CASE REPORT – OPEN ACCESS

International Journal of Surgery Case Reports 4 (2013) 1179–1182

Contents lists available at ScienceDirect

International Journal of Surgery Case Reports

journal homepage: www.casereports.com

Inadvertent insertion of hearing aid impression material into the middle ear: Case report and implications for future community hearing services

Ashwin Algudkar*, Belma Maden, Arvind Singh, Taran Tatla

Department of Otolaryngology-Head and Neck Surgery, Northwick Park Hospital, Watford Road, Harrow, Middlesex HA1 3UJ, United Kingdom

ARTICLE INFO

Article history:
Received 12 June 2013
Accepted 19 August 2013
Available online 1 November 2013

Keywords:
Hearing aid
Complications
Otology
Audiology

ABSTRACT

INTRODUCTION: The creation of ear moulds for hearing aids is generally considered a safe and routine procedure for trained professionals. In the literature there are reports of otological complications caused by hearing aid mould impression material in the middle ear cavity but such complications are considered rare.

PRESENTATION OF CASE: We present the case of a patient in whom impression material entered the middle ear through a perforation of the tympanic membrane during the process of making a hearing aid mould and review how this was managed.

DISCUSSION: We discuss how many aspects of the British Society of Audiology guidelines were not followed during this procedure and make recommendations as to how independent community practitioners need to be closely supervised with regular review to minimise the risks of such complications.

CONCLUSION: Our report demonstrates how a serious otological complication from the creation of a hearing aid impression in a community based private hearing clinic was managed. The reporting of such complications is rare but the incidence is likely to be much higher than the literature would suggest. We recommend and advise how these adverse incidents may be minimised and managed through competency reviews and formal referral links from community centres to hospital otolaryngology/audiology departments.

1. Introduction

The creation of ear moulds for hearing aids is generally considered a safe and routine procedure for trained professionals. Producing a hearing aid is a customised process requiring skilled technicians that takes approximately 2 h.

In the literature there are reports of otological complications caused by hearing aid mould impression material in the middle ear cavity but such complications are considered rare. In reality however it is much more likely that such complications are under reported (especially in developing countries) and may be much more common than the literature would suggest.

The British Society of Audiology (BSA) has produced guidelines and recommendations on taking aural impressions[1] and the minimum training requirements by healthcare professionals undertaking such procedures.[2]

We present the case of a patient in whom impression material entered the middle ear through a perforation of the tympanic membrane during the process of making a hearing aid mould and review how this was managed. We discuss how many aspects of the BSA guidelines were not followed during this procedure and make recommendations as to how independent community practitioners need to be closely supervised with regular review and assessment to minimise the risks of such complications.

2. Presentation of case

A 70-year-old man originally underwent a right myringoplasty for a perforation of the right tympanic membrane (post otitis media) 40 years previously. The operation had been successful and the patient had an intact grafted tympanic membrane on that side. His pure tone audiometry (PTA) at this stage revealed air conduction thresholds of 55–95 decibels Hearing Level (dB HL) with an air-bone gap of 20–45 dB HL in the right ear (Fig. 1a).

The patient went to a private clinic for fitting of a right sided hearing aid. During the process of producing the hearing aid mould he experienced severe pain and noticed that the hearing in the right ear had significantly worsened. He did not however experience any dizziness. At the time of the procedure the patient was not informed about any problems and was discharged from the clinic.

* Corresponding author at: 5 Larch Close, Slough, Berkshire SL2 1ES, United Kingdom. Tel.: +44 7824861267.
E-mail address: ashwin.algudkar@gmail.com (A. Algudkar).

2210-2612 © 2013 The Authors. Published by Elsevier Ltd on behalf of Surgical Associates Ltd. Open access under CC BY-NC-ND license.
http://dx.doi.org/10.1016/j.ijscr.2013.08.026

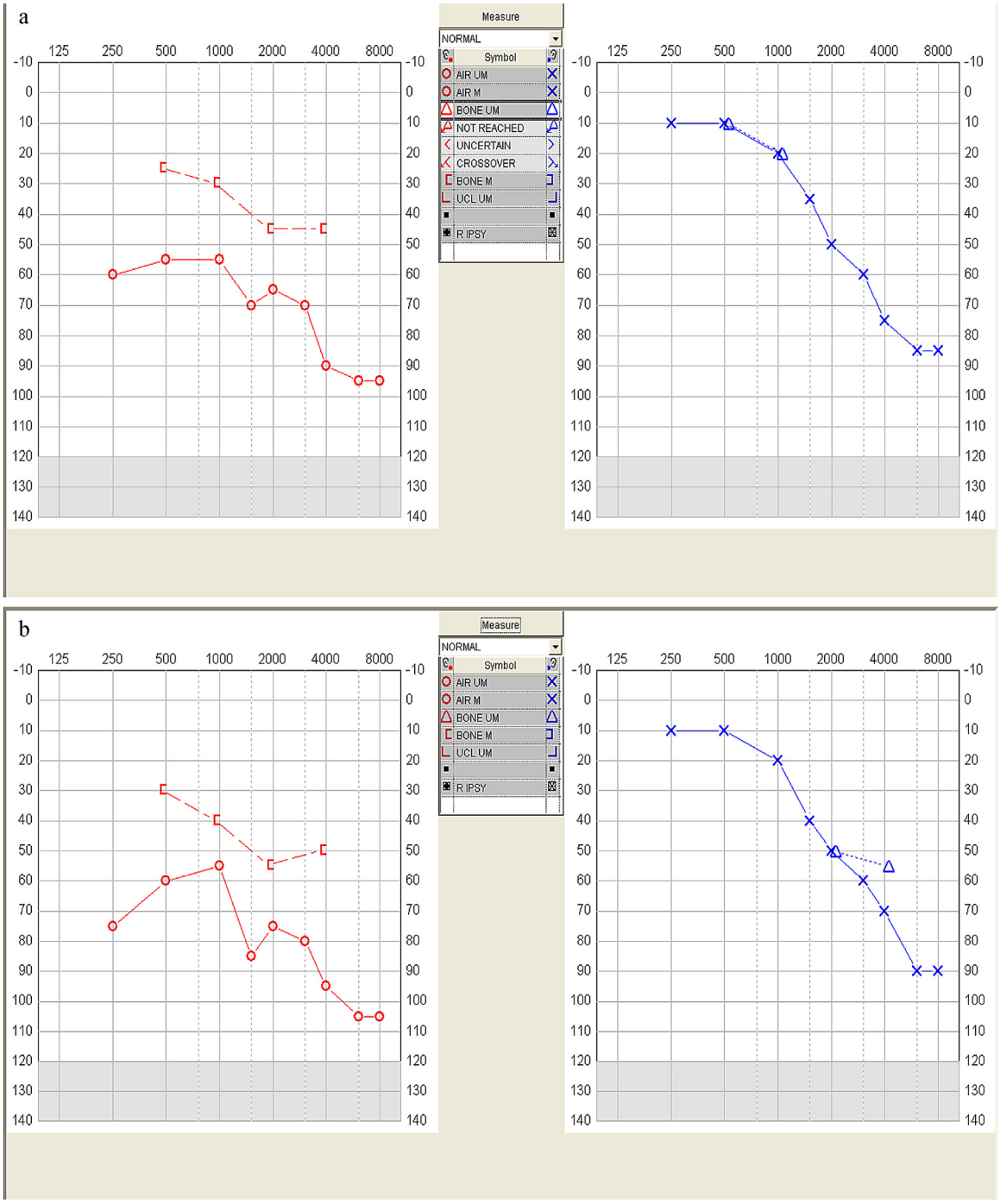

Fig. 1. (a) Pre-hearing aid fitting PTA. (b) Post removal of impression material PTA.

One month later the patient's reduced hearing had not improved and so he went to his general practitioner who noticed a foreign body in the right ear canal and therefore referred him to our otolaryngology department. Microscope assisted examination revealed pink impression material in the medial part of the external auditory canal. In addition to this it appeared as if there was a new tympanic membrane perforation and the impression material had passed into the middle ear. The material could not be removed under the microscope in the outpatients' department and so the patient was listed for examination under general anaesthetic.

Under general anaesthetic the patient was noted to have a large central perforation of the right tympanic membrane. The pink impression material was visible passing through this perforation into the middle ear cleft (Fig. 2). The material was gently removed using a curved needle and micro-forceps and the edges of the perforation were freshened (Figs. 3 and 4). No obvious interruption to the ossicular chain was noted. The patient was given a two week course of ciprofloxacin drops and follow-up was arranged for him in clinic.

Two months later the right central tympanic membrane perforation persisted. However, this was dry and the edges of the perforation appeared healthy. The patient's pain had completely resolved but PTA did reveal a worsening of his hearing on the right (Fig. 1b). The patient is currently deciding whether or not he would like a further myringoplasty on the right ear to seal this new perforation.