Cerumen Management: Professional Issues and Techniques

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Abstract
Cerumen management is now within the scope of practice for audiologists. This paper describes the knowledge and skills required to perform cerumen management safely and effectively. Procedures for mechanical removal, suction, and irrigation are provided.

Key Words: Cerumen, external ear, management

The practice of audiology requires that ear canals be unobstructed from occluding debris, including cerumen. Moreover, for some audiologic procedures, such as electrocochleography and perilymphatic hearing instrument fittings, the ear canal must be totally free from cerumen. Until recently, the general practice has been for audiologists to refer patients with excessive/impacted cerumen to their physician for removal. However, several factors have called into question the necessity of medical referral for routine cerumen removal. Among these is the significant increase in the number of audiologists in private practice where medical services are not readily available, the increased training and clinical exposure audiologists have to the ear canal, and the need for upgrading of audiologic services to hearing-impaired children in the educational system (Roeser et al, 1991). Additionally, as the average age of the population has moved into a category “at risk” for sensory hearing impairment, the high incidence of cerumen impaction in the geriatric age group has created more need for routine cerumen management.

Some have argued that audiologists do not have the training and experience to manage cerumen. However, Sharp et al (1990), using data from a survey of 289 physicians’ offices, reported that the most common “complication” in cerumen management was failure of wax removal. That is, in routine medical practice, attempts to remove cerumen are often unsuccessful. This report also found that only about half of the general practice physicians surveyed removed cerumen themselves; the remainder “...routinely delegated the task to practice nurses, some of whom had received no instruction” (p. 1251). This report points out the commonly known fact that physicians rarely remove cerumen themselves but delegate the procedure to a staff member who has minimal training and experience.

Mahoney (1993), in a study of the treatment of cerumen impaction in nursing homes, reported that there was significant difficulty in obtaining the necessary physicians’ orders that would allow the use of ceruminolytics, and that the vast majority of residents remained impacted after treatment. She noted examples of physicians who judged that the removal of cerumen did not reach a level of medical importance significant enough to justify the time commitment for treatment or even to write appropriate orders. In Mahoney’s study, of the 17 residents who received treatment for cerumen impaction, 12 remained 100 percent impacted, 4 were greater than 75 percent impacted, and 1 was greater than 50 percent impacted.

As audiologic management of cerumen has become more commonplace, audiologists have gained increased opportunities to obtain supervised practical experience. The number of educational offerings has grown significantly, and cerumen management is now an integral part of the curriculum of many graduate training programs. Consequently, along with the need for
Audiologic management of cerumen has come the opportunity for training.

Audiologic procedures that require a clear ear canal include acoustic immittance, probe microphone "real-ear" measurement, the use of insert earphones, otoacoustic emissions, electronystagmography, and noninvasive electrocochleography. The significant success of the completely-in-canal (CIC) hearing aid, along with the need for accurate impressions of ears and ear canals for the fabrication of earmolds and in-the-ear hearing aids, has, more than any other factor, driven the need to revise traditional referral patterns for routine cases of cerumen management. The audiologist in a dispensing practice has a financial motivation to provide appropriate cerumen management rather than send the patient away without amplification recommendations. Cerumen management for the audiologist is not just an issue of personal hygiene. The audiologist removes cerumen from the ear canal when it is safe to do so, when it is appropriate for expedient care, and when it is necessary for the audiologic management of the patient. All of these requirements should be met before the audiologist manages cerumen.

The requirement for a clear ear canal to perform these multiple procedures, along with the fact that audiologists receive extensive training in the anatomy and physiology of the ear, pathologies of the ear, and visual inspection of normal and diseased ear canals and eardrums, was the motivating factor for the development and adoption of the American Speech-Language-Hearing Association (ASHA) position paper on visual inspection of the ear canal and cerumen management (ASHA, 1992).

It is clear that audiologists must accept this responsibility and become familiar with the procedures for cerumen management (Roeser and Crandell, 1991). With this extended scope of audiologic practice comes increased risks and liability. However, by using acceptable procedures, having the proper training, and by carefully selecting those patients who can be managed successfully and referring those patients with special needs, the risks associated with cerumen management are negligible.

**SCOPE OF PRACTICE**

The Ad Hoc Committee on Scope of Practice in Audiology of the ASHA adopted the document "Scope of Practice in Audiology" in December 1995. Among other things, the document states that the practice of audiology includes "otoscopic examination and external ear canal management for removal of cerumen in order to evaluate hearing or balance, make ear impressions, fit hearing protection or prosthetic devices, and monitor the continuous use of hearing aids" (ASHA, 1995, p. 37).

The American Academy of Audiology adopted a scope of practice document on October 23, 1992. This document states that "audiologists conduct otoscopic examinations, clean ear canals, take ear impressions, fit and dispense hearing aids and other amplification systems" (American Academy of Audiology, 1993, p. 16). Additionally, the Academy of Dispensing Audiologists considers cerumen management to be within the scope of practice of audiologists (Manning, 1992). Various state licensing boards have also included cerumen management within the scope of licensees.

**KNOWLEDGE AND SKILLS REQUIRED**

Because a procedure is within the scope of practice of an audiologist does not necessarily mean that the audiologist should perform the procedure. Professional ethical codes in place in audiology "stress the competency of the practitioner and the safety of the patient" (Manning, 1992). The Ad Hoc Committee on Advances in Clinical Practice of ASHA prepared the document "External Auditory Canal Examination and Cerumen Management" (ASHA, 1992). In this document, the committee outlined the education and training and the knowledge and skills necessary to perform cerumen management, as well as the precautions each audiologist should consider prior to undertaking cerumen management procedures (Table 1). As shown in Table 1, ASHA recommends that before cerumen removal, audiologists have education and training in otoscopy, medical conditions of the ear canal, cerumen removal, and supervised experience in cerumen removal. Precautions include actions that may protect the audiologist from potentially liability-producing procedural omissions. The ASHA document suggests that audiologists should question regulatory bodies about limitations on their scope of practice, inquire with liability insurance carriers about their position on this procedure, examine specific institutional restrictions at the audiologist's place of employment, follow the Universal Precautions of the Centers for Disease Control (CDC) Morbidity and Mortality Weekly Report (CDC, 1988), institute an emergency medical assistance plan, and obtain the informed consent.
Table 1  Education and Training, Precautions, and Knowledge and Skills Recommended for Cerumen Management by the ASHA Ad Hoc Committee on Advances in Clinical Practice (ASHA, 1992)

<table>
<thead>
<tr>
<th>Education and Training</th>
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<tbody>
<tr>
<td>1. Use of pneumatic otoscopy, recognition of the canal and tympanic membrane condition, and removal of cerumen.</td>
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<tr>
<td>2. Knowledge of medical conditions that might have an impact on the safe performance of cerumen management.</td>
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<tr>
<td>3. Supervised experience in these procedures.</td>
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<table>
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<th>Precautions</th>
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<tr>
<td>1. Inform institution and/or regulatory bodies (state licensure boards) that these procedures are within the scope of practice of audiology.</td>
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<tr>
<td>2. Check with appropriate state licensure board(s) to determine whether there are any limitations on the scope of audiology practice that restrict the performance of these procedures.</td>
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<tr>
<td>3. Check professional liability insurance to ensure that there is no exclusion applicable to these procedures.</td>
</tr>
<tr>
<td>4. Check medical policy, institutional insurance coverage, and delineation of practice privileges for the specific institution to ensure that there are no restrictions applicable to an audiologist performing these procedures.</td>
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<tr>
<td>5. Follow the Universal Precautions to prevent the risk of disease from blood-borne pathogens (CDC, 1988; ASHA, 1990).</td>
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<tr>
<td>6. Know who to contact in the event of an emergency or if medical assistance is needed.</td>
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<tr>
<td>7. Obtain informed consent by explaining the procedures to the patient and maintain complete and adequate documentation.</td>
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<th>Knowledge and Skills</th>
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<tr>
<td>1. Otoscopy-obstruction/medical conditions.</td>
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<td>2. Otoscopy-mobility of eardrum.</td>
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<td>3. Otoscopy-status of ear canal and tympanic membrane.</td>
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<td>4. Otoscopy-cerumen verification/proceed to remove or refer.</td>
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<tr>
<td>5. Pinna inspection/otoscopy for abnormal conditions.</td>
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<tr>
<td>7. Cerumen removal methods and need for referral.</td>
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of the patient. The knowledge and skills ASHA recommends that audiologists have prior to performing cerumen management focus on otoscopy, recognizing abnormal conditions of the ear canal and tympanic membrane, and determining whether safe removal can be accomplished or referral is necessary.

**LIABILITY**

Like other clinical procedures, audiologists must recognize that there are risks for cerumen management. Included are injury to the ear canal, perforation of the tympanic membrane, exacerbation of chronic middle ear disease, and possible damage to the ossicular chain (Sharp et al, 1990).

The issue of liability with regard to cerumen management is clearly a concern to audiologists. Primus and Skordas (1996) surveyed 500 audiologists on their cerumen management practices; patient injury and the audiologist's liability for injury were among the main concerns of audiologists whether they managed cerumen or not. Every procedure performed in an audiologist's practice potentially can result in a malpractice lawsuit. An audiologist's protection in the event of such a suit is that the audiologist had the knowledge, skill, and experience to perform the procedure. A successful outcome is not guaranteed when any procedure is performed. Practitioners increase their chances of success in these situations by using their knowledge, skill, and experience to consider all aspects of the procedure, to perform the procedure with care, and to document the procedure accurately.

Whether a specific audiologic procedure is covered by an insurance carrier is not always clear, and contacting the carrier is not always fruitful. A typical response from an insurance carrier when asked whether a specific procedure is covered will be vague and indicate that the procedures are covered if they do not violate existing law and are included as part of normal audiologic practice (Manning, 1992).

**INFECTION CONTROL**

Cerumen is not a medium for infectious diseases, including the acquired immune deficiency syndrome (AIDS) virus (ASHA, 1990). However, because of the possibility of skin lacerations, and the potential for cerumen to contain blood, the universal precautions to prevent the risk of disease from blood-borne pathogens must be followed carefully when managing cerumen (CDC, 1988). Whether gloves should be used routinely for cerumen management as an
infection control procedure is an individual clinical decision. Some practitioners will choose to glove; others will not. However, whenever blood is present or when dealing with certain patients, such as those who are immunocompromised, gloves become a necessity.

PROCEDURES FOR CERUMEN MANAGEMENT

Procedures for safe and effective cerumen management have been well documented (Salomon, 1967; Mawson, 1974; Larsen, 1976; Burgess, 1977; Bradley, 1980; Carne, 1980; Marshall and Attia, 1983; Graber, 1986; Ballachanda and Peers 1992; Manning, 1992). As pointed out by these reports, when proper techniques are followed, cerumen management is a relatively simple and safe procedure. In fact, it can be performed as a self-management procedure using an over-the-counter ceruminolytic to soften the cerumen and irrigation with a rubber bulb to remove it from the earcanal (Jurish, 1991). The American Academy of Otolaryngology—Head and Neck Surgery (AAO-HNS) even recommends patient use of over-the-counter ceruminolytics and irrigations when it can be established that the tympanic membrane is not perforated (AAO-HNS, 1991).

To ensure minimum risk and maximum efficiency, audiologists who manage cerumen must carefully follow accepted procedures. Accepted procedures require the preliminary steps of taking an appropriate case/medical history and performing an otoscopic examination of the earcanal. Some clinicians also perform pre-management audiologic and/or immittance tests and use a ceruminolytic to soften the cerumen. The removal of cerumen is accomplished using any of several or a combination of several procedures, including mechanical removal, irrigating the earcanal with an oral jet irrigator, and suction.

PRELIMINARY STEPS

Otoscopic Examination of the Earcanal

In many cases, it will not be possible to visualize the tympanic membrane prior to managing cerumen, as the cerumen may obscure it. However, if the tympanic membrane can be seen, it must be intact and appear healthy. During the otoscopic examination, the clinician makes certain that the occluding material in the earcanal is cerumen and determines that the procedures can be performed safely; medical referral should be made if there are any questions. The clinician also orients himself/herself to the earcanal during the otoscopic examination, noting the shape and size of the canal, relative location of the tympanic membrane, and the amount of hair (if any) in the canal.

An Appropriate Case/Medical History

Perforation of the tympanic membrane or the presence of myringotomy (PE) tubes are universal contraindications for cerumen management by earcanal irrigation. Good clinical judgment must be used to determine if patients should be referred to their physicians (or an otolaryngologist) for cerumen management if any of the following are present: (a) recent earache, (b) history of ear surgery, (c) drainage, (d) dizziness, (e) diabetes mellitus, (f) AIDS, and (g) any other possible condition that would put the patient at risk.

Irrigating the earcanal is contraindicated in the presence of diabetes mellitus and AIDS due to the possible development of malignant external otitis (Pseudomonas osteomyelitis), a life-threatening disease precipitated by external otitis media. Trauma to the earcanal that is possible from irrigation may result in an innocuous infection of the squamous epithelium of the earcanal. This infection can progress to the underlying soft tissue, cartilage, blood vessels, or bone and eventually lead to cellulitis, chondritis, or osteomyelitis of the temporal bone. If untreated, invasive external otitis may lead to osteomyelitis of the base of the skull, multiple cranial-nerve palsies, meningitis, and even death (Zikk et al, 1991). From the above, it is clear that the medical history must include questions about diabetes and/or AIDS; any patient having either condition should be referred to his/her physician for cerumen management. For these patients, earcanal irrigation is contraindicated in favor of suctioning under direct (microscopic) visualization (Zikk et al, 1991).
irrigation is contraindicated when the ear canal is partially occluded (not impacted), obscuring the tympanic membrane, and any of the following are present: (a) a conductive component on the audiogram, (b) the inability to maintain an hermetic seal when performing immittance measures, and (c) a flat (type B) tympanogram and high values from the physical volume test.

Quite obviously, any of the above findings would suggest tympanic membrane perforation and/or middle ear pathology.

**Ceruminolytic**

A softening agent (a ceruminolytic, mineral oil, or another recognized softening agent) should be placed into the ear canal prior to irrigation (Fig. 1). It is best if the softening agent is used two to three times daily for 3 to 5 days prior to cerumen extraction. However, if the 3- to 5-day period is not possible, then using the softening step for as long as possible (30–45 minutes) before the removal process should prove beneficial. For dry and hard cerumen, a longer softening process will be mandatory (Marshall and Attia, 1983). Otherwise, cerumen removal may be impossible with irrigation and the ear canal may be left abraded, sore, and possibly bleeding, which would make it difficult or impossible to perform any further audiologic testing requiring a clear ear canal.

Table 2 is a list of the commercially available ceruminolytics as well as several other common agents that have been used to soften cerumen. As shown, the composition of the over-the-counter ceruminolytics is identical across the various brands that are available. A new marketing approach is Audiologists Choice™, which is distributed only through audiologists. In addition to the ceruminolytics listed in Table 2, other

<p>| Table 2  | Summary of Commercially Available Ceruminolytics and Other Products Used for Softening Cerumen |</p>
<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Type</th>
<th>Composition</th>
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</thead>
<tbody>
<tr>
<td>Audiologists Choice*</td>
<td>OTC*</td>
<td>Carbamide peroxide (6.5%) and glycerine</td>
</tr>
<tr>
<td>Auro Ear Drops</td>
<td>OTC</td>
<td>Carbamide peroxide (6.5%) and glycerine</td>
</tr>
<tr>
<td>Bausch &amp; Lomb</td>
<td>OTC</td>
<td>Carbamide peroxide (6.5%) and glycerine</td>
</tr>
<tr>
<td>Cerumenex Drops</td>
<td>Rx</td>
<td>Triethanolamine, Polypeptide, and Oleate-condensate</td>
</tr>
<tr>
<td>Debrox</td>
<td>OTC</td>
<td>Carbamide peroxide (6.5%) and glycerine</td>
</tr>
<tr>
<td>Murine Ear Drops</td>
<td>OTC</td>
<td>Carbamide peroxide (6.5%) and glycerine</td>
</tr>
</tbody>
</table>

Other Products for Softening Cerumen

- Baby oil
- Colace liquid (docusate sodium)
- Hydrogen peroxide (3%)
- Mineral oil
- Sodium bicarbonate
- Virgin olive oil

* Distributed only through audiologists; **OTC** = over the counter.
products shown are baby oil, Colace liquid, hydrogen peroxide, mineral oil, sodium bicarbonate, and virgin olive oil. All of these products have been reported to be effective in softening cerumen.

Several studies comparing the efficacy of different ceruminolytics and other agents have been reported in the British literature. Three studies assessed the effectiveness of ceruminolytics by measuring the amount of water needed to irrigate the ear canal successfully following the use of the ceruminolytic. Bailes et al (1967) found one ceruminolytic (Wasxol) more effective than another (Cerumol). However, Burgess (1966) and Saintonge and Johnstone (1973) failed to note any major differences between the preparations they evaluated. Included were olive oil, Xerumenex, maize oil, and “dioctyl-medo” eardrops (a wetting agent). Invitro evaluations of Cerumol, olive oil, Waxesol, sodium bicarbonate, Xerumenex, and dioctyl ear capsules have shown mixed results (Horowitz, 1968; Fraser, 1970). Fraser (1970) concluded that in vitro studies are inadequate as a means of assessing the efficacy of wax solvents because they do not consider skin irritation and because they do not provide actual information on the process of cerumen removal. Finally, Fehmey and Whitefield (1982) reported data from a multicenter trial comparing Exterol, Cerumol, and glycerol. Although their conclusion was that Exterol is markedly superior to the other ceruminolytics, their data were not compelling.

In a more recent study, Robinson and Hawke (1989) found that a 10 percent solution of sodium bicarbonate was a more effective ceruminolytic than any of several organic liquids including glycerine, olive oil, Xerumenex, Auralgan, and alcohol. The action of sodium bicarbonate disintegrated experimental 250-mg blocks of actual human cerumen in a matter of minutes, as compared to several days for some of the organic liquids. The authors indicated that cerumen underwent significant swelling after treatment with the solution of sodium bicarbonate. It was also noted that the ceruminolytic used would depend upon the type of removal procedure that was contemplated.

Overall, results from the above studies do not appear to support using one ceruminolytic over another, although ceruminolytics containing sodium bicarbonate appear to have some disintegrating advantage. The choice of whether to use a ceruminolytic or not will be made by individual clinicians. Reports on the clinical application of ceruminolytics have shown that when ears have hard, dry, impacted cerumen, the process of removal is significantly facilitated by administering a ceruminolytic for 2 to 3 days prior to removal (Roesser et al, 1991, 1992).

CERUMEN REMOVAL PROCEDURES

Cerumen management can be accomplished using mechanical removal, suction, or water irrigation. Typically, a combination of these approaches is used. The following describes the procedures used for each technique.

Mechanical Removal

Mechanical removal is, by far, the most commonly used procedure for removing cerumen when the ear canal is partially occluded and the material is not adhering to the skin of the ear canal. The following instruments, equipment, and supplies shown in Figure 2 are needed to carry out the procedure: various sterile instruments including wire loops, dull ring curettes, forceps, and alligator forceps; 4 x 4 gauze for cleaning instruments; an otoscope; otoscope specula to improve precision of instrument use; and an operating microscope if available.

Manning (1992) recommends the use of a fiberoptic otoscope as a light source, use of both eyes to achieve depth perception, and insertion of a curette through the speculum to guide the position of the curette and to improve depth judgment (Figs. 3 and 4). Placing the end of the curette over the debris and gently rolling it laterally is the goal in most situations where curettes are used. Removal of the speculum and curette simultaneously will prevent the cerumen...
Mechanical removal is carried out by bridging the hand holding the instrument against the patient's head and carefully inserting the instrument into the ear canal, while straightening the canal by lifting the pinna with the opposite hand.

Cerumen that is hard and dry may have adhered to the skin lining of the canal. Removal of cerumen in this case may cause patient discomfort and injury to the canal wall as well as bleeding. The use of a curette to scrape the last remaining bits of cerumen from the canal may similarly cause discomfort and/or injury. If the major part of an occlusion has been successfully removed, but a cleaner canal is desired for a procedure, it may be advisable to use an additional cerumen management method rather than risk injury to the patient by scraping the canal wall.

Suction equipment is typically available through medical supply companies; an example of a suction system is shown in Figure 5. Appropriate-sized suction tips must be chosen based upon the patient's ear canal shape and size.

Cerumen extraction using suction is particularly appropriate when the cerumen is very soft or semiliquid and can be found near the entrance to the canal (Ballachanda and Peers, 1992). There is a possibility that the suction device may become clogged during the procedure. Manning (1992) suggested that a warm cup of water be available to suction through the tip periodically to keep the pathway clear. Large pieces of cerumen should not be suctioned through the apparatus, as these also are likely to cause clogging of the line.

There is some indication that the sound created by the suction device may create temporary threshold shifts. Young children are often frightened by the loudness of suctioning; for this reason, suction may not be as tolerable for this population.

Irrigation is commonly used with more complete occlusions and when the cerumen is hard and dry. Irrigation typically results in a cleaner canal, but water may be present and must be removed prior to carrying out many audiologic procedures.

The following instruments shown in Figure 6 are needed to carry out the irrigation procedure: an oral jet irrigator (must be used at low setting), a kidney-shaped basin to catch the water, a plastic sheet to cover patients and prevent water from spilling on them, towels to wipe up excess water, ear curettes, and cotton swabs.
Figure 6 Irrigation of the ear canal is accomplished with an oral jet irrigator (top right), kidney-shaped bowl (top left), and cerumen currettes or spoons (lower left). Also shown (center) is an alternate attachment specifically for cerumen management that directs the water flow away from the tympanic membrane.

Ballachanda and Peers (1992) recently published a comprehensive review in which they describe the variety of instruments used for cerumen management. In addition to those listed above, aural suction, meatal syringes, and a special tip adapted to the oral jet irrigator for cerumen management are covered.

An oral jet irrigator may be chosen for this protocol over an ear syringe because it has the advantage of providing a constant, controlled pulsating pressure stream, whereas the pressure produced by an ear syringe is highly variable. Although the use of an oral jet irrigator for managing cerumen has been recommended by some (Seiler, 1980; Roeser et al, 1992), it is clear that damage to the ear can result unless low pressure settings are used. Bailey (1983) stated that external otitis and perforation of the tympanic membrane with a secondary purulent otitis media can result from using an oral jet irrigator in the ear canal. In addition, he speculated that frequent use could result in cochlear damage. However, he later acknowledged that oral jet irrigators can be employed without complications if patients have strong, healthy tympanic membranes (Bailey, 1984).

The most compelling data on the potential hazards of using oral jet irrigators for cerumen management are from Dinsdale et al (1991). Case studies were presented on three patients who had suffered otologic insult from the use of an oral jet irrigator for cerumen management. All three patients had perforations of the tympanic membrane with associated hearing loss. Moreover, vertigo, ataxia, nausea, and vomiting were present in two of the patients. In addition to these case studies, Dinsdale et al reported data from irrigating the ear canals of "fresh" cadavers with an oral jet irrigator at full power and at one-third power. Tympanic membrane perforations were created in 3 (6%) of the 50 ears; 2 at one-third power and 1 at full power.

It is clear that there are potential dangers from using an oral jet irrigator for cerumen management. However, if used properly for this purpose, oral jet irrigators are safe, as well as effective. It is very important to use a low pressure setting with the oral jet irrigator, no more than one-fourth of the maximum; higher settings can cause damage to the ear. All precautions necessary should be taken to prevent setting the pressure adjustment at higher levels.

The step-by-step procedure for ear canal irrigation is as follows:

1. The patient should be seated comfortably in a chair with the plastic sheet over the torso. The procedure is carefully explained to the patient and permission is obtained to proceed (informed consent).
2. The oral jet irrigator is filled with lukewarm water. A thermometer can be used to ensure that the temperature of the water is at body temperature (37° centigrade). Cold or hot water cannot be used because the vestibular reflex may be triggered, causing dizziness and possible vomiting.
3. The patient is asked to hold the kidney-shaped basin firmly against the side of the face immediately below the ear, with the head tilted slightly downward (Fig. 7).

Figure 7 While the patient is holding the kidney-shaped bowl, the tip of the oral jet irrigator is inserted into the ear canal, allowing space for the water to exit. The water jet should be directed toward the superior margin of the debris, which will allow water to fill the space and force the debris from the canal.
4. The patient's ear canal is straightened with the examiner's free hand by gently pulling the pinna slightly backward and upward. The free hand and forearm are used to steady and control the patient's head by having him/her press against them.

5. The stream of water from the oral jet irrigator is directed against the wall of the ear canal not obscured by the occluding cerumen; usually, it will be the superior wall. If there is complete occlusion, the stream is directed at the superior wall of the ear canal at the edge of the cerumen plug. This procedure will build up a slight pressure behind the cerumen plug, fragment it, and force it out. Directing the stream at or against the cerumen plug should be avoided, as this may force the cerumen deeper into the ear canal.

6. Care is taken to ensure that the tip of the instrument is inserted just at the entrance of the ear canal so that there is space to allow drainage of the irrigating fluid. If the entrance is blocked, fluid cannot drain, a pressure build-up will occur, and damage to the ear is possible. Also, care is taken so that the tip of the instrument is not inserted too deeply because the inner half of the ear canal is sensitive.

7. The ear canal is irrigated for 20 to 30 seconds. After each irrigation, the ear is checked with an otoscope to determine progress in removing the cerumen. Irrigation continues until the tympanic membrane is sufficiently visible for examination or it is determined that further softening or referral is needed (see step 14 below).

8. A blunt ear curette or a wire curette (cerumen spoon) is used to remove cerumen that is dislodged through irrigation but remains in, and partially occludes, the ear canal. When using the curette, adequate lighting is ensured with a head mirror or head lamp. The procedure used is to place both hands on the patient's head to stabilize the head and neck. With the curette between the thumb and forefinger, the curette tip is slowly inserted into the ear canal just beyond the dislodged cerumen plug. The cerumen is gently spooned or rolled out. Extreme care is taken not to put undue pressure on the skin of the ear canal.

9. Once the cerumen is removed, the ear canal is examined with an otoscope to ensure that the canal is cerumen free and there is no bleeding. The ear canal and possibly the tympanic membrane may be slightly reddened.

10. If the ear canal is clear and there is no bleeding, it is dried by insertion of several drops of 70 percent alcohol solution (at body temperature) into the canal. After using the solution, the patient's head is inclined for 15 to 25 seconds to allow any liquid to drain away.

11. The pinna and outer portion of the ear canal are dried with a towel.

12. As a final step, the ear canal is checked with an otoscope to make sure that all of the fluid is drained from it and there is no bleeding. Bleeding is rare, but should it occur, a cotton swab is used to absorb small amounts of blood. If the bleeding is excessive, referral to a physician is needed.

13. Pure-tone audiometry and/or immittance tests are repeated. This step is desirable to document any improvements in auditory sensitivity for pre-existing conductive hearing losses or having a record to verify the condition of the external and/or middle ear following the management process should a question arise.

14. If the cerumen does not dislodge after several attempts at irrigation, clinical judgment should be used to determine if further softening for 3 to 5 days will be required before additional irrigation is attempted or possibly the ear presents with a difficult condition that will require medical referral. If medical referral is chosen, the continued use of a softening agent will make the removal process easier during the office visit. It is not advisable to use the softening agent for more than 3 to 5 days.

15. Document the activity in the patient's chart, including a description of the otoscopic examination both pre- and postmanagement, as well as follow-up audiometric findings.

**SUMMARY**

This paper has covered professional issues in cerumen management and outlined procedures for managing cerumen. For many audiologists, cerumen management will be a new clinical procedure requiring a new set of clinical skills. Proper training and supervised experience are unquestionable prerequisites. By carefully following the procedures outlined in this paper, cerumen management is a safe and effective procedure for audiologists, as well as other health care professionals.
REFERENCES


