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Clinical Records

Transtemporal facial nerve schwannoma without facial nerve paralysis

J. E. Fenton, R. Y. K. Chin, J. P. Tonkin, P. A. Fagan

Abstract
Facial schwannoma is a relatively rare but well documented lesion, presenting either as a mass or with facial nerve symptoms. In this report, an extensive facial schwannoma, extending from the brain stem to the periphery with minimal facial nerve symptoms and normal facial function is presented.

Key words: Facial Nerve; Paralysis; Schwannoma; Surgical Procedures, Operative

Introduction

Facial schwannoma, although rare, has been well documented, with approximately 300 cases reported.[1] Presentations of either a mass or with facial nerve symptoms have also been well documented.[1–4] We present a case of an extensive facial schwannoma, extending from the brain stem to the periphery.

Case report

A 42-year-old female presented with a history of severe right ear pain for 12 months with intermittent right facial twitching. On examination, a skin-covered, non-pulsatile swelling was noted in the floor and posterior wall of the right external auditory canal. Facial nerve function and pure-tone audiometry was normal. Imaging of the temporal bone demonstrated an extensive mass in the vertical facial canal with destruction of the surrounding bone (Figures 1 and 2). Superiorly, the lesion extended as far as the level of the superior aspect of the cochlea and inferiorly into the stylomastoid foramen. No definite enhancement was observed. Magnetic resonance imaging (MRI) was performed to delineate the proximal and distal extent of the tumour. This revealed a gadolinium-enhancing lesion, which extended proximally from the internal auditory meatus and into the parotid gland distally.

At surgery a lateral temporal bone resection with blind sac closure was performed and the eustachian tube was ablated.[5] The tumour was identified at the stylomastoid foramen and followed distally to normal nerve short of the bifurcation. The internal auditory meatus was widely exposed by the translabyrinthine route, providing complete tumour exposure. Frozen section verified that tumour excision was complete. A sural nerve graft was interposed between the proximal and distal nerve stumps. MRI two years after surgery revealed no evidence of recurrence. There was complete resolution of the primary symptom of otalgia after surgery. Facial nerve fnction recovered to a House and Brackmann grade 111 at two years post-operatively.

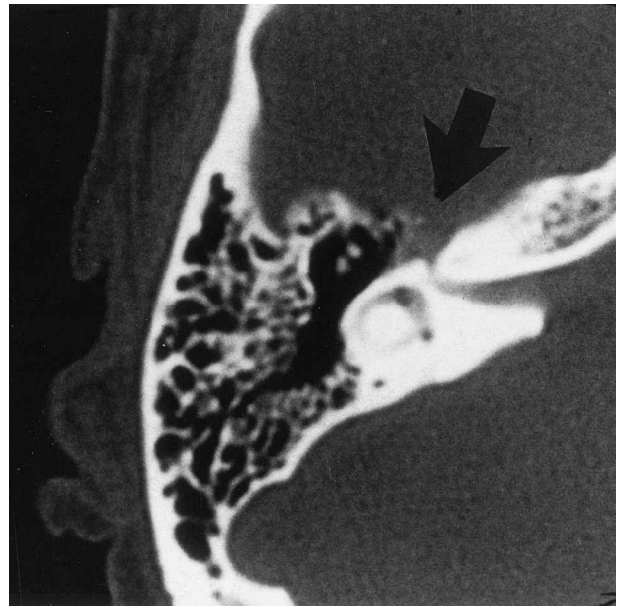

Fig. 1

Axial bone window CT scan of the right temporal bone. There is widespread destruction of the surrounding bone with expansion of the tumour around the geniculate ganglion.

Discussion

Facial nerve schwannomas are the third most common primary tumour of the cranial nerves after the vestibulocochlear and trigeminal nerves respectively.[6] A facial nerve schwannoma can occur anywhere along the course of the

From the Department of Otology/Neurotology, St Vincent's Hospital, Sydney, Australia.
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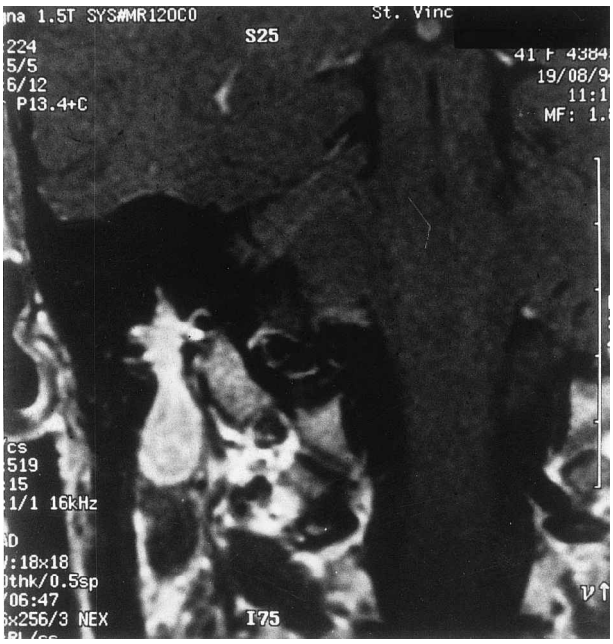

FIG. 2

Coronal MRI T_1 weighted image with gadolinium. This demonstrates a grossly expanded vertical segment of the facial nerve, which continues in a dumb-bell fashion with a large mass of tumour in the parotid gland.

facial nerve but reports suggest that the most common site is at the geniculate ganglion.[7] Tumour size can vary from a tiny mass to an extensive lesion involving almost the entire portion of the nerve from the cerebellopontine angle distally.[2,6,8] Large tumours have been described previously but, to our knowledge, this is the first case with computed tomography (CT) and MRI findings of a tumour extending from the internal auditory meatus to the parotid gland.

The presentation of a facial nerve schwannoma is generally insidious and depends on the location and extent of the tumour.[7] Facial weakness and hearing loss are frequent presenting complaints.[3,4] The facial weakness can be slowly progressive or sudden.[4] Facial twitching is a common manifestation.[9] Normal facial nerve function has been reported in 27 per cent of patients but is unusual in extensive tumours such as the case presented.[10,11] Otalgia is relatively rare.[9]

CT scanning is useful for assessing the bony facial nerve canal and surgical planning but, as in this case, cannot accurately delineate the soft-tissue extent of the tumour. Gadolinium-enhanced MRI is at present the most accurate investigation for assessing the extent of a facial nerve schwannoma.[7,12] It has been advised that internal carotid angiography is essential in the investigation of patients with extensive intratemporal tumours to exclude the possibility of a glomus tumour.[11] CT and MRI provide sufficient information in cases of facial nerve schwannomas, and carotid angiography is not indicated.[13] The diagnosis should be considered in all cases of facial nerve paralysis, facial twitch, face or ear pain with a mass in the external auditory canal, middle ear or within the parotid gland.[1]

Surgical excision is the definitive treatment and the approach utilized depends on the extent and site of the tumour.[1] In general, the tumour is resected with the affected portion of the nerve and immediate repair of the nerve should be undertaken either by primary repair or by a nerve interposition graft. There have been isolated reports of authors being able to dissect or fillet the tumour off the nerve with normal or adequate facial nerve functional results.[1,6,10,12] This was not feasible in this case where the translabyrinthine approach ensured the complete excision of the tumour and immediate repair of the facial nerve with an optimal facial nerve functional result.

It can be difficult to decide the best time for surgical intervention in facial schwannoma. Experience subsequent to the case presented has shown that, in general, the results of intervention in facial schwannoma are not as good as the results of non-intervention (R. Liu and P. A. Fagan, paper in preparation). Patients with large facial nerve schwannomas can have normal facial function for many years and it is probably better to wait until the facial nerve shows either progressive deterioration or becomes paralysed and remains so. Surgery should also be considered in cases where other problems arise such as severe intractable pain or where the hearing is at risk in an only hearing ear.[12,14]

References

1 Pulec JL. Facial nerve neuroma. *ENT J* 1994;**73**:721–52
2 King TT, Morrisson AW. Primary facial nerve tumours within the skull. *J Neurosurg* 1990;**72**:1–8
3 Martin N, Sterkers O, Mompoint D, Nahum H. Facial nerve neuromas: MR imaging. *Neuroradiology* 1992;**34**:62–7
4 Pillsbury HC, Price HC, Gardiner LJ. Primary tumors of the facial nerve. *Laryngoscope* 1983;**93**:1045–8
5 Fisch U, Fagan P, Valavanis A. The infratemporal fossa approach for the lateral skull base. *Otolaryngol Clin North Am* 1984;**17**:513–52
6 Saada AA, Limb CJ, Long DL, Niparko JK. Intracanalicular schwannoma of the facial nerve. *Arch Otolaryngol Head Neck Surg* 2000;**126**:547–9
7 Parnes LS, Lee DH, Peerless SJ. Magnetic resonance imaging of facial nerve neuromas. *Laryngoscope* 1991;**101**:31–5
8 Fisch U, Ruttner J. Pathology of intratemporal tumors involving the facial nerve. In: Fisch U, ed. *Facial Nerve Surgery*. Netherlands: Kugler Medical Publications, Birmingham, AL: Aesculapius Publishing Co., 1977;448–56
9 Neely JG, Alford BR. Facial nerve neuromas. *Arch Otolaryngol* 1974;**100**:298–301
10 Sataloff RT, Frattali MA, Myers DL. Intracranial facial neuromas: total tumor removal with facial nerve preservation: a new surgical technique. *ENT J* 1995;**74**:244–56
11 Okabe Y, Nagayama I, Takiguchi T, Furukawa M. Intratemporal facial nerve neurinoma without facial nerve paralysis. *Auris Nasus Larynx* 1992;**19**:223–7
12 Fenton JE, Morrin MM, Smail M, Sterkers O, Sterkers JM. Bilateral facial nerve schwannomas. *Eur Arch Otolaryngol* 1999;**256**:133–5
13 Valvassori GE. Update of computed tomography and magnetic resonance in otology. *Am J Otol* 1994;**15**:203–6
14 Sollecito TP, Richardson RM, Quinn PD, Cohen SG. Intracranial schwannoma as atypical facial pain. *Oral Surg Oral Med Oral Pathol* 1993;**76**:153–6

Address for correspondence:
Mr J. E. Fenton,
Department of Otolaryngology – Head and Neck Surgery,
University Clinical Department,
The Duncan Building,
Daulby Street,
Liverpool L69 3GA.

Fax: 0151 706 4057
E-mail: jefent@liverpool.ac.uk

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