The Journal of Laryngology and Otology
February 1986. Vol. **100.** pp. 211–213

Transient facial paralysis
(A report of three cases)

by

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Introduction

Most otologists infiltrate the external auditory meatus with a solution of local anaesthetic and a vasoconstricting agent prior to middle-ear and mastoid surgery. The rationale for this is to reduce operative bleeding and to facilitate dissection in the correct plane, particularly when elevating meatal skin flaps. We report three cases in which the local anaesthetic agent caused a transient ipsilateral facial nerve paralysis, and in whom full facial nerve function returned four hours following its administration.

Case Reports

Case 1

A 32-year-old lady with a simple central perforation of the right tympanic membrane was admitted for a myringoplasty under a general anaesthetic. At operation the external auditory meatus and the ear above and behind the meatus were infiltrated with a 2 ml. solution of 2 per cent lignocaine and 1 in 200,000 adrenaline using a dental syringe. The ear was approached *via* an endaural incision and temporalis fascia was taken. The middle ear was entered through a posterior tympano-meatal flap and was found to be healthy. There was no obvious dehiscence of the facial nerve. The perforation was closed with an underlay temporalis fascia graft, lying on a bed of oxidised cellulose sponge, moistened with normal saline. A silastic sheet was placed over the graft and the ear canal was packed with BIPP-impregnated ribbon gauze.

Immediately post-operatively the patient was noted to have a total right lower motor neuron facial palsy, which recovered completely three hours after the injection of lignocaine and adrenaline at the start of the myringoplasty.

The patient had never suffered a facial palsy before the operation, and one year later she had had no further problems.

Case 2

A 31-year-old catering assistant had a long history of bilateral chronic otitis media, and was admitted for a left myringoplasty under general anaesthesia.

At operation the four quadrants of the external auditory meatus and the area above and behind the meatus were infiltrated with a 2 ml. solution of 3 per cent prilocaine with felypressin 0.06 units using a dental syringe. An endaural incision was used. The middle ear was approached through a posterior tympanomeatal flap. An underlay myringoplasty using temporalis fascia was performed.

A silastic sheet was placed over the graft, and the ear canal was packed with BIPP-impregnated ribbon gauze. No bone work of any nature had been performed.

Immediately post-operatively the patient was noted to have a complete left lower motor neuron facial paralysis. The head bandage was removed and the pack loosened, and the patient was returned to the ward for observation. Four hours after the injection of prilocaine and felypressin, facial nerve function had recovered fully, and the patient made an uneventful recovery.

Case 3

A 53-year-old housewife had a long history of severe bilateral chronic otitis externa. Severe meatal stenosis was present bilaterally, and the patient complained of deafness and discharge. Despite intensive local treatment her symptoms persisted.

https://doi.org/10.1017/S002221510009900X Published online by Cambridge University Press

A soft tissue and bony meatoplasty was successfully performed on the right ear in 1982. There was no further discharge from this ear, and the hearing improved. The left ear continued to be troublesome, and in January 1984 a left meatoplasty was performed. At operation, the external auditory meatus and the area above and behind the meatus were infiltrated with 4 ml. of a solution of 2 per cent lignocaine with 1 in 200,000 adrenaline. An endaural incision was used, and a soft tissue meatoplasty was performed. Then a large posterior tympanomeatal flap was raised to facilitate the bony meatoplasty. Using the drill, the posterior meatal wall and outer attic wall were reduced. The tympano-meatal flap was replaced, and the meatus was packed with BIPP-impregnated ribbon gauze.

Immediately post-operatively it was noted that a complete left lower motor neuron facial palsy was present. Arrangements were then made to re-explore the ear that evening, if recovery of facial nerve function had not occurred. However, four hours after the administration of the lignocaine and adrenaline solution, normal facial nerve function returned. The patient then made an uneventful recovery and was well six months post-operatively.

Discussion

Transient facial paralysis occurring as a direct consequence of local anaesthesia administered during otological surgery is seldom reported. Shambaugh (1967), Ballenger (1977) and Groves (1979) state that facial paralysis as a result of infiltration with local anaesthesia may occur, but usually recovers in several hours. However, if recovery does not occur, immediate exploration of the nerve should be undertaken. This complication received scant attention in many standard otological text books (Booth, 1976; Fisch, 1979; Mawson and Ludman, 1979; Ballantyne and Groves, 1978; Foxen, 1980). Dawes (1976) states that, if a facial weakness is found unexpectedly immediately after the operation of epitympanotomy or tympano-mastoidectomy, then the cavity must be re-explored immediately.

Althaus (1978) concludes that immediate post-operative facial paralysis following middle-ear surgery is usually related to the local anaesthetic if this has been used. The anterior ear canal injections are in close proximity to the peripheral facial trunk or its branches, and this may cause temporary weakness. At times, the topical effect of local anaesthesia instilled into the middle-ear cleft on a dehiscent facial nerve may result in transient facial paralysis.

It is known that transient facial paralysis may occur after inferior alveolar block for dental treatment (Tiwari and Keane, 1970). Should this be immediate, the authors suggest that it may be due to the direct action of the local anaesthetic on the facial nerve, either by diffusion into the normally developed parotid tissue, or by direct action on the nerve in the retromandibular space (when a congenital anomaly of the parotid gland exists, failing to envelope the facial nerve).

Conclusion

If an ipsilateral facial paralysis is noted immediately after surgery, when local anaesthetic has been used, then this should be considered as a possible cause. If the surgeon feels he is unlikely to have damaged the facial nerve during operation, then the paralysis is probably due to the local anaesthetic.

We conclude that, in the event of post-operative facial paralysis occurring immediately after ear surgery when local anaesthetic has been used, then an interval of at least four hours should be allowed to elapse before re-exploration is undertaken.

Summary

Local anaesthetic infiltrated into the external auditory meatus prior to ear surgery is a cause of transient ipsilateral facial nerve paralysis in the immediate post-operative period.

This phenomenon is only rarely described. Three such cases are reported.

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https://doi.org/10.1017/S002221510009900X Published online by Cambridge University Press

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