A helpful technique for water precautions following ear surgery: Utilising the anaesthetic air cushion mask

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1 | INTRODUCTION

Water avoidance in the immediate postoperative period following ear surgery is vital to prevent infection, allow incisions to heal and so lead to an improvement in recovery rates. Advice regarding this is varied from 24 hours—several weeks depending on the surgical approach and surgeon preference.

Advice is usually given to prevent water from entering the ear canal by barrier methods such as cotton wool covered in petroleum jelly, custom ear plugs, putty or bathing caps. Water contact with incisions should be avoided until healed. Cotton wool with petroleum jelly has been demonstrated the easiest to use and insert into the ear canal and is the most effective barrier method\textsuperscript{1} it is also better at preventing leaks as compared to customised earplugs.\textsuperscript{2} This is especially important if the patient is using surfactant products while showering as the resulting reduction in water tension allows for easier penetration of water into the canal.

In surgery which aims to reconstruct an intact tympanic membrane such as myringoplasty, water precaution advice should be continued until complete healing has occurred. In tympanostomy tube insertion, advice regarding water precaution is varied with no single consensus; however, a survey conducted in 2007 reported that 69.1\% of otolaryngologists would advise the use of ear plugs following tympanostomy tube insertion while bathing. The same study also demonstrated that 74\% of otolaryngologists would advocate the use of ear plugs while bathing following myringoplasty, 65.4\% following mastoidectomy.\textsuperscript{3}

2 | TECHNICAL DESCRIPTION

The authors have developed a novel use for the anaesthetic air cushion mask to improve postoperative water precautions. The masks which are used at induction are disposed of after a single use. Utilisation of the mask can be greatly improved by reusing it to provide excellent water barrier upon discharge from hospital. The technique described in this article is intuitive and simple to adopt and would take no additional time for clinical staff to demonstrate. The mask should be used in conjunction with standard barrier method advice given at the time of discharge.

While the patient is bathing/showering, the mask should be placed over the postoperative ear (see Figure 1 & 2) with gentle pressure. The soft cushion of the mask conforms to the shape of the temporal region creating a gentle, comfortable, soft, low-pressure seal around the ear and acts as an additional barrier. The authors consider that this will help in reducing the incidence of infection rates by both reducing the entrance of water into the external ear canal and by keeping post-auricular and endaural surgical incisions dry. This technique may also be of benefit to children who are non-compliant to other ear canal barrier techniques due to discomfort. Prior to its use, the open connection port of the mask can be simply sealed with Sellotape to prevent water entrance. This can be replaced when required by the patient.

3 | DISCUSSION

Surgical site infection can cause significant morbidity to patient which not only results in increased cost of care but also cost to patient in terms of reduced productivity and time lost. Overall infection rates following ear surgery occur at levels between 6\% and 10\%.\textsuperscript{4} The incidence of a single episode of otorrhoea post-tympanotomy tube insertion is also high reported between 5\% and 49\% in the acute phase (within 4 weeks following of the procedure) and can occur between 26\% and 83\% within 18 months\textsuperscript{5} although overall incidence of chronic otorrhoea is much lower, 3.8\%.\textsuperscript{5}

The air cushion mask is used by anaesthetist during induction to pre-oxygenate and to give volatile anaesthetics prior to securing the airway. Once used, this mask is disposed of; therefore, provision of the same mask to the patient would incur no additional cost.
The author suggests a better utilisation and reuse of the mask (if unsoiled) by allocating it to the patient postoperatively. The mask should be taken home to be used as an additional barrier while bathing. The technique requires simple instruction only to be effective. The mask can be used indefinitely, and we would advocate disinfection with an alcohol wipe or gel prior to each use.

By the adoption of this technique, postoperative infection rates may be reduced, and a further study to demonstrate the effectiveness is currently under development by the authors.

CONFLICT OF INTEREST
No conflict of interest.

REFERENCES

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