CHAPTER 5.

CLEANING THE EAR

Introduction

Removal of debris in the EAC to obtain a full view of the tympanic membrane frustrates many practitioners. It is a technique that can only be mastered with practice, and is often poorly taught. The usual problems are lack of equipment, poor lighting, and the sensitivity of the deep canal. Nevertheless, even with only limited equipment and lighting, combined with a gentle touch and good patient rapport, success is the rule rather than the exception.

1. CLEANING TECHNIQUE

SECTIONS

1.1 Syringing
1.2 Suction
1.3 Instrumental
1.4 Wool Carrier
1.5 Wax Loops or Hooks
1.6 Microforceps

1.1 SYRINGING

Figure 1: Syringing technique. The stream of water should be directed around the occluding mass and should avoid direct pressure on the tympanic membrane. Note that the irrigating fluid should be maintained at 37°C.

In primary care situations, syringing is a common technique for ear cleaning. It must not be used if the presence of a drum perforation is suspected, for fear of contaminating the middle ear and mastoid with infected debris. A 200 mil. syringe or a continuous (Bacon, Higginson) syringe is used. The patient is draped with a waterproof sheet and towel, and a kidney dish is held under the ear to catch the flushing’s. Water at 37°C is used to avoid vertigo that will occur if the water is cold. The canal is examined to establish the site of the debris. The water is then flushed around one side of (not at) the debris until this is dislodged. Whilst syringing, the ear is straightened by pulling the pinna posterolaterally. Steady the syringe with an extended small finger placed against the skull. Mop the canal dry at the conclusion.
Common syringing problems

- Poor draping may cause a soaked patient.
- Hot or cold water may induce vertigo.
- Gouging may occur if the syringe is not stabilised.
- Obstinate or hard wax may require instrumental removal.
- Retained and moistened debris may result in otitis Externa.
- Syringing may perforate a previously weakened drum.
- An undetected drum perforation may cause subsequent infection.

1.2 SUCTION

Otologists prefer to clear fluid or semifluid debris by suction toilet. This employs an electric or gas pump, or a water-operated pump attached to a tap. A range of suction devices is available from the surgical supply companies, including inexpensive semi-disposable plastic/metal models. As the suckers have relatively sharp tips, good lighting during use is advisable, an operating microscope being optimal. The patient lies supine, head resting on a pillow.

![Figure 2: Commercial suckers (Olympus-Gyrus). The larger red device is used for coarse debris, the fine green model for watery matter.](image)

The canal is straightened with a speculum, and the sucker hand is steadied against the skill. The canal is cleaned laterally to medially with particular care as the drum is approached. A peeling action is used to strip away dead skin and debris. Irrigation with lukewarm water or saline may help to soften or remove more solid debris, as the water reduces the stickiness of the cerumen.

Particular points

- Suction is noisy; this may disturb children and prevent its use, particularly in female children.
- Good lighting is essential to avoid canal trauma.
- Delicacy is required to avoid excessive discomfort; for fine movements, move the speculum rather than the sucker.
- Wet mop after suction to clear finer debris.
- Mild vertigo may follow removal of moist debris. This is due to cold caloric effects on the lateral semicircular canal and will dissipate after a short time.
1.3 INSTRUMENTAL CLEANING

i. Wool Carriers

Figure 3: Prepared wool carrier. Fine commercial models

(Storz Gmb. recommended) should be carefully selected to avoid common design faults.

Soft wax or fluid debris may be cleaned with cotton wool twisted tightly onto a stiff carrier. Optimally, use a commercial model using a knurled tip that grips the wool effectively; avoid a spiral design from which the wool may twirl off. If unavailable, use a wooden stick, whittled down to a 2mm diameter. A small amount of wool is wound on tightly and doubled over the tip to avoid gouging injury. The swab should be 3mm diameter; 25 mm long and with 2mm wool overlap at the tip. Before use, tap the probe on a finger to check the past aspect. Multiple swabs may be needed to clean an ear.

Moisten and remove superficial dry crusting initially. Steady the probe hand on the skull and clean the superficial canal first, working down the canal progressively.

Figure 4: Use of the wool carrier to clear debris from the external auditory canal. The carrier is twirled in the fingers whilst moved around the external canal wall, elevating the debris away from the wall.

With progression, twirl the swab gently against the side of the canal to scour off debris, which can then be lifted out on the swab. Twirl the probe such that the wool tightens rather than loosens; this will avoid wool detachment that will necessitate its removal.

The canal may be tortuous and the drum obscured by an overhanging anterior canal wall. In these cases debris may be difficult to access, requiring a “hockey stick” technique. The probe is fashioned without a rigid core for the terminal 2-3 mm. This section is angulated 30° and the result used to reach around the bend below the debris, which is dislodged by tip rotation and withdrawn on the swab.
Figure 5: Use of a “hockey stick” wool carrier model. The distal two millimetres of the tightly wound wool is angled to gain access to the anterior recess.

Figure 6: The “hockey stick” is gently rotated through the anterior recess, lifting the debris out of the pocket.

Figure 7: Fine Ballieu loop, used as below (Olympus-Gyrus).

Wax Loops

Wax loops or hooks are commercially available for removing firm or hard wax. Loops are used to gently dislodge debris and then draw this to the surface. They optimally incorporate a 5mm ellipse of fine high tensile wire in a 2-3 mm ellipse and angled 10-20° on the shaft. The loop is passed gently past the debris, and then angled down to engage and remove the mass.

Figure 8: Use of an aural loop. The wire of the loop should be angled 150° for better visualisation and is introduced beyond the debris in the EAC, engaged on the mass, then withdrawn.

Figure 9: Removal of debris using an aural loop. Once past the debris, the handle is lifted to engage on the wax, then used to draw the matter superficially. Care should be taken to avoid trauma to the EAC wall.

Hooks

Hooks are optimal to remove hard wax or foreign matter in the canal. They are manoeuvred past the object, then rotated and withdrawn, forcing the matter into the superficial canal. Care must be
taken not to traumatise the canal with the rotated tip during withdrawal.

2.1. FLASHLIGHT

Failing all else, a powerful and focussed light held close to the examiner’s right ear by an assistant may suffice. Bimanual cleaning is possible. To achieve best coaxial effect, the examiner will need to work approximately 60 cm from the ear, working with a small light spot area.

2.2. AURISCOPE

The auriscope has the advantage of built-in lighting and a speculum (use a 4mm if possible). A good bulb and fresh batteries are essentials. The magnifying glass is removed for access. The auriscope has the disadvantages of instability and limited access, and permits the use of only one hand.

2.3. HEAD MIRROR

This most famous otologist’s tool-of-trade has the advantages of inexpensive coaxial lighting, portability, and free use of both hands. Mastery of the mirror requires a little practice, but is not difficult.

iv. Alligator forceps

Alligator forceps are used to grasp objects within the canal, where the action of longer forceps is impeded. They are of particular use to grasp fine edged debris: scale or similar adherent matter. The forceps generally have finer, sharper edges: good visualisation and lighting are desirable.

2. LIGHTING

Lack of adequate lighting is a common frustration when cleaning the ear; adequate illumination is essential. Several options are available.

Figure 10: Use of a fine hook to remove a foreign body in the deep EAC. The hook is gently introduced past the object, rotated behind, then withdrawn. If possible, engage the hook into the lumen of bead-like objects.
2.5. OPERATING MICROSCOPE

Figure 12: Operating microscope. The patient is steadied on a pillow, permitting the finest intracanal manoeuvres without mobility-induced trauma.

These incorporate optimal lighting, magnification and bimanual cleaning ability, and are the preferred ear cleaning equipment. The units are expensive, and have limited mobility, which restricts their use with mobile or fractious children.

3. USE OF THE EAR WICK

An ear wick is a length of material inserted into the EAC for treatment of otitis Externa and sometimes otitis media.

3.1. EAR WICK ROLES

a) Wicks act as a vector to transfer applied medications deep into the ear.

b) Pressure on the walls of the EAC reduces oedema.

c) Most have a gentle hygroscopic action that absorbs discharge.
d) The wick maintains a deposit of medication deep in the EAC.

3.1. INSERTION METHOD

a) Wick Size
If a length of gauze is used, this should be only 10 mm wide; thicker versions will clog the canal, preventing deep insertion.

![Figure 13 (a): Use of a ribbon gauze ear wick. A narrow ribbon gauze wick is gently introduced to within five millimetres of the tympanic membrane. The forceps are withdrawn several millimetres.](image)

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b) Site preparation
Clean the ear before wick use. Failure to do so will impact infected debris deep in the canal, perpetuating infection.

![Figure 13 (b): The gauze is then re-grasped and the deep canal is progressively packed using a to-and-fro grasping and releasing action.](image)

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c) Insertion
Work medications into the ear before wick insertion, then insert a dry wick. Impregnating the wick beforehand is unnecessary and messy.

Steady the insertion hand against the skull and use a gentle action.

With a gauze wick, insert initially into the deep canal and then fill the canal with a gentle incremental to and fro action with angled forceps.

![Figure 13 (c): When fully packed, the gauze exerts gentle pressure on the oedematous canal, eliminating the swelling and absorbing any discharge.](image)

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3.2. COMMON FAULTS

a) Excessively wide wick
To permit packing most canals, this should not exceed 1 cm.

b) Failure to clean the canal
Impacted debris deep to the wick will block the ear and cause ongoing infection.

c) Superficial packing
The initial insertion must be deep to prevent a superficial “plug” formation.

d) Jabbing trauma
Avoid trauma to the sensitive EAC walls.

e) Forceps expansion
Trauma: Take care when releasing the wick.

f) Premature removal/expulsion
Mastication may dislodge part of the wick. Children will seize upon loose ends.

3.3. ALTERNATIVES:

Commercial hygroscopic wicks are available but tend to resemble a small stick, with dubious fulfilment of the above roles and potentially uncomfortable or painful insertion.

Practically, a simple wick technique may be prepared using “Allevyn” wound dressing (Smith and Nephew), cut into 4x4x25 mm sections. This is a soft but firm hygroscopic polyurethane sponge that can be inserted without discomfort, and which performs the role admirably.

Figure 14: Allevyn wound dressing, used as ear wicks, cut into the sections on the right.