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Disability after labyrinthectomy

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Abstract
A labyrinthectomy is known to relieve vertigo successfully in the majority of patients who suffer from Menière's disease and have non-serviceable hearing in the affected ear. It is assumed that the procedure reduces disability, helps the patient to return to work and improves the quality of life. Eighteen patients who underwent a transmastoid drill-out labyrinthectomy between 1980 and 1990 were interviewed and an attempt was made to evaluate the success of the operation in accordance with the guidelines set out by the AAO-HNS 1985. In the present series it was noted that although vertigo was relieved in 89 per cent of patients after labyrinthectomy, only 50 per cent of them returned to work. In this study, the age and occupation of the patient at the time of surgery and the relief of vertigo did not accurately predict whether or not a patient returned to work.

Key words: Menière's disease; Labyrinthectomy; Disability

Introduction

Labyrinthectomy is accepted as an effective operation for treating disabling vertigo in Menière's disease. Being a destructive procedure it is not usually performed in an ear with useful hearing. The patients who require labyrinthectomy are generally refractory to medical therapy and incapacitated by the disease. In addition, many have been off work for varying periods of time.

Most authors report a dramatic improvement in vertiginous symptoms in 90 per cent of patients after the procedure (Cawthorne, 1968; Glasscock *et al.*, 1980; Graham and Colton, 1980; Levine *et al.*, 1990). This makes the labyrinthectomy an excellent therapeutic option. By ridding the patient of vertigo and sometimes distorted hearing, it restores their ability to work. It is also assumed that there is a marked improvement in the patient's quality of life.

The results of surgery for Menière's disease are generally evaluated in three categories: (a) relief of vertigo (b) disability (c) effect on hearing. Since a labyrinthectomy is usually performed on ears which have non-serviceable hearing, only the former two criteria are used.

A balance disturbance is difficult to quantify and hence in determining disability, the patient's capacity to return to work and to enjoy his previous leisure activities are good objective measures. The present study was precipitated by the accidental discovery that some patients had not returned to work even though they had indicated that surgery had been a great success. It was undertaken, therefore, to evaluate the accepted concept that a labyrinthectomy, when performed for disabling vertigo in Menière's disease, improves the quality of a patient's life and reduces disability.

Materials and methods

Between 1980 and 1990, twenty-one patients under the care of two consultants (GDLS and AGK) underwent a transmastoid drill-out labyrinthectomy at the Belfast City Hospital and the Royal Victoria Hospital in Belfast. The surgical procedures were performed by the consultants using a standard technique. All patients had:

(1) occupationally disabling vertigo;
(2) typical unilateral Menière's disease for one year or longer;
(3) moderately severe hearing loss in the affected ear;
(4) essentially normal auditory and vestibular function in the opposite ear.

These criteria were important as the incidence of bilateral involvement in Menière's disease has been reported as being between 10–20 per cent (Cawthorne, 1969; Palaskas *et al.*, 1988).

In this study an attempt was made to interview by telephone all the patients including those who had been discharged many years earlier. Eighteen could be traced and in the two instances where telephone contact was not possible, questionnaires were used. They were all asked about their pre-operative occupation, DIY and leisure activities and the time they took to recover from the surgery and return to their activities, if at all. We also asked them if they

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TABLE I
GENERAL PROFILE

	No.	Percentage
Vertigo controlled	16	89
Returned to work	9	50

thought the surgery was worthwhile. The mean duration from the time of the operation to the interview was seven years with a range from four to 14 years.

Results

Eleven women and seven men were interviewed. They were aged 30 to 65 years at the time of surgery. Two had retired and all the others were employed. Vertigo was successfully controlled by the operation in 16 of the 18 patients. In two patients, one aged 41 and the other aged 43, there was no change in vertiginous symptoms following the labyrinthectomy.

Two had retired before their operation. Nine out of the 16 patients in whom vertigo was controlled, returned to their pre-operative occupations (Table I). Of the seven patients shown in Table II who did not return to work, five were free from vertigo following their labyrinthectomy. It can be seen that there is no preponderance of any age group or profession in these patients (Table III). The disability that occurred following a labyrinthectomy in our series is shown in Table IV.

There was considerable variation in the time taken to get back to routine everyday activities. By four weeks, two of the patients considered themselves to be more or less back to normal. By three months, six were functioning well but by six months this figure had risen only to 13. Of the nine who returned to work, the earliest did so after two months, five had returned by three months, one was off for six months and the longest, a professional engineer, took 18 months to get back.

Discussion

Menière's disease is a complex, variable and often progressive disorder of the inner ear that develops slowly over many years, and may, or may not, progress to the final end-stage in every patient. The difficulty in assessing the value of any form of treatment for Menière's disease is the natural tendency for the attacks to occur singly or in clusters over a relatively short period, often followed by a prolonged period in which the patient is free from attacks and is left only with the effect of previous attacks on the hearing and balance.

The usual treatment of Menière's disease is either medical or surgical depending upon which stage the individual is in when first seen and the surgeon's belief in surgery. So far there is no statistical evidence that medication alters the natural history of the disease or confers any specific benefit over a period of greater than two years. Nevertheless, an adequate trial of medical treatment should always be given before recommending a surgical procedure to relieve vertigo, if only to allow the time for spontaneous remission. Surgical intervention is only considered when the patient is declared a 'medical' failure.

There are numerous operative procedures for the control of vertigo in Menière's disease. It is not within the scope of this paper to review them. When the hearing loss reaches an unserviceable level and the disease is unilateral, a transmastoid labyrinthectomy is usually advised. It can be viewed as the last surgical step for a dizzy patient with non-serviceable hearing.

The effectiveness of a labyrinthectomy in relieving vertigo is undisputed with most published series having a success rate of over 90 per cent (Cawthorne, 1968; Glasscock *et al.*, 1980; Graham and Colton, 1980; Levine *et al.*, 1990). In this study vertigo was relieved in 89 per cent of the patients. However, we were puzzled by the fact that five (28 per cent) of the patients who were relieved of vertiginous symptoms and thought that surgery was worthwhile, did not return to work. This is especially remarkable since all the patients in this series were either employed or retired despite living in an area of high unemployment. Three (19 per cent) of them reduced their DIY and lesiure activities due to occasional unsteadiness. The problem of unsteadiness in spite of relief of episodic rotatory vertigo following a labyrinthectomy is well documented with different series reporting an incidence of between five and 25 per cent (Schuknecht, 1973; Glasscock *et al.*, 1980; Goycoolea *et al.*, 1994). The AAO-HNS 1985 Committee, though recognizing the importance of this adjunctive symptom, suggested that it played no part in the evaluation of surgical results as it was difficult to quantify (Pearson and Brackmann, 1985).

They published guidelines for the diagnosis and

TABLE II
POST-OPERATIVE EMPLOYMENT STATUS

	No.	Percentage
Returned to work	9	50
Did not return to work	7	39
Retired pre-operatively	2	11

TABLE III
PROFILE OF THE PATIENTS WHO DID NOT RETURN TO WORK (VERTIGO CONTROLLED)

Age	Occupation	DIY and leisure activities compared to pre-op	Surgery worthwhile
35	Manual	Reduced	Yes
43	Manual	Same	Yes
44	Clerical	Reduced	Yes
49	Manual	Reduced	Yes
59	Professional	Same	Yes

TABLE IV
DISABILITY PROFILE AFTER SURGERY

	No.	Percentage
No improvement in vertigo	2	11
Reduced DIY & leisure activities	7	39
Did not return to work	7	39

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reporting of results of treatment in Menière's disease. The Committee realized that there was no objective way of measuring a balance disturbance and a system based on subjective observation, though imperfect, represented the best available method for reporting disability after surgery for the relief of vertigo. The pre-operative disability level is compared to the post-operative level and reported as improved, unchanged or worse. Applying these criteria to the present study and in particular to the five patients who did not return to work, it was found that none of them had any significant disability. The occasional unsteadiness that three of them suffered from would not preclude their return to work as none of them worked in a hazardous environment.

It is generally accepted that older patients (60+) do not compensate for the loss of one vestibular apparatus as well as younger individuals (Levine *et al.*, 1990). So logically it would be the older manual labourer who would be most likely not to return to work. Surprisingly in the present study four of the five patients who did not return to work were under 50 years of age. Hence no correlation was seen between the age and occupation of the patient and the ability to return to work.

The capricious nature of Menière's disease makes the evaluation of treatment modalities difficult. Provided all medical options have been utilized and a thorough clinical evaluation has been carried out in the ear with a non-serviceable hearing in Menière's disease, a labyrinthectomy is still an extremely reliable operation for relieving vertigo and has stood the test of time. Since the outcome of the disease itself is variable, it is difficult to assess the results of a surgical procedure with any single set of criteria. While the ability to return to work is a useful parameter in evaluating disability after a labyrinthectomy, the present study demonstrated that it alone could not be used in assessing surgical success. There are many other variables involved in a person's decision not to return to work. The age, occupation and the relief of vertigo after a labyrinthectomy will not always predict whether or not a patient does so.

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