SOCIETIES' PROCEEDINGS

ROYAL SOCIETY OF MEDICINE—SECTION OF LARYNGOLOGY AND SECTION OF OTOLOGY

(COMBINED MEETING, HELD AT BRISTOL, ON JUNE 14TH AND 15TH, 1935)

June 14th, 1935

OTOLOGICAL SESSION

Chairman—E. A. PETERS, F.R.C.S., President of the Section of Otology

The Operative Treatment of Vertigo

By W. M. MOLLISON (London)

The operative treatment of Ménière's symptom-complex.—We know that such diverse causes as wax in the ear and acoustic nerve tumour can give rise to the syndrome—deafness, tinnitus and vertigo—generally in one ear only.

The first step in treatment therefore is to make sure that the external and middle ear, including the Eustachian tubes, are normal. To show how important it is to eliminate the middle ear as the cause of vertigo the following case is quoted :—

A woman, aged 30, suffered from vertigo from time to time for a year, and was deaf in the right ear. Inflation of the tube was practised on several occasions but without effect; the patient was examined exhaustively in hospital and no organic disease was found in the central nervous system or elsewhere: the labyrinth was functional and the deafness was of high degree. Vertigo persisted for two years. Finally, operation was contemplated but, two days before a final decision was to be made, the patient heard a sharp noise in the right ear and afterwards heard normally! This probably means that the tube was never properly inflated.

A neurologist should be asked to eliminate any lesion of the central nervous system—especially cerebellar, and cerebello-pontine angle neoplasms, and acoustic nerve tumours, not forgetting the possibility of migraine.

Toxic causes should be sought in the tonsils, teeth, sinuses and other possible sources of infection. Syphilis must be excluded also.

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There is then left the group of patients, usually over the age of 40, who have unilateral deafness of high degree, tinnitus and vertigo. The vertigo generally comes on in attacks lasting from a few minutes to some hours and often resulting in vomiting or nausea. These attacks occur over a long period, several years in some cases; they may occur only once or twice a year at first, becoming afterwards more frequent, and of greater or lesser severity; in addition, the patients may be thrown to the ground without warning. As a result the patients are unable to go out unless accompanied by a friend and are obliged to curtail their activities; some even remain indoors for months on end and some remain in bed. All patients complain of unsteadiness on their feet after an attack and some complain of "swimmy" feelings all the time between the attacks.

It has been stated that the vertigo stops when the affected ear becomes quite deaf; this is not always true. Perhaps the statement dates from Charcot who wrote that "patients experience sensations of vertigo and buzzing in the ears only so long as the deafness is partial and lose these symptoms as soon as it becomes complete".

When medicinal treatment has failed operative treatment may be considered and, in my experience, the comparatively simple procedure of opening the external semicircular canal and injecting absolute alcohol gives very good results.

My series —thirty in number—are, for the most part, cases of Ménière's syndrome of internal-ear origin, but include three cases of vertigo after radical operation, in which the vertigo persisted though the cavity was well epithelialized. Mr. R. J. Cann, when my assistant, operated on four or five of the cases.

Some years ago Mr. Sydney Scott found that injection of absolute alcohol into the labyrinths of pigeons was a simple and efficient means of destroying labyrinthine function. It struck me that that plan might be applied to man in order to destroy the function of the semicircular canals. The mastoid antrum is exposed. The canal is identified and is opened by means of a narrow gouge; ½ to 1 c.cm. absolute alcohol is injected anteriorly in an endeavour to reach the vestibule. The wound is sutured. For two to ten days the patient is very giddy, on account of unbalanced action of the opposite labyrinth; he then begins to be able to sit up, and is soon able to walk. The recovery time varies very much with the type of patient; phlegmatic men walk on the fourth day or sooner.

Recently Hautant reported a number of cases in which he had operated for vertigo. He divided his cases into two groups. The first consisted of cases of healed chronic suppuration, thirty in number, in which he had obtained complete and permanent cure. The second group consists of cases with "sclerosis of the labyrinth" (no doubt Ménière's syndrome of internal-ear origin), thirteen in number; of these, seven have been completely successful; in

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four the attacks of vertigo diminished in frequency and severity; in the remaining two cases, no improvement followed.

The number of cases in Hautant's first group (30) strikes one as very large. I have only felt justified in operating on four cases and one of them was unsuccessful; Mr. McGibbon has operated successfully on one in his series.

Results.—There has been no sign of labyrinth infection in any of the cases. Of my thirty patients, twenty-eight have been traced, twenty-two have been cured of the attacks of vertigo, three were improved, while three were quite unaffected, and their vertigo continues as before, although the function of the labyrinth was successfully destroyed.

The same operation has been applied to cases of vertigo persisting after the radical mastoid operation. The old wound was opened and the external canal was identified and, after thorough cleansing with ether, the opening of the canal and injection as above described was carried out. A flap of temporal muscle was turned down into the cavity to cover the hole in the canal.

The operation is only performed in cases of vertigo plus deafness and, preferably, on those in which deafness in the affected ear is of high degree and the hearing of the opposite ear is good. Tinnitus previously present persists.

There may be no virtue in the injection of the alcohol. Certainly cases have been freed of their vertigo by simple opening of the external semicircular canal; but it was felt that the alcohol would destroy the function of the canal system and vestibule.

All the patients followed up have been recently seen or heard from in letters, or are known about; some of the results are perhaps too recent to be spoken of as cures.

It has been suggested that for Ménière's syndrome—a condition that has no mortality—operation is scarcely justifiable and should be advised only in extreme cases. But a condition that may, and often does, completely check all ordinary activity, even housework (as I have seen in at least two cases) and causes serious economic difficulty—because no man can justifiably be kept at work where attacks of vertigo would bring great risk to life, e.g. in scaffolders, or involve risk to others, e.g. in motor drivers—appears to me to justify an operation which does away with his disability. Most of the patients are very grateful for being rid of the attacks.

Mr. McGibbon, who employed the same procedure, kindly allows me to quote the results he obtained in nine cases. In seven the result was good; in one of these the canal was injected on account of continuous vertigo after a radical mastoid operation. In one case the vertigo ceased, but the man complained of the tinnitus which persisted, and in another the patient developed subacute combined degeneration of the cord.

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RESULTS OF OPERATION ON THE EXTERNAL CANAL FOR VERTIGO.

	Cases.	Cure.	Fair.	Bad.
Hautant :				
(*a*) Old healed suppuration ..	30	30 = 100·0%	—	—
(*b*) Ménière's syndrome ..	13	7 = 53·8%	4	1
McGibbon	8	7 = 87·5%	1	—
Author	30	22 = 73·0%	3	3

The following summarizes the rules one follows in choosing cases :—

(1) Exclude all forms of middle-ear affection, especially mild degrees of Eustachian tube obstruction, i.e. treat the catarrh.

(2) Exclude syphilis.

(3) Exclude all organic disease of the central nervous system—cerebral tumours and tumours of the acoustic nerves ; affections of the medulla, e.g. bulbar paralyses.

(4) Exclude otosclerosis.

(5) Exclude in young persons all foci of toxic infections—teeth, sinus suppuration, tonsils.

(6) The cases left after these exclusions may be considered due to affection of the internal ear and their treatment consists : (*a*) In giving various drugs, e.g. luminal, gardenal, bromides, quinine, potassium-iodide. (*b*) When these have failed, the question of operation on the labyrinth should be seriously considered, and then only if the unaffected ear hears reasonably well.

It is evident that the cases coming to operation will not be large in number ; but those who submit to operation may be told that the operation is entirely without risk, and that the probability of cure of the vertigo is very great.

BIBLIOGRAPHY

ABOULKER and SUDKA, *Ann. des Mal. de l'Oreille, &c.*, 1929, xlviii., 991.
BÁRÀNY, R., *Acta Oto-laryng.*, 1924, vi., 260.
BOSERUP, O., *Journ. Laryng. and Otol.*, 1924, xxxix., 524.
CHEATLE, A. H., *Arch. Oto-laryng.*, 1897, xxvi., 185.
DANDY, W. E., *Arch. Otol.*, 1934, xv., 1-30.
DAVIS, E. D. D., *Journ. Laryng. and Otol.*, 1928, xliii., 734.
FRASER, J. S., *Ann. Otol., Rhinol. and Laryng.*, 1928, xxxvii., 361.
HAUTANT, A., *Ann. d'Oto-laryng.*, 1934, 1077.
Id., Bull. de l'Acad. de Méd., 1934, cxi., 933.
HOLMGREN, G., *Journ. Laryng. and Otol.*, 1925, xl., 335.
IBBOTSON, W., *Ibid.*, xl., 41.
JENKINS, G. J., *Proc. Roy. Soc. Med.*, 1911, iv. (Sect. Otol., 116).
JONES, H. E., *Ibid.*, 1912, v. (Sect. Otol., 75).
KELSON, W. H., *Journ. Laryng. and Otol.*, 1915, xxx., 352.
LAKE, R., *Lancet*, 1906 (i.), 26 ; 1911 (i.), 1569 ; 1912 (ii.), 1638.
MCKENZIE, D., *Journ. Laryng. and Otol.*, 1924, xxxix., 446.
MILLIGAN, W., *Ibid.*, 1924, xxxix., 245, 267, 523.

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MOLLISON, W. M., *Ibid.*, 1930, xxxviii., 539.
O'MALLEY, J. F., *Ibid.*, 1924, xxxvi., 129.
OMBRÉDANNE, M., *Ann. d'Oto-laryng.*, 1934, 193.
PETERS, E. A., *Journ. Laryng. and Otol.*, 1913, xliv., 460.
PORTMANN, G., *Ibid.*, 1923, xxxviii., 608; 1927, xlii., 809.
RAMADIER, J., *Ann. d'Oto-laryng.*, 1933, 51.
SCOTT, S., *Proc. Roy. Soc. Med.*, 1909, ii. (Sect. Otol., 41).
THURSFIELD, H., *Ibid.*, 1916, ix. (Sect. Neurol., 56, 82); *Journ. Laryng. and Otol.*, 1917, xxxii., 75.
WATSON-WILLIAMS, P., *Journ. Laryng. and Otol.*, 1924, xxxix., 645.
YEARSLEY, MACLEOD, *Proc. Roy. Soc. Med.*, 1912, v. (Sect. Otol., 81).
YORKE, C., *Brit. Med. Journ.*, 1918 (ii.), 1129; *Journ. Laryng. and Otol.*, 1919, xxxiv., 5.

CASES

Four Cases of Vertigo treated by Operation.

—W. THACKER NEVILLE.

I.—L.S., male, aged 31, motor mechanic. 10.2.35. *Left ear:* No pain; pulsating pus; perforation and granulation tissue in superior posterior quadrant; tinnitus; deafness; vertigo. Skiagram—"Left mastoid cells completely obscured, suggestive of chronic mastoiditis." Complains of pain in the occipital and left temporal region.

28.2.35. Patient discharged as middle-ear condition was healed.

2.4.35. Vertigo persisting.

3.4.35. Exposure of left posterior semicircular canals and injection of alcohol.

30.4.35. Spontaneous nystagmus absent. Left ear: Ice water ½ oz.—no nystagmus, no giddiness. Ice water 4 oz.—similar results.

21.5.35. *Final result:* No real giddiness, just a sensation of swaying at times. Tinnitus present.

II.—E.D., male, aged 40. Labourer. Chronic right middle-ear suppuration six years ago. First attack of vertigo twelve months ago, following influenza, when he had sensation of external objects rotating. Since then he has suffered from deafness, tinnitus and vertigo.

15.5.34. Radical mastoid operation on account of middle-ear condition; right external and superior semicircular canals opened, alcohol injected.

2.6.34. Discharged. Vertigo and tinnitus cured.

III.—M.B., aged 55, seamstress. 27.9.32. *Right ear:* Membrane intact; tinnitus; deafness; vertigo; no discharge; no pain.

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18.4.34. Opened posterior superior semicircular canals and injected alcohol.

Immediate result: Abscess in right shoulder. Lateral sinus exposed (normal).

Final result: Tinnitus and vertigo absent.

In three of these four cases the operation has been successful in that the patients are cured of the vertigo. In the fourth case the patient (2.5.34) had an attack of vertigo and vomiting on 17.3.35 and of vertigo and nausea 21.5.35. The canals have been destroyed, as shown by the absence of vertigo and nystagmus on application of the cold-water test. As there was a middle-ear discharge twenty-eight years ago, there may have been an ascending degeneration of the vestibular nerve. Tinnitus which has lasted for longer than a year is difficult to cure, even if the cochlea is destroyed, and this is presumably because of an ascending degeneration of some of the fibres of the cochlear nerve. In the same way, perhaps, it may be difficult to cure vertigo of long duration for the same reason.

IV.—F.R., male, aged 40, cobbler. 2.5.34. Complained of vertigo and vomiting for four months (intermittently). Had discharge from left ear twenty-eight years ago. Tinnitus.

16.5.34. Right external semicircular canal opened and alcohol injected. Radical mastoid operation.

2.6.34. Discharged. Vertigo gone. Tinnitus present.

17.3.35. Sick and giddy.

June 1935. *Right ear, caloric test:* 24 c.cm. ice water, no nystagmus even in optimum position. 60 c.cm. ice-cold water, no giddiness, no nystagmus.

Left ear, caloric test: Tympanic membrane present and retracted. 24 c.cm. ice water, slight giddiness. Nystagmus active in optimum position. 40 seconds +.

Aural Vertigo: Alcohol Injection through the Oval Window.—A. J. WRIGHT.

Mrs. M., aged 52.

Left-sided tinnitus since the age of 18. Attacks of vertigo with vomiting for five years, with, on one occasion, an epileptiform attack with loss of consciousness. The right ear is normal, but the left showed a moderate degree of perceptive deafness, the conversational voice being heard at three feet.

30.5.35. Under general anæsthesia, 1 c.cm. of absolute alcohol, coloured with methylene blue, was injected by puncturing through the intact membrane and footplate of the stapes.

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Societies' Proceedings

DISCUSSION.

Mr. SYDNEY SCOTT said that it had been his misfortune, in his own early cases when he had injected alcohol, to meet with two types of mishap, and these had made him more and more conservative.

One patient so treated developed facial paralysis—not from traumatic injury of the facial nerve—and it took three years to recover.

A more tragic case was that of a young woman with very troublesome vertigo. He operated upon the labyrinth, and injected alcohol, and though the ear was quite free from sepsis at that time, a pneumococcal infection of the middle ear developed—no doubt from the Eustachian tube; this spread to the meninges and the patient died. Hence he considered the operation was not free from risk.

The PRESIDENT said that decompression of the perilymph, which was carried out by his (Mr. Peters') operation, and decompression of the endolymph by Portmann's operation, might be tried in suitable cases, but Mr. Mollison's held the field where the functions of the ear were negligible.

He would like to hear from Mr. Mollison how far he considered the 1 c.cm. of alcohol went when injected, and he asked also whether in every one of Mr. Mollison's cases the cochlear and the semicircular functions were completely ablated.

Mr. MOLLISON (in reply) said he used a lachrymal syringe and 1 c.cm. of alcohol. When the needle was placed into the anterior opening of the canal he did not pass it in more than 3 or 4 mm., and the fluid was injected under a little pressure. He believed that a good deal of the fluid came out again; only a few minims entered the vestibule. The effect of alcohol on living tissues was very intense, and probably two minims was enough to destroy the sensitive lining of the vestibule.

Specimens of Handwriting before and after Radical Mastoidectomy. Notes of Case.—E. H. RICHARDS.

The patient, a woman, aged 44, a school and music teacher, had for about fifteen years, had continuous vertigo following a bilateral conservative mastoid operation. Complete relief of all

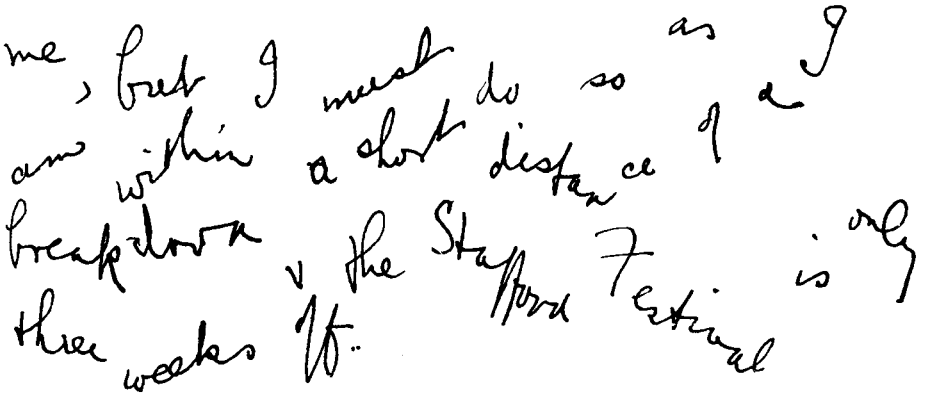


Fig. 1.—Before operation.

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vertigo followed a left radical mastoid operation for continued suppuration, when a piece of bone-chip was found in the region of the foramen ovale covered by a tough fibrous diaphragm. Unfortunately the chip was lost. No cholesteatoma found; absence of malleus and incus.

Before operation.—Foul left-sided discharge; hissing tinnitus on left; no nystagmus but patient is unable to look to right on account of increased vertigo; subjective rotation to left, "floor seems to rise"; patient tends to fall forwards; past-pointing to left with left arm only and very marked positive fistula sign on left. Right ear dry.

	Right.	Left.
Whisper	12 inches.	Nil.
Conversation	Over 18 feet.	At meatus.
Lower limit	256 d.v.	512 d.v.
Absolute bone-conduction to 512 d.v.		Diminished 10 secs.
Rinne		Negative to 512 d.v.

AUSTRIAN OTOLOGICAL SOCIETY

Meeting February 25th, 1935

Abstract of Proceedings from the Monatsschrift für Ohrenheilkunde, May, 1935

By A. R. TWEEDIE

CASES

Isolated Loss of Function of the Horizontal Semi-Circular Canals in Lues.—JOSEF FISCHER.

A woman, aged 33, was shown who had been referred to the Exhibitor's Clinic with diagnosis of "Sklerosis Portionis" and the request for a report on the aural condition. On examination, the aural fundi were normal, conversation range normal. No depreciation of bone conduction, no spontaneous nystagmus, disturbance of equilibrium or fistula symptoms, but, whilst there was no response to the caloric test on either side, the galvanic reaction was normal.

Rotation showed a normal but much reduced nystagmus in respect of the frontal canals and a normal reaction for the posterior vertical canals, but no nystagmus was elicited in testing the horizontal canals on either side.

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