

Review Articles

Emotional investments in surgical decision making

ALAN G. KERR, F.R.C.S.

Abstract

Gordon Smyth had a deep emotional investment in closed cavity surgery for cholesteatoma but, nonetheless, later acknowledged that he believed that he had been mistaken. Emotional investments create problems for all surgeons. Sometimes they have difficulty in recognizing that they need to change what they are doing. This is especially important in the management of Ménière's disease where unproven surgical procedures are often perpetuated. Surgery on the endolymphatic sac is of doubtful value but still continues to be the most frequently performed operation for this condition. Surgeons need to reconsider the evidence and question the appropriateness of these operations.

Key words: Decision Making; Ménière's Disease/surgery

Gordon Smyth, to whom I owe an enormous personal debt, described a new approach to cholesteatoma while still a Senior Registrar. Simultaneously but independently, David Austin and Jim Sheehy in the United States and Claus Jansen in Germany, were thinking along the same lines.

It should be possible, they thought, to preserve the normal anatomy of the ear, thereby avoiding a cavity and also improving the possibilities for reconstruction of the middle ear. Smyth reported¹ that patient discomfort was less, healing time was shorter, outpatient visits were fewer, most ears dried up and the hearing improved in most, all in sharp contrast to the standard outcome from the open cavity procedures being performed at that time. Already he had some emotional investment in this procedure.

In the UK, he staked his reputation on this operation and indeed became famous because of it. Visiting surgeons came to Belfast from all over the world to see him operate although British surgeons were, on the whole, hesitant about the combined approach tympanoplasty. This simply increased his emotional investment in the procedure. And then, in 1975, he announced at the British Academic Conference in Otolaryngology (BACO) meeting in London that, on the basis of his own statistics, he had been wrong and that combined approach tympanoplasty was not the ideal operation for cholesteatoma. Although such a transparent change

of direction may not have been unique it was certainly most unusual for someone with such a huge emotional investment.

But there is a very basic question which we must ask. 'Why do surgeons have this problem in seeing the errors of their ways?' Well, they are no different from other people in other walks of life and, for some reason, we humans have difficulty in seeing reason once we become emotionally involved in any subject.

Experience has taught us that it is irrational to expect to change by reason an emotionally-loaded opinion. There are probably multitudes of explanations for this but essentially there is a general perception that a person's standing falls if they change their mind.

Furthermore, psychological research has shown that flexibility in thinking is reduced by stress, rewards, punishments and strong emotions and each of these tends to lead to irrational decisions. Make any of these big enough and we get intellectual rigidity. When it comes to the practice of surgery, we have all of them.

In everyday surgical life we can see why our colleagues should not be using certain techniques, but they cannot. This should lead us to ask ourselves if the same thing applies to them. Can they see us acting inappropriately but unknowingly? A good guiding principle in this is our reaction to any suggestion that we should change anything. If we

From the Eye and Ear Clinic, Royal Victoria Hospital, Belfast, UK.

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can look at the suggestion calmly then perhaps we shall be able to accept and consider what they are saying to us. However, if we feel our emotions rising up and we become defensive, maybe they have a point.

Let me make it clear that I consider most surgeons to be essentially honest and of high integrity. We want to do what is best for our patients, but because we are human there is some emotional investment in almost everything we do, including scientific surgery. It is not possible to avoid emotional investment but we can minimize it.

Before treating any disease we ought to think about the four 'P's. What is the pathology? Can we influence it? What is the prognosis if nothing is done? Is there any need to try to influence it? How proficient is our treatment? Is it likely to influence it and what is the evidence that it does? What price does the patient pay in terms of suffering, inconvenience and complications? Is it worth it?

Ménière's disease

I wish now to consider these four 'P's in more detail by looking at Ménière's disease.

Pathology

First, what is the pathology? We know what the inner ear looks like at post-mortem examination but we still do not know why this happens or how it gets to this end situation. There is hydrops but we also know that at post-mortem many temporal bones show hydrops in people who have never complained of the symptoms of Ménière's disease.

There have been many reports of fibrosis in the peri-saccular tissue, altered glycoprotein metabolism and immune-mediated and viral aetiologies but none has produced any clear cut evidence so that we still are uncertain about the pathological mechanisms.

Prognosis

Secondly what is the prognosis? Sadly we still do not really know the natural history of this condition. There are studies of cohorts of patients but these tend to be unrepresentative of the totality of Ménière's disease patients in that they are collected by those who are interested in this condition and are biased by tertiary referrals.

Proficiency

Thirdly, we need to consider the proficiency of any particular treatment? Apart from a very small minority of enthusiasts, most of whom have considerable emotional investment in this area, there are no claims that any drugs or procedures have any effect on the hearing in the long term. However, let me raise a doubt in your mind. Isn't it odd, in this condition where the hearing and vertigo occur together that many treatments that are said to improve the course of one, the vertigo, should fail to have any significant effect on the other, the hearing? In other words, is the alleged effect on the vertigo really the result of the treatment?

We know that we can reduce the impact of the attacks of vertigo by the use of labyrinthine sedative drugs but so far there are no drugs that have been shown, in a controlled trial, to have any long-term (two years) effect on the frequency or severity of the attacks.

Rationale of surgery on the endolymphatic sac. Probably the most common operation for Ménière's disease is some form of endolymphatic sac surgery. This is sometimes done without conviction on the basis that 'one has got to do something'. Discussion of sac surgery often generates a lot of emotion and confusion. This is well illustrated in a recent book² which claims to give a balanced account of the overall situation. There is a 'pro' editor, Arenberg, and a 'con' editor, Graham, a 'pro' section and a 'con' section and on the surface, everything looks balanced. But this is not really the case. There are 10 chapters in the 'pro' section and there are five in the 'con' section. However, in the five listed in the 'con' section one is not about sac surgery at all and one is written by the 'con' editor but actually recommends sac surgery! This illustrates the problems in getting a balanced view.

Just what is happening in sac surgery? So called simple decompression of the sac, despite the various published figures of success, probably cannot do anything specific as the sac is already decompressed on one side anyway. But it might be possible that drainage of the sac is different. Illustrations of sac surgery procedures show Silastic® sheets, fine capillary tubes or tubes with one-way valves, with the common objective of draining endolymph. But can they? Firstly, the utriculo-endolymphatic valve may not be patent. Secondly, the endolymphatic duct may be blocked or even virtually non-existent. However, they are at their most fantastic, (as in fantasy), when we consider the nature of the sac which is alveolar. It is more like a tiny lung than a tiny gall bladder. So, just where are these drains going? It is more likely that they are causing damage than draining.

Finally, even if the drain can be inserted, even if it can drain and even if it does not do any damage to the sac, does it stay in place? Experience from other disciplines in surgery suggests that this is very unlikely. But so much for the rationale. Does it work? Certainly the published reports suggest an improvement but then so does simply discussing surgery with the patient.

Gibson³ has shown that excision of the sac gives similar results to draining it and has concluded that the effect of 'draining' it comes from the damage that is done by the procedure.

The effect of case selection. There are abundant reports in the literature of the results of an uncontrolled series of conservative procedures for Ménière's disease. These show widely ranging percentage success rates which do not really mean very much because the outcomes are influenced by the selection of cases for surgery.

Let us look at two hypothetical operations for Ménière's disease where one is better than the other and both are unique in that they have no complications. Let us consider 100 patients with Ménière's disease where, because of the persistence or severity of their vertigo, 20 per cent are considered to need surgery. Let us also assume that in the inferior operation there is a success rate of 65 per cent so that out of this 20 we have seven who fail to respond.

Now let us suppose that with the better operation there is 80 per cent success. There then would be 100 at the outset, with 20 needing surgery and only four failing to respond. But let us see what happens if we vary the indications for surgery and therefore the numbers operated upon. Supposing that the surgeon performing the lesser operation really believes in it, lowers this threshold for surgery and decides to operate on 33 per cent of the original 100 patients. Because the procedure does no harm, there are still only seven failures and therefore there are 26 successes out of 33 patients or 78 per cent success, almost equal to the other more efficacious procedure.

If he is very keen and operates on 50 per cent and still does no harm, he still has only seven failures and his success rate rises to 86 per cent, better than the other operation. If he is so enthusiastic about the operation that he decides that all his patients should be offered the benefits of surgery he will get 93 per cent success, better than most reported series of labyrinthectomies.

This shows that case selection may be more important in the results of surgery than the nature of the operation performed. We therefore need controlled trials to get confirmation that any procedure works. Surprisingly there seem to be few ethical concerns about doing an operation which is widely performed even though the only two controlled trials that have been performed have failed to show any specific benefit. Yet there are howls of protest about ethics if one suggests doing another controlled trial.

Most otolaryngologists are familiar with the controversial controlled trial⁴ from Copenhagen where sac decompression was compared with simple mastoidectomy. After seven years the follow-up numbers had fallen from 15 in each group to 12 in the sac group and 13 in the mastoid group. Three of the sac group were still having dizzy spells compared with none in the mastoid group. Of those where vertigo was controlled the hearing was improved or unchanged in only five in the sac group compared with 11 in the mastoid group. It is difficult to support sac surgery on these figures.

A further trial from Copenhagen compared ventilating tubes in the tympanic membrane with a silastic sheet drain into the endolymphatic sac. To correct for the possibility of an effect from the anaesthetic, the patients with the ventilating tubes were anaesthetized for 55 minutes on average. There were 15 patients in the sac group and 14 in the ventilating tube group. Both groups had an improvement in their vertigo but not in their hearing. There

was no significant difference between the results in the two groups at follow up at six and 12 months. They concluded that any effect was non-specific.

Silverstein⁵ studied a group of patients who were offered sac surgery because of the severity of their symptoms and compared the outcomes between those who accepted surgery and those who refused it. There was no significant difference.

Now it may be that control of vertigo is being claimed for the operation when, in fact, what is happening is that the patient is simply going through the fluctuations of severity that are customary in this condition.

Avoiding surgery for Ménière's Disease. In my experience it is not unusual for the incapacitating dizziness of Ménière's disease to settle between the decision being taken to operate and the patient's admission for surgery.

A prospective, uncontrolled study⁶ was therefore started in May 1994 in those patients who had become incapacitated by their recurring episodic vertigo, despite appropriate medical treatment. The destructive surgical options were explained and the patients reassured that they would not have to continue indefinitely with the problems of their vertigo. Arrangements were then made to review from six to eight weeks later.

Cases were added to this study for four years, until April 1998. At the time of preparing this manuscript the survey had run for just over seven years. During the period 1994–98 there were 23 patients with incapacitating vertigo from uncomplicated Ménière's disease who had not had any previous operations and where it was considered that the problem was sufficient to merit surgery.

When they were reviewed six to eight weeks later, 12 of them had had a dramatic improvement in vertigo, nine not having had any further attacks. Some had also had a marked improvement in hearing.

The 11 patients who were not dramatically better were, as in the protocol, offered some form of destructive surgery. Initially eight accepted and three refused. Subsequently, however, two changed their minds and have now had surgery.

At the last review of these patient, with follow-up times ranging from eight to 77 months, with a mean of 46 months, 11 had remained free from significant vertigo.

What is happening? Maybe the indications for surgery were too low, but this is unlikely. There is a weekly vertigo clinic with many tertiary referrals; a total of 23 cases in four years does not suggest a high surgery rate.

Something physical happens within the inner ear, especially in view of the fact that the hearing often improves. Maybe this is the result of discussing surgery. More probably the incidence of vertigo in Ménière's disease reaches a crescendo just before going into remission and we are catching that point so that the improvement may have absolutely

nothing to do with talking about surgery. This is certainly possible but this must also apply to most series of conservative surgery for Ménière's disease.

This raises the question if there is any place at all for any of the so called conservative operations, if talking about surgery gets similar results.

There is a major problem about having this hypothesis accepted. Most of those who are interested in Ménière's disease want to operate and have a big emotional investment in surgery. Those who get tertiary referrals will need a lot of convincing before they risk losing their referral base by not operating on most referred cases. This is often admitted privately and even occasionally in public and I shall return to this.

Recycling results. We have seen that case selection influences the apparent success rate but there is another problem about results. When one sees long-term outcomes of conservative operations published, what is usually being seen is simply a snapshot of the results at the time of the assessment for the paper. What had happened in between is being ignored. Let me explain.

Let us consider 12 hypothetical patients who have had a conservative procedure and, for simplicity, look at the results in the old AAOO style where A, B and C are successes in controlling vertigo and D is a failure. Table I shows the results of the end of one, three and five years. It is a typical series with 66 per cent success each time the results are assessed. But can this really be called 66 per cent success? The success column does not include the same group of patients each time. Is the success rate really 33 per cent as there are only 33 per cent who have not had any further dizziness? Now it is probably unlikely that such marked changes actually occur, but we cannot tell from published reports. On enquiring from some authors on the subject, they also cannot tell as their raw data do not contain such details. In other words the events between the time of surgery and the time of each reported follow up have been ignored so long as they have been free from dizziness for the six or 12 months before the final follow up for that particular report.

Price

Now what is the price for our surgery? All operations cause some anxiety and suffering but happily most of the conservative procedures in Ménière's disease are relatively painless and reasonably free from complications. However, they do sometimes go wrong and even the best of surgeons have caused dead ears. Facial paralysis has also been reported.

When we consider price in the literal sense we see a lot of health care resources going into a procedure of doubtful value, thus depriving other patients of surgery where one would expect a better return for the money involved.

It has been my experience that almost all who do sac surgery will admit privately that they have grave doubts about it. Sadly, not only will they not put this

TABLE I

	1 year	3 years	5 years	
1	A	D	D	X
2	A			
3	B	D		X
4	D			X
5	D	D	D	X
6	C			
7	A			
8	D			X
9	C	D		X
10	B			
11	D		D	X
12	C		D	X
Success	66%	66%	66%	33%

in writing but in actual fact they continue to publish papers and speak at meetings advocating sac surgery, thus perpetuating what I see as a problem. Why is this? Are they blinded by their emotional investment or even an investment of a more direct type?

Destructive procedures

Destructive procedures, including vestibular nerve section, streptomycin perfusion of the labyrinth and labyrinthectomy, give good results. The price may be major surgery with unilateral loss of vestibular function and also possibly loss of hearing. In recent years there has been increasing use of out-patient injection of gentamicin into the middle ear with very encouraging results. All these bring the necessity of post-operative rehabilitation and although the outcome from these exercises is usually good, this cannot be guaranteed.

The expert's dilemma

What then are we to do? My current policy is to try to avoid surgery if at all possible and certainly not to do any of the statistically unproven and so-called conservative procedures. When, despite various changes in medical therapy, the patient is still incapacitated and where I feel that surgery is indicated, I procrastinate for six to eight weeks after I have reached that conclusion, actively involving the patient in this procrastination. If there is not a dramatic improvement in that time I then recommend some form of destructive procedure, depending on the hearing and the patient's circumstances.

But this approach would bring a dilemma for the Ménière's disease expert with a big tertiary referral practice and a major emotional investment in conservative surgery for whatever reason. What is he to think and say when he is confronted with a patient with Ménière's disease?

He may, of course, start off by thinking 'I am an expert in Ménière's disease ...' and then he has various options.

Firstly, he may think 'I really believe in this conservative operation, in my hands. The patient has come a long way to see me and expects me to do something but that presents no problem to me at all.'

Secondly, he may think 'I can rationalize doing some conservative operation. The patient has come a long way to see me and expects me to do something but I can manage that.'

Thirdly, he may think 'I have doubts about all the conservative operations. The patient has come a long way to see me and expects me to do something. I must be sure that my doubts remain as doubts and do not get any stronger.'

However, George Bernard Shaw had something to say to this surgeon in his preface to the *Doctor's Dilemma*: 'There is no harder scientific fact in the world than the fact that belief can be produced . . . by the simple desire to believe, founded on a strong interest in believing.'

Fourthly, there can be difficulties when the surgeon thinks 'I don't believe in any of the conservative operations. The patient has come a long way to see me and expects me to do something. I have a big problem if I want to keep my referral practice intact.'

The fifth situation is the saddest. 'Patients used to come a long way to see me and expected me to do something. I did not. Therefore I am no longer an expert in Ménière's disease because I have lost most of my referrals.'

I suppose it is unrealistic to expect anyone who claims to be an expert in any condition to say that he can do nothing to influence the course of the disease, especially while all around him there are others claiming wonderful results from relatively simple procedures. Of what value is an expert if he can not do anything to help? So, if he wants to remain honest, he must do all that he can to convince himself that he can help! Does this bring us back to George Bernard Shaw?

Conclusions

Where do we go from here. Sadly, I am pessimistic about this. Even with the advent of tightly controlled evidence-based medicine, we are still going to see doubtful operations being performed on patients with Ménière's disease. It might be possible to control these in other conditions but Ménière's disease fluctuates too much, sac surgery is probably an easy way to procrastinate and there are too many vested interests ready to exploit this. This surgical

problem is endemic and will not go away. There are too many emotional investments.

How is each of us to know if we are affected by this problem of emotional investment in this or any other subject? We must all ask ourselves the question 'Does this, or any other subject, cause me to rise up with emotion to defend my position?' If so, in the words of Oliver Cromwell, 'I beseech you, . . . think it possible that you may be mistaken', because you may have been blinded by emotional investment.

Acknowledement

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Address for correspondence:

Mr A. G. Kerr,
6 Cranmore Gardens,
Belfast BT9 6JL, UK.

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