

CASE REPORT

CYANOACRYLATE INJURY TO THE EAR CANAL

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This is a case regarding a 35-year-old gentleman who presented to the Accident and Emergency department at Walsall Manor Hospital. He had mistakenly placed cyanoacrylate ('superglue') into his right ear canal in the early morning. In terms of its removal, an initial attempt was made in the Ear, Nose and throat (ENT) outpatient clinic which proved to be unsuccessful due to the amount of discomfort it caused the patient. Therefore, it had to be removed under general anaesthesia.

Keywords: Superglue; Cyanoacrylate; Walsall Manor Hospital

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INTRODUCTION

Superglue is essentially a resin of cyanoacrylate that can bond to organic and inorganic substances. Research has shown that there has been a handful of reports illustrating the removal of superglue from various bodily orifices.¹

Cyanoacrylate injury is more common than what is perceived. This can somewhat be attributed to the similarity of its packaging with that of topical drops. Thus, there are a number of cases of individuals accidentally inserting superglue into their eyes, ears and to a much lesser extent, their noses. We report on the accidental application of cyanoacrylate to the ears, and an algorithm to its management.

CASE REPORT

A 35-year-old gentleman woke up early in the morning and attempted to insert his regular medication of ear drops into his ear. As the packaging of the ear drops were similar to that of the cyanoacrylate adhesive he mistakenly injected the adhesive into his ear canal. The patient did not notice this for over an hour, which subsequently allowed time for the adhesive to set. Upon inserting his finger into his ear and feeling the hard residue of what remained, he discovered his mistake and was brought to the accident and emergency department at the hospital. We strongly believe this mishap was due to the patient being heavily intoxicated by alcohol. Examination revealed a complete obstruction of the ear canal with the tympanic membrane not being visible at all. On initial examination, it was difficult to determine how far into the canal the adhesive had reached and whether it had adhered to the tympanic membrane.

With regards to removal of the glue, an initial attempt was performed in the outpatient clinic area, but this was concluded to be too painful for the patient and he would have to be

placed under general anaesthesia. Whilst under general anaesthesia acetone free nail polish remover was used to try and soften the glue but this had no effect. Before even attempting to remove the glue, time was needed to find a plane of dissection between the glue and the ear canal. Once this was decided the glue was slowly removed from the ear and then packed with Betnovate C cream. After some of the adhesive had been extracted, the ear was reassessed and it was clear the cyanoacrylate had not reached the tympanic membrane. However, the external auditory canal was inflamed and had an excoriated appearance. The patient did not experience any post-operative complications and a follow up appointment has been arranged for him in one month.



Figure-1: Illustrating the cyanacrylate adhesive in the right ear canal during surgery.

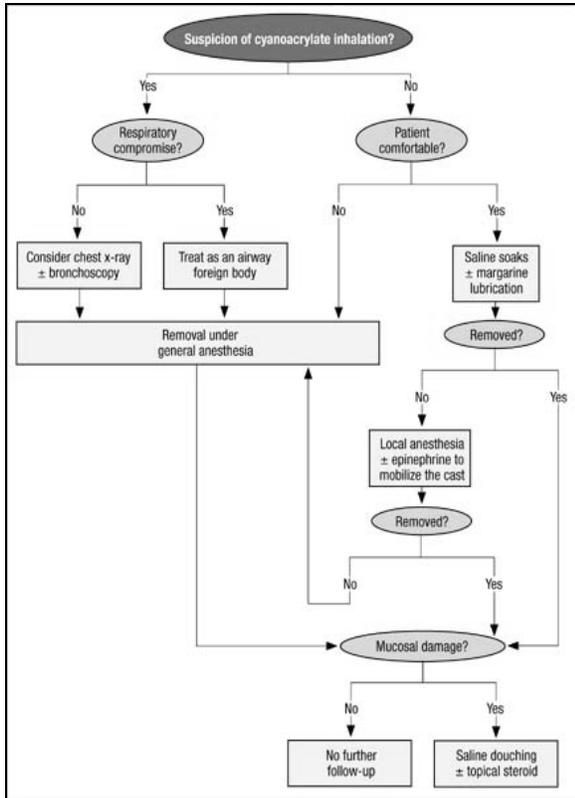


Figure-2: Algorithm suggesting a strategy for managing nasal cyanoacrylate injuries⁴

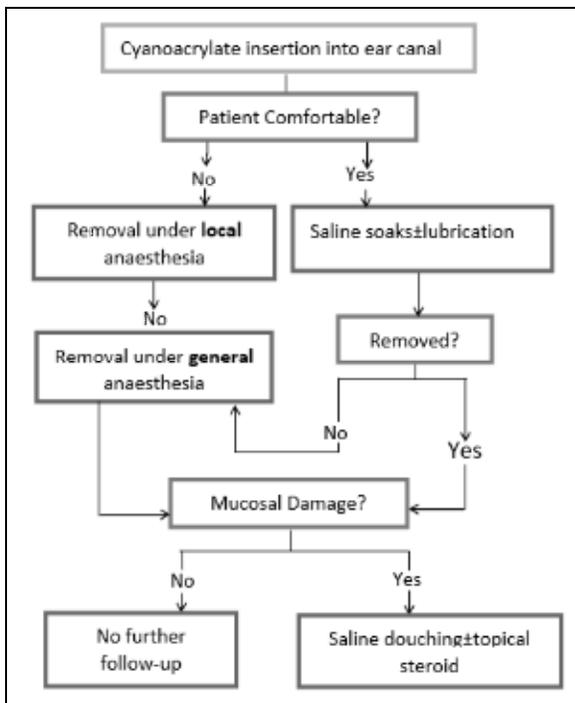


Figure-3: Proposed algorithm suggesting a strategy for managing cyanoacrylate injuries to the ear canal.

DISCUSSION

As mentioned above, cyanoacrylate injuries are not as uncommon as perceived. There are numerous reports of cyanoacrylate being applied to the eyes, mouth, and nose and also reports of previous ear applications. There was a case of a 2-year-old child who bit into a superglue tube releasing the substance causing his upper lip and teeth to be stuck together. This can cause severe damage to the lips if not removed carefully and possibly cause toxicity if the child had ingested any of the superglue. In this case it was found that margarine was very effective in removing the glue.¹

Cyanoacrylate injuries to the eye have also been described, with risks of corneal abrasions, which required immediate removal, and the use of prophylactic antibiotic therapy for the eyes.²

In a previous episode of cyanoacrylate injury to the ear of a middle-aged woman, the patient's ear was filled with ichthammol glycerine ear drops due to its antibiotic cover and the fact that it was a commonly used treatment in the ear. However, this proved unsuccessful and the patient had acetone (containing nail polish remover), inserted into the ear. After 30 minutes the glue was removed under local anaesthetic with only a slight amount of bleeding from the mucosal surface. She was monitored twice a week following the procedure and did not experience any post-operative complications.³

Furthermore, there was a case regarding the deliberate application of cyanoacrylate to the nose of a 9-year-old boy during a fight. In this particular case the adhesive was effectively removed under general anaesthesia without causing harm to the nasal mucosa.⁴

With regards to the management of cyanoacrylate injury, a number of reports were analysed. We proposed a management plan that could be used should this problem ever arise again. Figure-2 below was used as a proposed management plan for cyanoacrylate injury to the nasal cavity.⁴ We have adapted this algorithm and formed a new one which can potentially be used for future cyanoacrylate injuries to the ear canal (Figure-3).

In conclusion, cyanoacrylate injuries can be successfully treated depending on the extent of damage, (for example, damage to the mucosa), and the level of discomfort caused to the patient by the injury. We chose our management plan based on these two factors.

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