

## CASE REPORT

# Superglue Accidentally Used As Ear Drops

Anusha Bala, R Purushotman, L C Lina, S Avatar

Registrar Hospital Raja Permaisuri Bainun, Otorhinolaryngology, Jalan Hospital, Ipoh Perak 34400, Malaysia

### SUMMARY

Superglue in the ear as a foreign body is an uncommon presentation. We report the case of a lady who accidentally instilled superglue directly onto her tympanic membrane and presented five days later. We successfully removed the glue with acetone and managed to preserve the integrity of the tympanic membrane.

### KEY WORDS:

*Superglue, tympanic membrane, acetone, removal*

### INTRODUCTION

Foreign bodies in the ear are a common entity, however one seldom faces a situation of a patient presenting with superglue in the ear. Superglue is an excellent bonding agent, however it could result in unwanted complications when it comes into contact at an undesirable location in the body. The possible complications are pain, bleeding, patient anxiety, conductive hearing loss, mucosal irritation and damage to the tympanic membrane. The ability to remove the glue from the tympanic membrane without damaging it poses a challenge to the surgeon managing it.

### CASE REPORT

A 31 year-old Chinese lady was referred to our centre when she had accidentally instilled superglue into her right ear mistaking it for ear drops. She presented on the day of the incident to a health centre, however she was referred five days later complaining of blocked sensation and pain of the right

ear. There was no bleeding or tinnitus. Upon microscopic examination of the right ear, we found that the glue had adhered and covered the lower half of the tympanic membrane. It appeared intact but glistening white in colour (Fig 1). There were small spots adhered to the canal wall as well. Pure Tone Audiometry revealed mild conductive hearing loss on the right side and Tympanometry was Type A bilaterally.

The affected ear was filled up with ichthammol glycerin ear drops and the patient was left to rest for about an hour. The basis for using this medication was for its antibiotic and hydrocarbon compound properties as well as it was a known topical treatment commonly used in the ear. However examination after an hour proved our attempt unsuccessful.

We then resorted to instilling acetone into the ear canal. The acetone used was from an off-the-counter nail polish remover bought from a nearby store. Half an hour later, local anaesthetic was injected around the affected site and the glue was slowly peeled off in-toto from the tympanic membrane (Fig 2). Slight bleeding from the mucosal surface had subsequently stopped. Small residues on the canal wall had also dislodged. There was no reaction or irritation to the ear. Repeat examination revealed an intact tympanic membrane.

The patient was put on oral antibiotics and topical ear drops for one week. Microscopic examination of the affected ear done twice at weekly intervals showed a healthy canal wall, as well as a well-healed, healthy and intact tympanic membrane.



Fig. 1: Lower half of the tympanic membrane covered with a layer of the glue.



Fig. 2: The dried glue measuring 1 x 0.5 cm removed in a single piece.

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Corresponding Author: Anusha Bala, Registrar Hospital Raja Permaisuri Bainun, Otorhinolaryngology, Jalan Hospital, Ipoh Perak 34400, Malaysia  
Email: aansangel@yahoo.com

**DISCUSSION**

Super glue is an adhesive used to bond plastic, wood or metal. Unfortunately this sometimes involves human skin too. The main ingredient contained in superglue which is cyanoacrylate gives it its fast-acting instant bonding properties at room temperature. The main hardener for cyanoacrylate is water. Hence, when this glue comes into contact with a mucosal surface such as human skin, the molecules of the glue will form tight chains between the surfaces being bonded within just seconds. Medical cyanoacrylate glues actually use this property to offer the advantage of speedy healing of tissues and low level of infection.

Acetone is a clear, aromatic, rapidly evaporating volatile liquid. It mixes with most organic solvents and completely with water. It is low in toxicity as it is a natural product of body's metabolism, hence the low adverse effect on health. Other possible therapeutic measures mentioned in literature are the use of hydrogen peroxide, vegetable oil and hot water.

The dilemma faced in managing this case was to be able to peel off the layer of the glue with a chemical that was safe and non-irritant or toxic to the ear, without perforating or

tearing off the tympanic membrane together with it. Possible complications such as bleeding, perforation or even total avulsion the ear drum must be explained to the patient and a written consent taken when dealing with such a situation. The patient could also develop otitis externa or media and may require future reconstructive surgery.

The reason for the delay in this referral was that the health centre had mistook the tympanic membrane to be intact and normal, and the problem only lied on the canal wall. Hence, more awareness on the normal looking tympanic membrane and its variants at the primary care level could have brought this lady earlier to us.

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