Cerumen (Earwax) Impaction Treatment (in Adults)

Note: Treatment of cerumen impaction is not clinically indicated in clients who are asymptomatic and whose inner ears can be adequately examined.

Site Applicability

- **VCH:** Primary Care settings, with local professional practice and operations approval
- Urgent and Primary Care Centers (UPCC)

Practice Level

Profession	Basic Competency	Advanced Competency (requiring additional education)
RN, RPN	• Assess integrity of the ear canal • **With an order,** Treatment of cerumen impaction with cerumenolytics (ear drops: oil, water based, or non-oil or water based)	• **Nurse Independent Activity**: The following NIAs have been approved for use as noted in the site applicability above. ○ Make a nursing diagnosis and treat cerumen impaction with the use of a bulb syringe • **With additional training and an order**: Treat using an *elephant ear wash system*
LPN	• **With an order,** treatment of cerumen impaction with cerumenolytics (ear drops: oil, water based, or non-oil or water based)	• **With additional training**, assess integrity of the ear canal • **With additional training and an order from an MD/NP:** Treat using a bulb syringe

Education:

Additional education required includes:

- On site education with clinical support person (e.g. Clinical Educator, Clinical Resource Nurse, Nurse Practitioner, etc.)
- Self-directed learning as needed (review DST, UpToDate, Elsevier/Mosby's)
- RNs & RPNs must complete the Understanding Autonomous Practice & Nurse Initiated Activities (NIA)/ Nurse Initiated Protocols (NIP) module prior to making a nursing diagnosis and treating independently.

Definitions:

- **Cerumen:** Also known as earwax, is a mixture of sebum, secretions and sloughed epithelium cells.
- **Cerumen Impaction:** The buildup of earwax resulting in symptoms (Discomfort, hearing loss, pain, dizziness, etc.), can be a partial or full obstruction, and/or preventing assessment of the ear canal and tympanic membrane.
- **Cerumenolytics:** Agents used to soften ear wax to prevent the need for ear irrigation or treatment. **Some may contain peanut oil therefore- check allergies and ingredients prior to use.**
- **Irrigation:** The use of water to flush out cerumen.

Need to Know

Cerumen, also known as ear wax, is a natural substance that protects, lubricates and cleans the external auditory canal (Schwartz et al., 2017; Uptodate, 2018). It is a mixture of sebum and secretions and sloughed epithelial cells. A small amount of ear wax is normal and naturally removed through routine jaw movement. Cerumen impaction is the accumulation of ear wax that results in a variety of symptoms or prevents assessment of the middle ear including the tympanic membrane, or both (Schwartz et al., 2017). Impaction is inclusive of partial or completely obstructed view of the tympanic membrane. Cerumen forms in the outer two-thirds (cartilaginous portion) of the ear canal, not the inner third (bony portion which ends at the eardrum). Cerumen impaction can spontaneously clear on its own.

Symptoms of cerumen impaction can include dizziness, hearing loss, pain or discomfort. Cerumen impaction is more commonly found with the elderly, people who use hearing aids, and people with cognitive impairments (Schwartz et al., 2017).

It is unclear how frequently it occurs in Canadians. In the United States, 12 million people and in the United Kingdom, an estimated 4-6% of the population, access care for cerumen impaction (EeKhof, 2001).

In clients with symptomatic cerumen impaction, removal can result in improved hearing and visualization of the middle ear. Though generally safe, treatment of cerumen impaction can result in significant complications. Tympanic membrane perforation, ear canal laceration, infection of the ear, bleeding, or hearing loss occurs at a rate of about 1 in 1000 ear irrigations (Uptodate, 2018). Treatment of cerumen impaction is not indicated in clients who are asymptomatic and whose inner ears can be adequately examined (Schwartz et. al, 2017; Uptodate, 2018). For clients who are not able to communicate symptoms and upon inspection have cerumen impaction, cerumen removal is recommended (Schwartz et al., 2017, Uptodate, 2018).

Treatment of Cerumen Impaction

There are three primary treatment options: cerumenolytics (e.g. normal saline or oil drops), irrigation, and manual removal (Schwartz et al., 2017). Systemic reviews have not found a superior treatment for cerumen impaction – therefore, treatment selection should be based on provider experience, time, equipment available and client input (Schwartz et al., 2017; Uptodate, 2018).This guideline will focus

on treatment via cerumolytics or aural irrigation. Cerumenolytics are recommended as first line treatment in settings where the irrigation tools are not available and because of the decreased risk of tympanic membrane rupture (Uptodate, 2018).

Cerumonlytics

At present, there is minimal evidence to support a superior cerumonlytic treatment – with results demonstrating similar efficacy with oil, water, or non-oil and water based drops (Aaron et al., 2017; Schwartz et al., 2017). As water and saline drops are more economical options, these are recommended above others (Uptodate, 2018). Oil based cerumenolytics work by softening cerumen over time. Water based cerumenolytics break down cerumen through hydration and the subsequent breakdown of the corneocytes within the cerumen. Evidence suggests that five days of treatment improved hearing and decreased symptoms of cerumen impaction compared to no treatment (Aaron et al., 2017; Schwartz et al., 2017).

Aural Irrigation

While no randomized control trials exist, general consensus guidelines support aural irrigation for the treatment of cerumen impaction. Aural irrigation is considered safe, with a small risk of tympanic membrane rupture - specifically when the membrane is atrophic (Schwartz et al., 2017). The water used in irrigation should be kept a body temperature to prevent caloric reaction (e.g. dizziness). There is evidence that pre-treatment (15 minutes before irrigation) with an ear drop, to soften wax, improves the efficacy of aural irrigation (Scwhartz et al., 2017). For immuno-compromised clients, it is recommended they receive an acetic wash following to prevent bacterial growth from water that may get stuck within the ear (Schwartz et al., 2017; Uptodate, 2018).

- There is limited data on the efficacy and safety of mechanical jet irrigators compared to manual irrigation with bulb syringes.

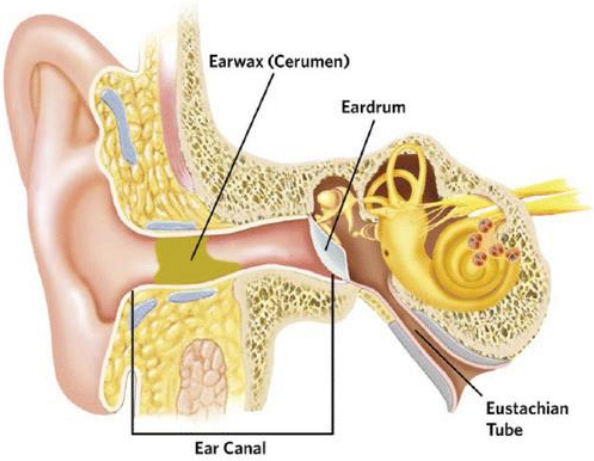
- There is also emerging evidence suggesting that patients providing self-treatment with specific instructions for softening ear wax and using the bulb syringe had beneficial outcomes in terms of symptom relief (Schwartz et al., 2017).

Equipment and Supplies

1. Otoscope
2. Warm water
3. Kidney basin (or alternative container)
4. Towel
5. Bulb syringe
6. Elephant ear wash system (requires an order for RNs & RPNs; LPNs do not use this method)
7. Otoscope
8. Normal Saline, Mineral Oil, or Olive Oil Drops
9. Plastic apron (for client)
10. 2% acetic acid otic drops (if immunocompromised)

Guideline

Assessment	
History	• Previous ear problems (e.g. tinnitus, infections, perforated ear drum, hearing loss, ceruminosis) or family history of deafness • Anticoagulant therapy, hepatic or renal failure, thrombocytopenia, and hemophilia (increased risk of bruising, bleeding with examination and/or ear irrigation) • Autoimmune disorders, HIV, Diabetes, on chemotherapy, renal impairment etc. can result in higher incidences of otitis externa (inflammation of the external ear canal) • History of ear surgery, head or neck radiation • Ear cleaning practices or use of cleaning products that could irritate the ear (e.g. shampoo, hair products) • Use of hearing aids or other ear instrumentation • Previous syringing or irrigations and side effects (e.g. pain or perforation) • Ototoxic medications (e.g. NSAIDS, aminoglycosides, diuretics, quinine based medications)
Ear Assessment: • Pinna, • Outer Meatus, • Adjacent Scalp	Assess for possible signs of ear infection (Otitis externa, media and/or interna) Typical, healthy findings: • Normal tympanic membrane (ear drum), reflects light appearing translucent, pearl-grey in color • Canal is free from discharge, swelling, inflammation, or foreign bodies. Tympanic membrane is free from bulging, perforation, scarring, or air bubbles • Outer meatus and pinna appear normal and free from inflammation or excoriation

 Image from Schwartz et al., 2017	• Observe for anatomic variance that might result in water being stuck in the ear • Cerumen Impaction: moderate to large amount of yellow, brown or black colored cerumen, flakey, sticky or hard in consistency (may partially or fully cover the tympanic membrane). • Subjective complaints associated with cerumen impaction: dizziness, hearing loss, discomfort or pain
Nursing Diagnosis:  Picture of cerumen impaction and hair (completely occluded). Schwartz et al., 2017	Cerumen impaction with symptoms reported or partial or full cerumen impact obstructing assessment
Intended Outcome of Treatment	• The ear canal will be free and clear of excessive cerumen, symptoms of cerumen impact will resolve. • Tympanic Membrane intact
Contraindications to Cerumenolytics:	• Active otitis externa (inflammation/infection of the external ear canal, known or suspected tympanic membrane perforation, and ventilation tubes.

Contraindications to Ear Syringing:	• Known or suspected tympanic membrane (eardrum) perforation(e.g. ear pain that may subside quickly, clear pus filled or bloody drainage from the ear, hearing loss, tinnitus, spinning sensation and related nausea and vomiting) • Tympanostomy tubes • Intact tympanic membrane with atrophic region after perforation and suboptimal spontaneous healing • History of ear surgery • Otitis Externa, Media or Interna (Inflammation/infection of external, middle or internal ear) • Mastoiditis • Known inner ear disturbance, especially if the patient has severe vertigo or a history of radiation to the ear • Occluding aural exostoses • Foreign body in the ear canal • Narrow ear canals • Patient's aversion to irrigation • Injury from previous syringe irrigation

NOTE: If cerumen impaction is unclear or not confirmed, refer client to NP or MD for assessment.

Intervention

Systemic reviews have not found a superior treatment for cerumen impaction – therefore, treatment selection should be based on provider experience, time, equipment available and client input (Schwartz et al., 2017; Uptodate, 2018).

A. Ear drops: Treatment with Cerumenolytics:

1. For treatment of cerumen buildup, ear drops (oil or water based, non-oil/water) may assist in the removal of cerumen without the use of ear irrigation.
    i. Ask client to lie on their side or tilt their head.
    ii. Instill 1-2 drops at bedtime, for 3-5 days maximum.
    iii. Have client remain in this position for 5-10 minutes. Do not plug the ear with cotton, as this will absorb the oil.
2. Ear drops can also be used as a preventative measure to avoid excess cerumen accumulation. 1-2 drops of mineral oil at bedtime, once per week (Uptodate, 2018)

Note: oil drops will cause the wax to expand while it loosens, which may cause a temporary worsening in symptoms until wax flushes. When showering, allow warm water to flow into the ear canals to assist in flushing out the cerumen. After showering, dry ears.

B. Ear Irrigation- Treatment with soft bulb syringe:

1. Have client sit in an upright position.
2. Place the bulb syringe just before the ear canal, and gently syringe the ear with warm, body temperature water (approximately 50cc).
   - **Do not insert tip of bulb syringe in ear canal** as this will obstruct the flow of water out of the ear and create unnecessary and dangerous pressure
   - If client complains of **dizziness or pain during** any part of the **procedure, immediately stop** the procedure and **consult with Most Responsible Provider.**
3. Place kidney basin or dry cloth below the outer ear to catch flow.
4. Excess water and cerumen can be cleaned out of the outer meatus with a clean, damp cloth (do not probe the ear canal itself).
5. If immunocompromised, follow water irrigation with one to two acetic acid 2% otic drops.
6. Assess the external canal and tympanic membrane following irrigation.
7. If excessive cerumen remains after completion of procedure, or if cerumen was removed due to complaints of hearing loss and hearing did not improve consult with physician or appropriate health care professional for further assessment.

C. Elephant ear wash system

1. Focused history and physical assessment, obtain order as needed.
2. Obtain Order
3. Fill washer bottle with very warm water (not hot or cold).
   i. Never use a solution cooler than body temperature, as this can cause dizziness.
4. Twist on the disposable tip before using.
5. Set up patient-perform sitting up, use basin to collect water, drape shoulder with blue pad to collect any spills.
6. Ensure the tip is not inserted too far into the ear canal (maximum 8mm) to avoid injury to the tympanic membrane.
   i. Direct the tip of the instrument posteriorly to the external auditory canal to also prevent injury to the tympanic membrane.
7. Keep tip tubing fairly straight, pump solution into ear to flush out wax. Reassess PRN.
   i. Discontinue and reassess if there is discomfort, consult with MRP.
8. Assess the external canal and tympanic membrane following irrigation.
9. Discard disposable tip.
10. Return the Elephant Ear Washer system to the area where the Health Care Worker will clean the bottle.

See here for Elephant ear wash demo and here for general Ear irrigation/ear drop demos.

Evaluation and Follow up

Post intervention, the ear canal and tympanic membrane should be assessed for occlusion and whether the TM is intact. Further, assess the client to determine if any symptoms remain/persist or any adverse effects. Advise the client to attend clinic for ear assessment if they experience changes in hearing or other otological complaints.

Documentation

Documentation of NIAs and NIPs must be performed as soon as possible and includes the following information:

In the progress notes section (or equivalent), document in SOAP charting format:

- Date and time
- Change encounter header to "Nursing Visit: Cerumen Impaction" **if using EMR*
- Signs and symptoms reported by client
- History and Assessment
- Condition diagnosed
- NIA performed
- Treatment provided
- Client's tolerance of procedure
- Outcomes (unintended/intended)
- Any recommended follow up
- MRP notification with date/time (task MRP as "for your information") **if using EMR*

In the problem list (**if using EMR):*

- Date of treatment
- NIA: Cerumen impaction- cerumenolytic treatment or ear irrigation

NIA Documentation (in the Orders section of the client chart) – should be in accordance with Health Authority NIA/NIP Policy

For treatment of conditions with an MRP order, documentation should include:

In the progress notes section (or equivalent), document in SOAP charting format:

- Change encounter header to "Nursing Visit: Cerumen Impaction" **if using EMR*
- Signs and symptoms reported by client
- History and Assessment
- Treatment provided
- Client's tolerance of procedure
- Outcomes (unintended/intended)
- Any recommended follow up

Patient and Family Education

Education on Ear Hygiene

Cerumen production is a normal physiological process. The use of cotton swabs and other objects (bobby pins, pens, pen tips) can result in the over-manipulation of the ear resulting in inner ear abrasions, cuts, perforation of the ear drum (Schwartz et al., 2017). Clients should be encouraged to not insert objects into the ear canal as it can result in deeper impaction of cerumen or other injury (cite). Do not insert cotton swabs or any other instrument into the ear canal. This can damage the wall of the canal, cause wax to become impacted, and/or perforate the tympanic membrane.

Further, the intervention of ear candling for the treatment of cerumen impaction is not supported (Schwartz et al., 2017). Potential adverse effects such as burns, debris build up in ear canal and thus, greater difficult hearing are common. There is no evidence to support it as a clinical intervention.

References

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