

## Short Communications

# Simple model for teaching myringotomy and aural ventilation tube insertion

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### Abstract

Aural ventilation tube insertion is the most common otological operation and is usually the first operation learnt by trainees. The limited supply of temporal bones as well as expensive commercial models hampers training in the procedure. This paper describes a simple solution making a model of the ear canal and drum out of materials available on an ENT ward.

**Key words:** Otitis media with effusion; Middle ear ventilation; Teaching materials

### Introduction

Aural ventilation tube/grommet insertion is the most common otological operation in the UK and USA (Heaton *et al.*, 1991; Maw, 1991; Jahn, 1993). In trained hands it is a simple operation with very low peri-operative morbidity. Although grommet insertion is a very underestimated operation generally left to junior trainees under a varying amount of supervision, it does require a certain amount of dexterity which comes with practice and experience. The operation can be particularly difficult in patients with small ear canals.

Ideally most trainees would be advised to practise on cadaveric temporal bones which, unfortunately, are in short supply and also, due to preservation techniques employed, the specimen performs differently from living tissues. Commercial models do exist but are relatively too expensive to acquire and replace. Models described by Neal *et al.* (1985) and Baer *et al.* (1990) utilize materials which are not readily available on the average ENT ward.

We have produced a model, using materials found in any treatment room, that is easy and cheap to make.

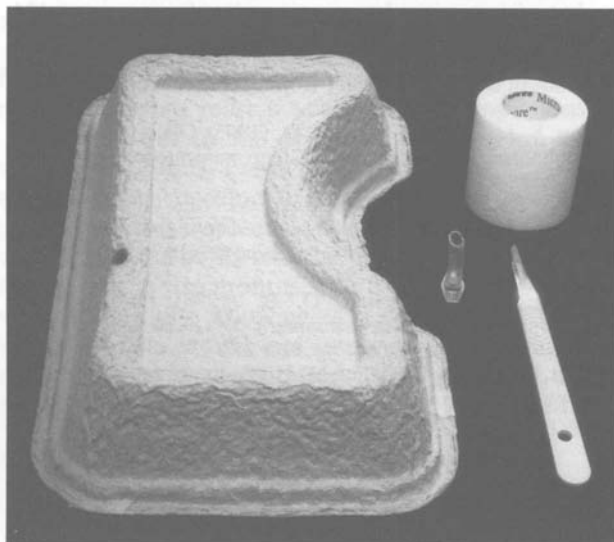


FIG. 1

Mepore adhesive tape, 1 ml syringe, No. 15 disposable scalpel, cardboard kidney dish.

### Method and materials

A 1 ml syringe is left for one minute in a bowl of boiling water and then bent slightly at the 1 ml mark. The syringe is then cut to the dimensions shown in Figure 2, to represent the external auditory canal. Two layers of mepore or similar tape are used to cover the cut end to represent the tympanic membrane, care being taken to drape the lateral surface of the 'drum' with one of the layers so that it is not adherent (Figure 3). A small hole is then cut into a cardboard or paper kidney dish (head/holder) and the model ear canal is pushed through and

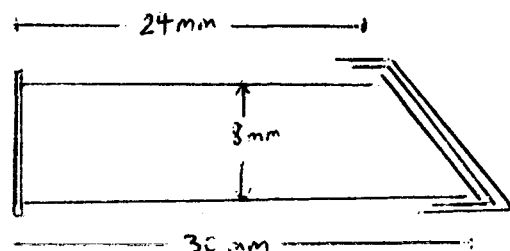


FIG. 2

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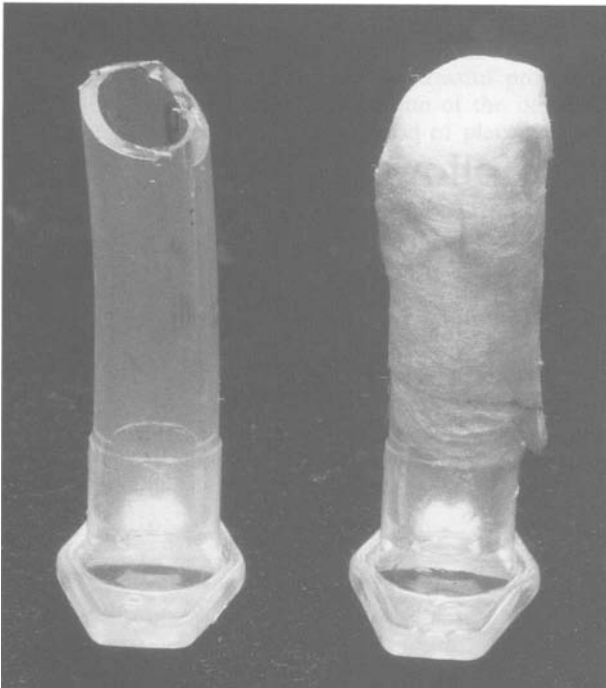


FIG. 3

Left: 1 ml syringe bent slightly and cut to dimensions as shown in Figure 2. Right: Cut syringe covered with mepore tape.

held in place by its shoulder as shown in Figure 4. Grommet insertion may then be practised with the usual instruments.

### Discussion

Aural ventilation tube insertion is not without surgical complications. These include excessive trauma to the tympanic membranes, accidental placement of the grommet into the middle ear as well as worsening of hearing due to damage to the middle and inner ear structures. The incidence of complications are related to the experience of the surgeon (MacKenzie, 1984).

The model discussed is a good representation of the ear canal and drum made from cheap, readily available materials which will help trainees acquire the skills necessary for safe grommet insertion.

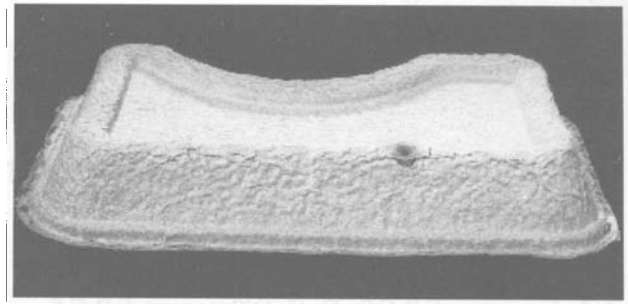


FIG. 4

Ear canal model - kidney dish acting as holder/'head'.

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