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Clinical Records

'Superglue ear'

by

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Introduction

The availability and use of cyanoacrylate adhesives, 'Superglues', has increased steadily in recent years, in domestic, industrial and medical applications. Their ability to bond materials in seconds has led to frequent reports of skin-to-skin adhesion (de Fonseka, 1976; Maitra, 1984), and inadvertent eye installation (Morgan and Astbury, 1984). We present a case of administration of a superglue into the external auditory meatus, and detail the problems involved in its management.

Case history

A 24-year-old man presented himself, claiming that one month previously during a brawl, superglue had been instilled into his right ear. Initial otalgia and deafness led him to attend an Accident and Emergency Department in another city. No treatment was advised. The patient's symptoms became gradually worse, and he was referred to the Ear, Nose and Throat Department of the Royal Hallamshire Hospital.

Further questioning revealed that the patient had, as a child, undergone an exploration of his right ear, though he was unaware of the nature of the procedure.

Examination revealed a right post-aural scar, with the external auditory meatus filled with a firm block of superglue surrounded by mucopurulent discharge. The left ear was normal.

Tuning fork tests showed:- Rinne negative on the right; Rinne positive on the left; with inconsistent lateralisation of the Weber. Audiometry was inconsistent due to poor cooperation.

An attempt to mobilise the block of superglue produced marked pain. The patient was therefore admitted for removal of the foreign body under general anaesthesia.

At operation, a large plug of superglue was found, forming a cast of the narrowed right external auditory meatus. Attempts to remove the superglue failed, and so an endaural incision was made. The lateral part of the plug was fragmented, revealing that it had extended beyond the isthmus of the canal and that it filled the deep meatus. Further fragmentation and elevation allowed full removal. Examination of the tympanic membrane showed evidence of a previous atticotomy, but apart from damage to the superficial layer, the tympanic membrane was intact.

Post-operative recovery was uneventful, with the Weber lateralising to the right ear. The patient failed to attend out-patient follow-up.

Further consultation with the Casualty Department revealed that the patient had a long history of other episodes of self-inflicted trauma.

Discussion

Cyanoacrylates when mixed with small amounts of basic substances rapidly undergo polymerisation, to form a rigid structure. The commonly used household superglues are monomers, while the higher alkyl derivatives (eg. Histoacryl) have a lower tissue toxicity and have been used in both otologic and other surgical applications (Ronis *et al.*, 1984).

In inadvertent skin application, dry glue in contact with a skin surface separates over a period of 24–48 hours, as desquamation occurs. The use of solvents such as xylene, toluene, nitromethane, and methylene chloride have been suggested to dissolve superglue (Picton-Robinson, 1977). However, these substances are generally toxic and are

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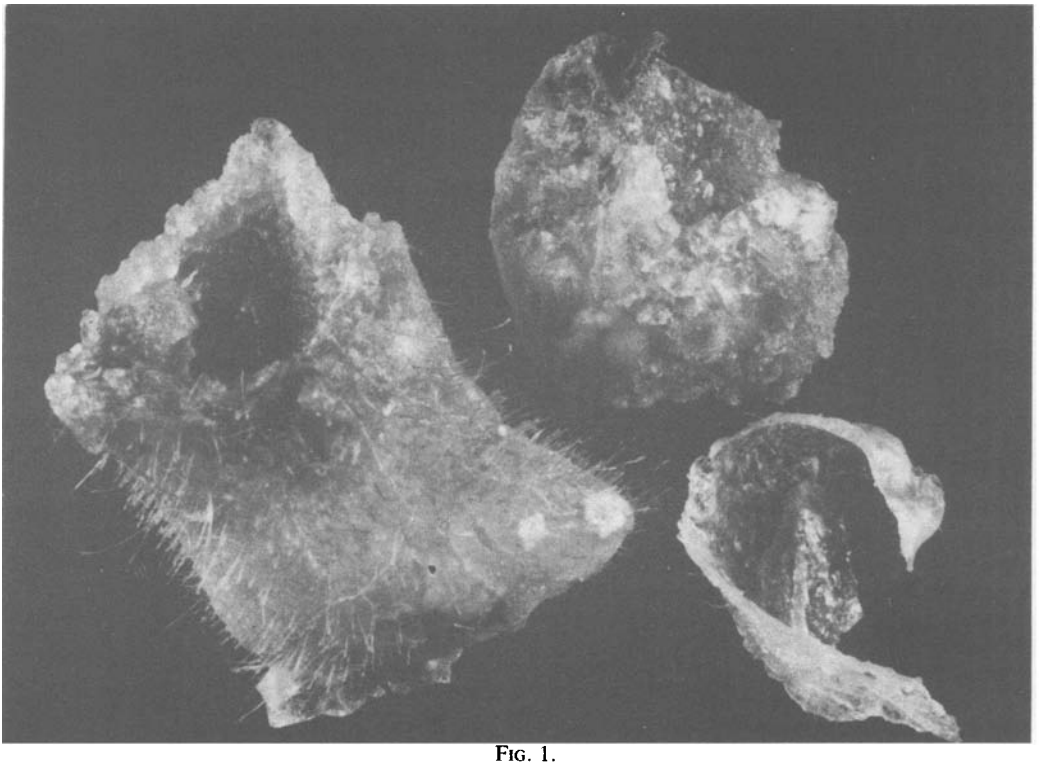


FIG. 1.

Fragments of 'superglue' removed from the external auditory meatus.

irritant to the skin and mucous membranes. These properties preclude the use of these agents in the ear, especially where a pre-existing perforation exists or previous surgery has been performed.

In the case reported there seems little doubt that deliberate self administration occurred, and that a large amount of superglue had been instilled, which made removal more difficult. It seems reasonable to conclude that removal of superglue where it is confined to the lateral part of the meatus, and where desquamation has occurred around it, is relatively simple. Where the shape of the block of superglue is broader medially than laterally, an endaural incision is recommended, and the glue may require fragmentation to allow removal.

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