

Clinical Guidance on Microsuction of the External Ear Canal

Microsuction is used to remove wax and foreign objects from the external ear canal. It is the most widely used procedure in otology clinics and most ENT doctors regard it as the safest way to clear the ear canal of wax or debris when compared to irrigation or manual clearance. It should be regarded as the method of choice for wax removal.

It may be undertaken with the patient lying supine or sat in a chair and is generally undertaken using a microscope although some clinicians use alternative means of visualisation, for example, magnifying loupes, rigid endoscopes. It can take anything from a few seconds to 20 minutes depending on the extent of the obstruction, the consistency of the material blocking the ear, the anatomical features of the ear canal and the experience of the person performing the microsuction. It may also be used in conjunction with the use of other instruments such as wax hooks or crocodile forceps.

Indications

Indications for microsuction include:

- Clearance of obstructive materials that are causing conductive hearing loss
- Removal of material that is obstructing the view of the ear canal or tympanic membrane and preventing adequate assessment
- Removal of debris to aid in the resolution of external or middle ear infections
- Removal of foreign bodies accidentally inserted into the ear canal
- Removal of local anaesthetics used as part of minor out patient procedures eg. Grommet placement or intra-tympanic injections
- Clearance of the ear canal to facilitate a procedure
- Clearance to enable effective use of a hearing aid

Patient Experience

Microsuction is generally very well tolerated but there are some common symptoms experienced by patients undergoing microsuction.

- **It can be loud:** The suction process is loud with some reports suggesting the sound can reach up to 140 decibels. The loudness of the sound is dependent on the diameter of the suction tip being used as well as the type of material being removed. For example, thin sheets of ear wax can form a reed within the suction tip producing a particularly loud high pitched sound.
- **It can be uncomfortable:** It is not unusual for there to be some discomfort if wax or foreign objects are impacted in the deep ear canal the skin of which is particularly sensitive to touch.

- **It can produce dizziness:** It is also common for patients to experience some vertigo during microsuction because of the caloric effect generated by the suction of air from the ear canal. This can be a particular problem for patients that have had canal wall down mastoid surgery with exposure of the lateral semi-circular canal. Anxiety about the procedure can also result in dizziness.
- **It can cause coughing:** The stimulation of the canal skin during microsuction can sometimes cause coughing. This is mediated via the vagus nerve. This can mean that the patient moves suddenly and can make performing the procedure more difficult as well as increasing the risk of traumatising the canal wall.
- **It can very rarely cause fainting:** This is extremely rare but if the patient has a tendency to fainting it is recommended that the procedure is carried out with the patient lying down.

Risks*

Although it is a safe procedure, microsuction has certain risks associated with it. These are:

- Trauma to the ear canal skin (1 in 20). This will be associated with more severe pain than expected or bleeding from the ear canal. Both usually settle within a few seconds or minutes once microsuction is stopped.
- Trauma to the ear drum (<1 in 10000). This will be associated with more severe pain than expected and may result in bleeding, hearing loss, vertigo or tinnitus (see below).
- Ear canal infection as a sequelae to trauma (1 in 500). A secondary infection can develop after a traumatic microsuction
- Severe vertigo (1 in 200). This can very occasionally occur in patients that have a canal wall down mastoid cavity but may also result from trauma to the ear, especially trauma to the ear drum which in the most severe cases can be associated with disruption to the ossicular chain
- Temporary (1 in 100) or permanent tinnitus (1 in 5000). It is unusual to experience tinnitus following uncomplicated microsuction but some patients who are particularly sensitive to noise may develop tinnitus. This is usually temporary and may be associated with a temporary threshold shift. There are very rare cases in which permanent tinnitus is described.
- Temporary (1 in 1000) or permanent conductive hearing loss (<1 in 10000). This is rare but can result from further impaction of debris in the ear canal in the difficult to clear ear, from blood that has built up as a result of trauma to the ear canal or from trauma to the ear drum or, in extreme cases, to the ossicular chain. Most conductive hearing losses are temporary.
- Temporary sensorineural hearing loss (temporary threshold shift)(1 in 100). The intensity of the sound from microsuction can, in sensitive patients, result in a temporary threshold shift. This usually lasts a few minutes but can last a few hours.
- Permanent sensorineural hearing loss (permanent threshold shift)(<1 in 10000). It is extremely rare to develop permanent sensorineural hearing loss as a result of microsuction but there are very sporadic reports in the literature of this resulting from the noise generated by microsuction. It can also occur from severe traumatic injury to the ear drum and ossicular chain.

**Figures quoted are estimates based on clinical experience*

Who should be doing microsuction?

Microsuction should only be undertaken by clinicians who have had adequate training. ENT surgeons are taught safe microsuction during their training but other health care professionals such as audiologists and nurses should attend an aural care course and should undertake a period of mentorship under an experienced aural care practitioner before they undertake independent microsuction. All clinicians undertaking microsuction should be registered with a regulatory body eg. GMC, NMC, HCPC or be on an accredited register eg. AHCS, RCCP. Microsuction should not be performed by people that do not have a background in health care and are not registered with a regulatory health care body. The professional should be able to recognise the common diseases of the external ear canal and tympanic membrane. Training for non-ENT clinicians should have been undertaken according to the standards set out by the British Society of Audiology in their document “Minimum Training Guidelines in Aural Care Delivered by Hearing Care Professionals (2020)”.

Where should it be carried out?

Ideally microsuction should be performed in a health care setting such as a hospital or a GP practice where there is access to medical advice should an issue arise. It may, however, be performed by experienced clinicians in other settings such as audiology clinics or clinics set up specifically for microsuction as long as the equipment is adequate and the clinician has a designated pathway to obtain clinical advice in case issues arise.

Complex Ears

Patients who have ear canal or ear drum pathology or who have undergone previous surgery can still undergo microsuction but it should only be performed by clinicians with extensive experience of microsuction who are able to recognise problematic or challenging cases and deal with them appropriately. Ready access to ENT services is mandatory for clinicians who are undertaking microsuction in these patients.

Difficult Clearance

It is not usually necessary to use wax softening drops prior to undertaking microsuction if the clinician is experienced and they have access to all the tools required to perform clearance safely. If there has been contact with the patient prior to their appointment, however, it may facilitate the clearance to ask them to use wax softening drops for 5 days prior to the appointment.

The obstruction can on rare occasions be such that clearance is not possible at the first consultation. It is not recommended that the clinician continue with the microsuction if the procedure becomes painful. It is preferable to recommend wax softeners and rebook the patient for a further appointment.

There is no evidence that any one wax softener is better than another.

Patients Sensitive To Noise

There are some patients who are particularly sensitive to sound. In these patients it may be preferable to use other means to clear the ear canal, for example, wax hooks, Jobson Horne probes, microforceps. If microsuction is required the use of smaller diameter suction tips reduces the sound intensity although makes removal of the debris more difficult and prolonged.

Water precautions

It is not usually necessary to recommend water precautions unless there is an underlying external or middle ear condition or there has been some trauma to the ear canal.

What to do if there is a complication

For non-ENT surgeons, should any of the complications listed above occur they should be discussed with the on call ENT surgeon at the local hospital.

Consent

It is very important that the process, the likely experience and potential risks are fully discussed with the patient prior to proceeding with microsuction. It is recommended that patients are given the information leaflet that accompanies this document which summarises what to expect and what could happen as result of microsuction. The clinician should document that this discussion has taken place and that the patient has agreed to proceed. It is not necessary for the details of this consent to be recorded. Consent is implied by the fact that the patient submitted themselves to the procedure.

Other Relevant Documents

- Practice Guidance: Aural Care (Ear Wax Removal) (2021) - British Society of Audiology
- NICE guidance NG98 (2018)