The Journal of Laryngology and Otology
June 1993, Vol. **107**, pp. 553–555

Cerebellopontine angle lipoma

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Abstract
A case of a cerebellopontine angle lipoma is presented with a typical clinical, audiometric and radiological features of an acoustic neuroma. The correct pre-operative diagnosis was elusive even with the aid of magnetic resonance imaging.

Key words: Cerebellopontine angle; Lipoma; Magnetic resonance imaging

Introduction

Acoustic neuromas comprise the vast majority of tumours of the cerebellopontine angle (CPA) with an incidence of 1 per 100 000 of population per year (Tos and Thomsen, 1984). Other lesions presenting in this region include meningioma and petrous apex cholesteatoma. Lipomas of the CPA are extremely rare with only 27 cases previously recorded (Saunders *et al.*, 1991). We present a further case of an intracanalicular lipoma with features identical to an acoustic neuroma.

Case report

A fifty-seven-year old male presented with a five-year history of right-sided hearing loss and tinnitus of a longer uncertain duration. There were no other relevant factors in his history. Otoscopy was normal and there was no other cranial nerve deficit evident.

Pure tone and speech audiometry demonstrated asymmetrical sensorineural deafness worse on the right. Caloric testing demonstrated a right canal paresis of greater than 30 per cent. Brain stem evoked responses were normal on the left but unobtainable on the right side. Stapedial reflexes were normal on the left side at 85 dB but unobtainable on the right except at 500 Hz at 95 dB. Axial CT scanning with intravenous contrast enhancement showed slight widening of the right internal auditory meatus when compared with the left side.

Magnetic resonance imaging was performed using sagittal T1 weighted spin echo images (SE 600/25), axial proton density and T2 weighted spin echo images (SE 2100/80–20) and axial and coronal T1 weighted spin echo images (SE 700/25) after intravenous gadolinium contrast enhancement. A small enhancing intracanalicular tumour was revealed, measuring 0.7 × 0.5 cm, and a presumptive diagnosis of an acoustic neuroma was made (Fig. 1).

The patient underwent a total removal of this tumour via a translabyrinthine approach. Macroscopically, the tumour was identical to an acoustic neuroma. The lesion was very easily removed, being separated from the adjacent facial nerve without difficulty. The patient made an excellent recovery with normal post-operative facial function. Histological analysis of the excised specimen demonstrated a lipoma infiltrating the VIIIth nerve with no evidence of schwannoma or malignancy. The specimens consisted of myelinated nerve fibres, ganglion cells and vessels. However, scattered throughout were adult adipose cells which split the cranial nerve tissue into bundles (Fig. 2 a,b).

Discussion

Intracranial lipomas are rare, comprising 0.1 per cent of brain tumours (Pensak *et al.*, 1986). Vonderahe and Niemer (1951) have reported a 0.08 per cent incidence of intracranial lipomas among general autopsies while Budka (1974) has reported an incidence of 0.34 per cent in autopsies of patients with neurological and psychiatric disorders. Approximately 50 per cent of these lipomas are found in the *corpus callosum* (Leibrock *et al.*, 1983). Most intracranial lipomas are asymptomatic and neurological symptoms are rare unless the tumour is sufficiently large to cause hydrocephalus (Rosenbloom *et al.*, 1985).

Cerebellopontine angle lipomas are extremely rare with only 27 cases recorded (Saunders *et al.*, 1991). Lipomas in this region more commonly present with neurological symptoms, the VIIIth nerve being particularly affected (Rosenbloom *et al.*, 1985). Entrapment of nerve fascicles, invasion of nerve fibres and occasional demyelination have been demonstrated (Christensen *et al.*, 1986) and serve to explain the higher incidence of neuro-

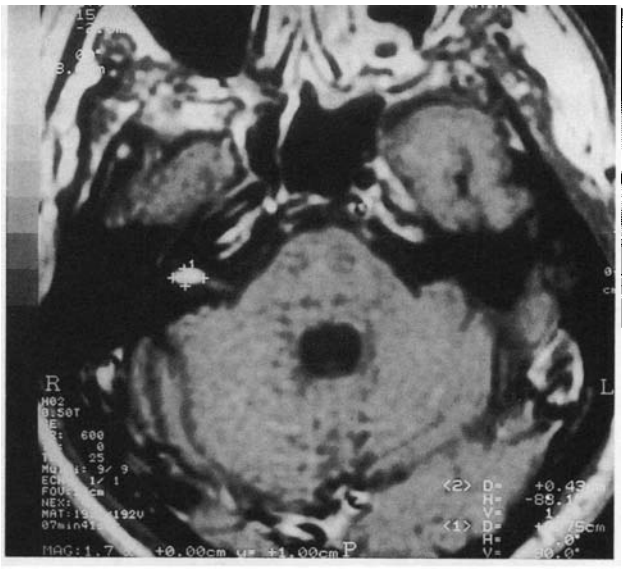

FIG. 1.
T1 weighted MR image demonstrating a small right-sided intracanalicular tumour.

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Accepted for publication: 7 April 1993.

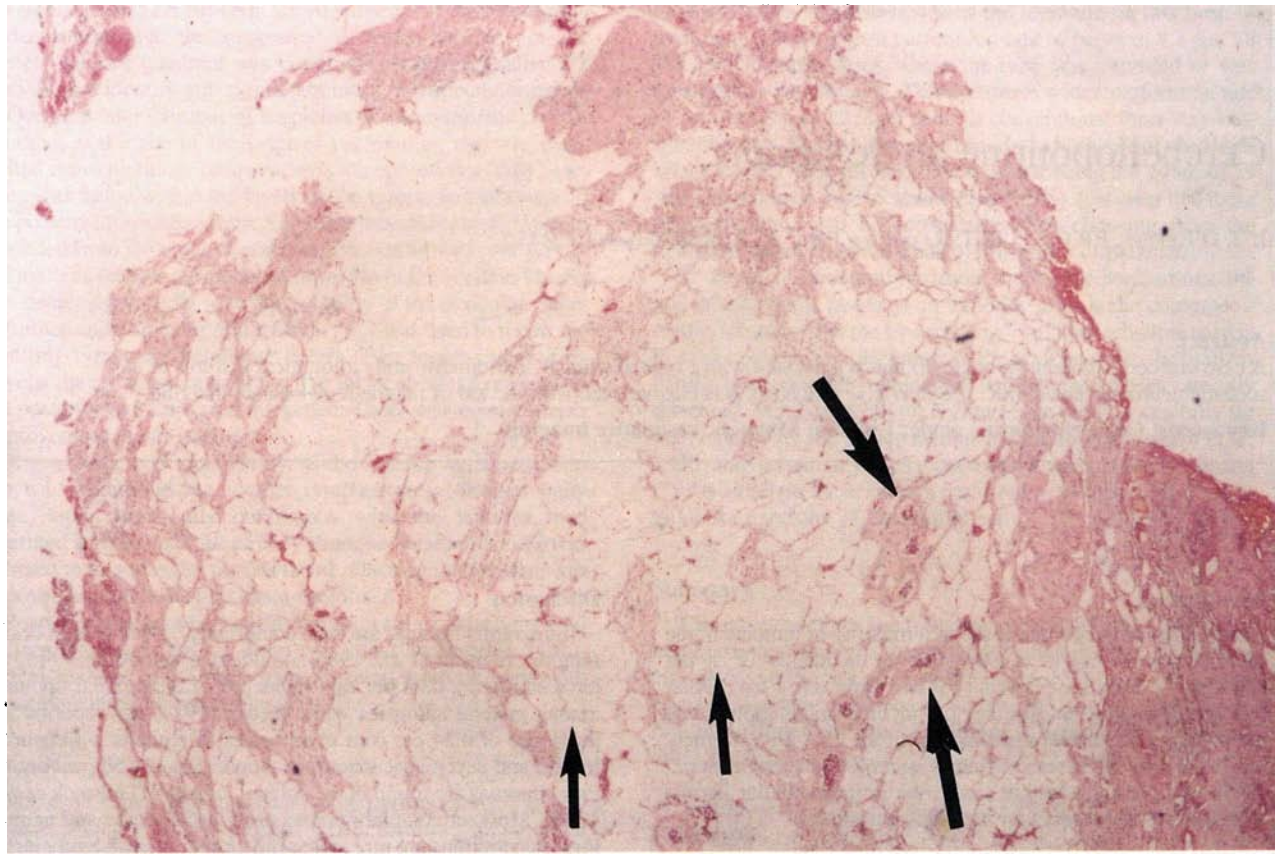

FIG. 2a

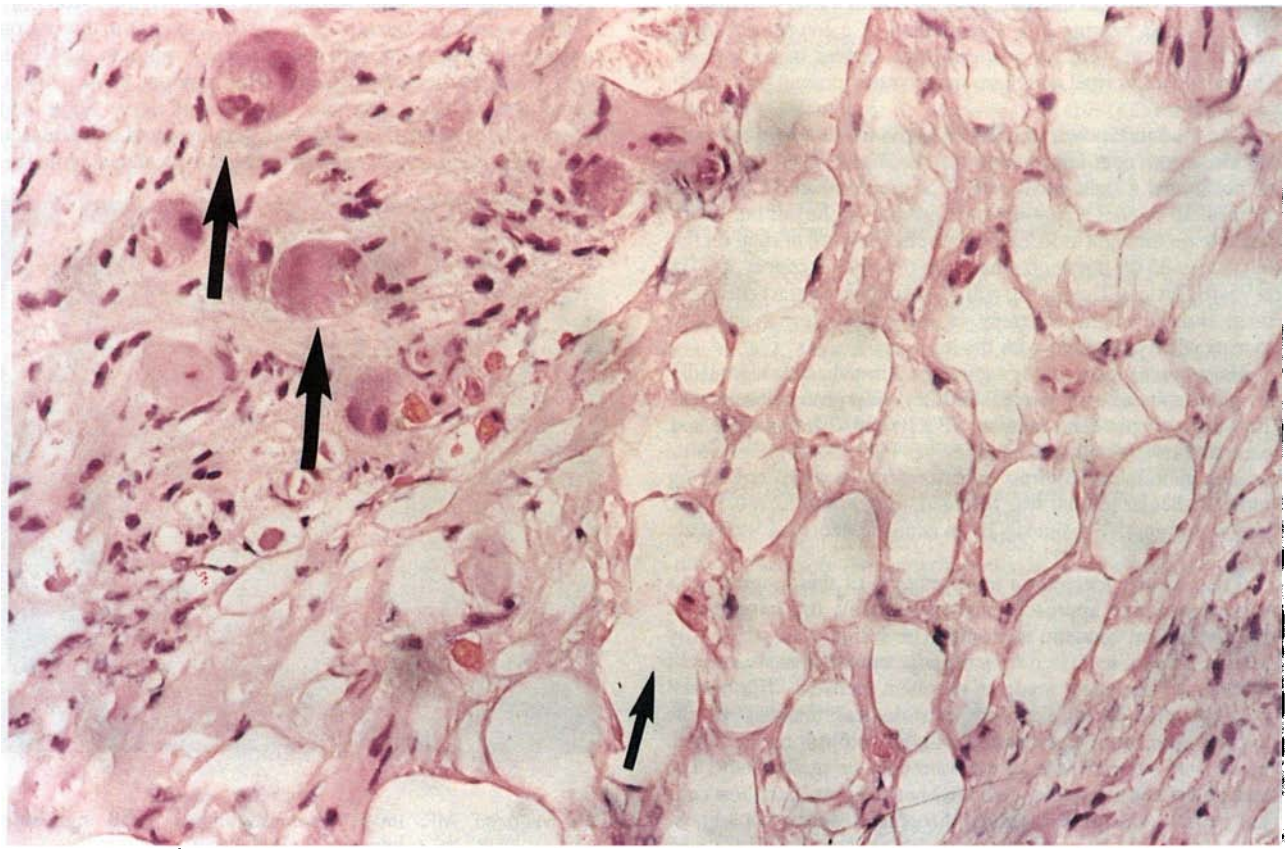

FIG. 2b

FIG. 2

Lipoma of VIIIth nerve. (a) H & E low power; (b) H & E × 250. Large arrows indicate nerve cells while small arrows indicate fat cells.

https://doi.org/10.1017/S0022215100123680 Published online by Cambridge University Press

logical symptoms in cerebellopontine angle lipomas. Adherence to the brain stem is a further complicating factor which may make complete surgical excision difficult if not impossible with a high probability of residual neurological complications. Several authors attest to the difficulty of excision of cerebellopontine angle lipomas, suggesting that incomplete removal with serial observation may be a wiser course of action in some cases (Pensak *et al.*, 1986; Ashkenasi *et al.*, 1990; Reid *et al.*, 1991).

A particularly interesting feature of this case is the failure to elucidate the correct diagnosis pre-operatively, even with the aid of magnetic resonance imaging (MRI). Reid *et al.* (1991), have reported that cerebellopontine angle lipomas demonstrate a high signal intensity on T1 weighted images and reduced intensity on T2 weighted images when studied with MRI. The same MRI characteristics have been observed by Saunders *et al.* (1991) when examining a series of five previously unreported cases drawn from two centres. In the case reported here, the T1 and T2 weighted images were of equal intensity, a finding previously reported by Levin and Lee (1987), Nakao *et al.* (1988) and Heiss *et al.* (1988). The observed inconsistent MRI characteristics of cerebellopontine angle lipomas lend weight to the argument of Glasscock *et al.* (1988) that MRI scanning is not infallible in the diagnosis of cerebellopontine angle tumours.

Conclusion

Cerebellopontine angle lipomas are extremely rare lesions which, by entrapment of nerve fascicles and invasion of nerve fibres, may not be amenable to complete excision. Small or intracanalicular tumours should be removed early, if possible, to reduce the risks of adjacent cranial nerves being affected. Modern radiological techniques are not always diagnostically conclusive in cases of cerebellopontine angle lipomas.

Acknowledgement

The authors wish to thank Dr H. Reid (Manchester) for her valuable guidance during histological studies.

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