

Transient immediate facial nerve paralysis after local anesthesia in a retro-auricular minor surgery



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Key words: facial nerve; local anesthesia; minor surgery; transient paralysis; retro-auricular.

INTRODUCTION

Peripheral facial nerve paralysis according to the literature constitutes a rare side effect of local anesthesia¹: mainly reported in dentistry and oro-maxillofacial surgeries² but not commonly encountered in dermatologic procedures.³ More interestingly, all typical reported cases of neuropraxia in the post-operative period only affect 1 or 2 branches of the facial nerve and not a full involvement of its branches. We report the case of anesthetic-induced complete left-sided facial nerve paralysis in a 25-year-old man

immediately after minor surgery of the retro-auricular region, followed by full recovery. To our knowledge, there is no similar published case considering the minimal amount of anesthetic used, the distant point of injection away from the facial nerve root, and, most importantly, complete facial neuropraxia (with involvement of all branches). We discuss anatomic variability of facial nerve root and its branches and recommend including such a possible event in the preoperative consent form when dealing with retro-auricular dermatologic surgery.

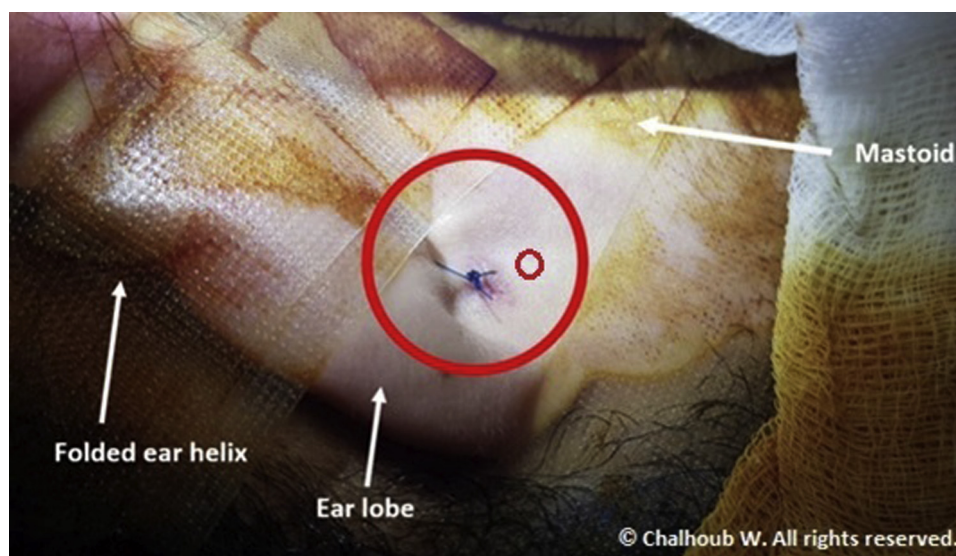


Fig 1. Left retro-auricular region. **Big circle**, site of incision with suture placed. **Small circle**, site of local anesthesia injection.

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Fig 2. Immediate postoperative status. Left-sided facial palsy, grade IV on the House-Brackmann scale, characterized by inability to close his left eyelid completely, inability to smile on the left side with disappearance of the left nasolabial fold, and inability to close pursed lips on the left side and whistle.

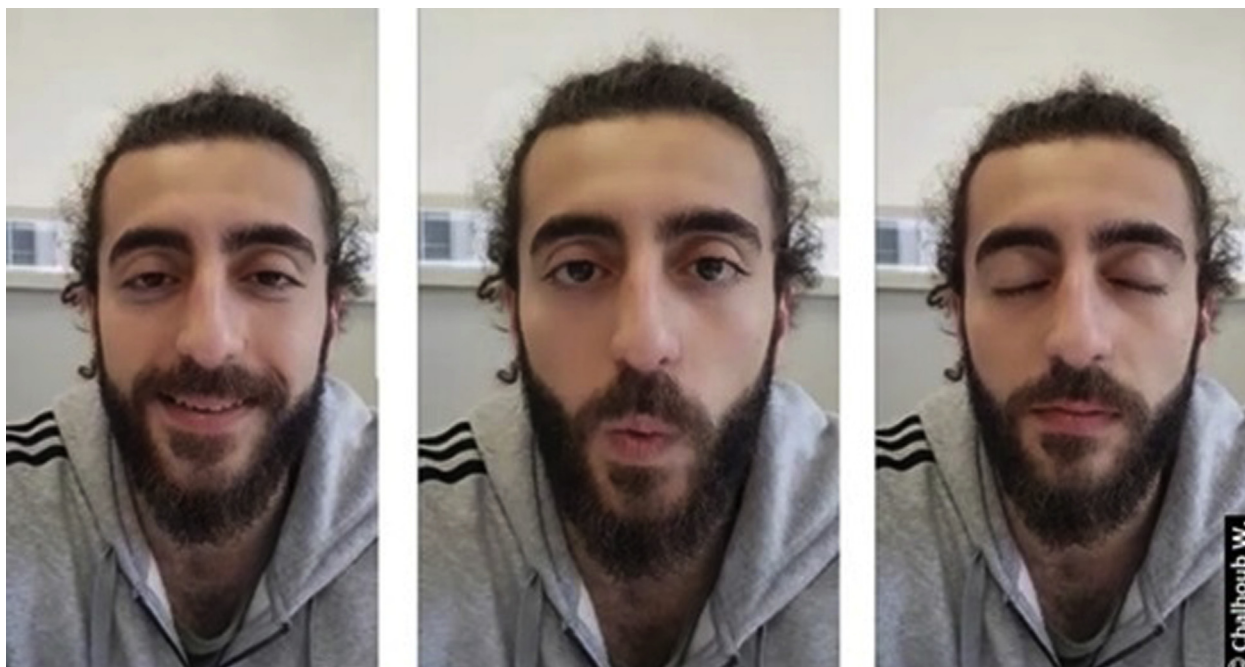


Fig 3. Two and half hours postoperative status: full recovery of left side facial palsy.

CASE REPORT

In February 2020, a 25-year-old man underwent an excision of a left retro-auricular skin nodule by an expert in dermatologic surgery. Indication of the procedure was reported to be repeated discomfort caused by this nodule increasing in size over the course of 2 years. The patient had no contributory

medical history and was otherwise previously healthy.

Prior to a linear 4 mm dermal incision, intradermal administration of 2 mL of 1% lidocaine hydrochloride with epinephrine (1:100,000) was done with a 25-gauge needle in only 1 point of injection, more than 1 cm distant from the retro-auricular fold (Fig 1).

Expressing the content of the cyst by compression, subsequent excision of the dermal cyst wall—confirmed to be an epidermal inclusion cyst on the final pathology report of the specimen—and simple wound closure with 4.0 nonresorbable surgical suture were successfully accomplished. Immediately after the postoperative course, the patient was noticed to exhibit elements of left-sided facial palsy, grade IV on the House-Brackmann scale, characterized by inability to close his left eyelid completely, inability to smile on the left side with disappearance of the left nasolabial fold, and inability to close pursed lips on the left side and whistle (Fig 2). The surgical site was rechecked and found to be devoid of any swelling or underlying hematoma. A full physical neurologic assessment was performed, and no other deficits were found. The patient was asked to remain at the clinic for close observation. He was found to have made a full recovery without residual symptoms approximately 2 hours and 30 minutes after the onset of his palsy (Fig 3).

DISCUSSION

Transient immediate facial nerve palsy is explained by the rapid action of the agent used when injected into or close to one or more branches of the facial nerve. Lidocaine initiates its anesthetic properties around 30 to 60 seconds after infiltration with the effects lasting from 30 to 180 minutes. If epinephrine is supplemented, a prolongation of this action occurs by about 50% as a consequence of vasoconstriction, delaying the clearance of the local anesthetic from the surgical site.² In dentistry literature, immediate peripheral nerve paralysis has been reported extensively.¹ It has also been encountered postoperatively in procedures involving infiltration of the external auditory meatus, the area above and behind the ear with anesthetic, bat ear corrective surgery, and mastoid surgery.² Similar cases are reported as a complication of advanced cosmetic surgery.³

Particularly, complete transient facial nerve paralysis as a complication of minor surgical procedures is not previously published to our knowledge. We reviewed several reports documenting postoperative facial neuropraxia only involving 1 or 2 branches with volumes of anesthetic used at least 4 times greater than what was used in our procedure.^{3,4} With the average reported minimal distance³ between the facial nerve trunk and the superficial skin being approximately 22.4 mm, it is intriguing that our patient had a complete facial nerve paralysis from a superficial injection and a more distant point with such a minimal amount of anesthetic (Figs 1 and 4). The literature reports several variants of the main trunk of the facial nerve by which the nerve may be



Fig 4. Simulation of branches of the facial nerve on our patient. 1, Temporal branch; 2, zygomatic branch; 3, buccal branch; 4, mandibular branch; 5, cervical branch; 6, branches to stylohyoid and posterior digastric muscles; 7, posterior auricular nerve.

split into 2 or even 3 trunks within the mastoid segment exiting through separate osseous foramina, or even more different variants on the same person from one side of the face compared to the other.⁵ We suspect that our patient has a superficial variation of the facial nerve.

CONCLUSION

Unsettling to patients, transient immediate complete facial nerve paralysis is a rare complication that may occur as a side effect of local anesthetic use despite ultimate precautions. In light of the holistic involvement of the facial nerve and its possible variations in a retro-auricular approach to anesthetic

infiltration, it should be recommended to avoid conducting unnecessary elective surgical procedures in this region and to include transient facial nerve paralysis as a potential complication in similar sites when obtaining consent from patients.

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