) was measured according to a 4 point scale:⁵ grade 0 indicating little or no occlusion; grade 1, mild occlusion; grade 2, moderate occlusion; and grade 3, complete occlusion.

Results

All of the 86 subjects reported neck pain. Of 71 subjects reporting no auditory symptoms, the greatest occlusion in either ear was grade 0 in 62 subjects, grade 1 in seven, and grade 2 in two.

Fifteen subjects reported at least one of acute onset earache, fullness in the ears, diminished hearing, and tinnitus. Reported symptoms and grades of cerumen occlusion for these subjects are shown in *Table 1*. Of the seven subjects reporting tinnitus only, none had

Table 1. Cerumen occlusion* in whiplash patients with at least one of: acute onset earache, fullness in the ears, diminished hearing, tinnitus

Subject	Symptoms	Occlusion right ear	Occlusion left ear
1	Bilateral tinnitus	0	2
2	Left earache, left ear fullness, bilateral tinnitus	1	3
3	Right earache	3	2
4	Right ear tinnitus	1	2
5	Bilateral tinnitus	1	0
6	Bilateral earache, bilateral diminished hearing, bilateral tinnitus	3	3
7	Bilateral tinnitus	1	0
8	Left ear fullness, 'noises'	2	3
9	Right ear tinnitus	0	0
10	Bilateral tinnitus	0	1
11	Bilateral ear fullness	3	3
12	Bilateral tinnitus	0	0
13	Left earache	2	3
14	Left ear diminished hearing	2	3
15	Right ear diminished hearing, right ear fullness	3	3

* 0 = little or no occlusion, 1 = mild occlusion, 2 = moderate occlusion, 3 = complete occlusion

grade 3 cerumen occlusion in either ear. Of eight subjects reporting one or more auditory symptom, seven had grade 3 cerumen occlusion in the affected ear. One subject had bilateral grade 3 occlusion, with auditory symptoms present in one ear only.

Patients with occlusion and auditory symptoms were advised to visit their family doctor for cerumen removal. These patients were followed as part of routine care and in 3–4 weeks were found to be asymptomatic of auditory symptoms following cerumen removal.

Discussion

The findings suggest high grade cerumen occlusion occurs in the ear affected by acute auditory symptoms. However, tinnitus alone has no apparent association with cerumen occlusion. There is cause for conducting an external auditory examination in patients presenting with symptoms of earache, fullness in the ears, diminished hearing, or tinnitus.

A population based survey of whiplash claimants indicated 20% of claimants will present with hearing disturbance or pain near the ear.⁶ It is possible that in a significant number of these patients, these symptoms have a benign explanation. Provision of patient information and the simple procedure of cerumen removal may be more beneficial than

referral to a ENT or other specialist, which could lead to overtreatment of a benign disorder. If and when excess cerumen is ruled out as a cause of acute auditory symptoms, a number of other (often benign) causes can be investigated.⁷

Conflict of interest: none declared.

Implications for general practice

What we already know:

- Excess cerumen in the external auditory canal is associated with symptoms of earache, fullness in the ears, and diminished hearing.
- These symptoms, and tinnitus, are commonly associated with whiplash injury.

What this study found:

- Significant cerumen occlusion frequently occurs in whiplash patients where the ear is affected by acute onset earache, fullness in the ears, or diminished hearing.
- Tinnitus alone has no apparent association with cerumen occlusion.
- A significant number of acute onset auditory symptoms reported in whiplash patients may have a benign cause.

References

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