THE SURGEON'S JOB

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I suggest that though the symposium is entitled " The Sair Back ", what is really being discussed is the prolapsed intervertebral disc.

There always seems to be some confusion over the surgical aspects of this condition, and this is mainly centred round the following points: What cases should be considered for surgery and when should surgery be done? What investigations are necessary? What surgical procedure should we adopt in these cases? What post-operative care does the patient need? And what results can we expect from surgery?

As regards which cases should be considered for surgery, the first thing to say is that the patient whose pain is restricted entirely to his back, without any radiation, is with one exception—which I will deal with later—not a candidate for surgery at all. The patient who should be considered for surgery is the one who shows signs of root involvement, root compression. These root signs may be either sensory or motor, and the predominant sign of root involvement and the one which the patient complains about most is of course pain. Something like 90 per cent of disc prolapses occur either between lumbar 4 and 5 or between lumbar 5 and sacral 1. If the protrusion is between L 4 and 5, the root involved is L 5, whereas if the protrusion is between L 5 and S 1 the root involved is S 1. The distribution of these patients' pain often gives a reasonable clue as to which root is involved. If this is L 5, the pain is often described as passing down the outer side of the thigh and the outer side of the calf. If it goes as far as the foot it usually passes across the dorsum of the foot and sometimes into the first interdigital space. If the S 1 root is involved, the pain is usually described as passing down the back of the thigh and leg, and if it does pass into the foot it is usually felt along the extreme lateral border or the sole of the foot. These distributions are a rough guide and are by no means invariable. The patient often complains of other signs of sensory root involvement, such as tingling, pins and needles, and these paraesthesiae are often in the same distribution as the pain. Sometimes the patient himself notices an area of analgesia and this is commonly in the L 5 distribu-

tion when it occupies the lateral aspect of the calf. These areas can of course vary considerably in size and degree.

The signs of motor involvement are muscle weakness and muscle wasting. When the L 5 root is affected, the muscles most commonly involved are the tibialis anterior, the extensor hallucis longus, the extensor digitoram brevis, and sometimes the peronei. This shows up as a weakness of dorsiflexion in the toes or the foot, or perhaps some weakness in eversion of the foot. If this motor weakness is complete the patient has a drop foot. If the S 1 root is involved, then of course the tendo achillis group is affected, and this shows itself as a weakness of plantar flexion, which is most easily demonstrated by an inability to stand on the toes.

Patients show other signs involving the spinal column itself. They often have spasm of the paravertebral muscles, with tenderness on pressure. Some surgeons make a strong point of the localization of this tender spot, but personally I do not think it of great significance or much clinical value. The lumbar spine often shows a loss of the normal lumbar curve and sometimes some scoliosis. The patient nearly always shows some diminution of spinal movements, particularly forward flexion. And sometimes a scoliosis becomes obvious when this manoeuvre is carried out with the patient tilting to one side or the other. Tendon reflexes may also give some clue as to the level involved. If L 5 is involved no tendon reflex is affected in this arc, but if S 1 is involved the ankle-jerk may be diminished or absent.

One of the most reliable clinical signs, and one on which I personally lay a great deal of stress, is the limitation of straight leg raising. This is a very good indication of the severity of the prolapse and is also a very good clinical sign for judging either the progress or the regression of the patient's condition. Although the vast majority of prolapses occur between L 4 and 5 or between L 5 and S 1, some prolapses do occur higher up in the lumbar canal, between L 2 and 3 or L 3 and 4. And in these cases the patient usually complains of pain across the front of the thigh and the pain never goes below the knee. The muscle weakness exhibited then is of course the quadriceps, and the knee-jerk is diminished or absent. In these cases straight leg raising is not a significant sign and I usually find it negative in these cases.

The clinical history of this condition is well known to you all—the sudden lifting strain or sudden jerk—and very often there is also a history of intermittent attacks of low back pain before the attack with radiation comes on. There may be a history of alternating sciatica, and this often implies that there is a free fragment, a very important point from the surgeon's point of view. It is also import-

ant to discuss very closely with the patient any possibility of bladder involvement.

There is one type of case in which no radiation takes place and yet which should be considered for surgery. This is the ' adolescent disc ', and the patient is usually in his teens. He complains of very severe back pain, the back is rigid, there is sometimes, but not always, some restriction of straight leg raising, and spinal movements are grossly restricted. This type of case should be considered for surgery on every occasion. A similar picture is sometimes seen in the young adult between 20 and 30, but the common occurrence is in the teenage patient.

When surgery should be done is really the big problem and it is very difficult to draw up a set of fixed rules. If the patient is having his initial attack of low back pain with sciatic radiation and the clinical signs of root involvement are few—that is, he does not have any marked motor weakness or hypalgesia—then probably the best way to treat this patient in the first place is by bed rest on firm boards or a firm mattress. This bed rest should be continued for at least three weeks, and it is important to insist on three weeks, because these patients often settle very quickly and are encouraged to get up and about, which often leads to a sharp recurrence. Even if the patient feels well and is pain free, the bed rest should be maintained for at least this time. The patient should be watched carefully during this period, and if neurological signs appear, motor weakness develops, and the pain does not settle quickly, then this is an indication that surgery should be considered. If the patient does not settle very quickly but the trend is towards settlement, then the period of bed rest should be extended. If the patient has had a number of attacks before and neurological signs are present, this is probably an indication that surgery should be considered at once. If the patient has marked neurological signs in his initial attack then surgery is indicated. If neurological signs, particularly motor ones, are marked, surgery should be carried out fairly promptly because sometimes, when the patient has a drop foot for any length of time chance of recovery is poor, and the sooner this is dealt with the better. It is always a good principle, particularly when pain is involved, to treat the basic condition as radically and as promptly as possible.

There is one type of disc prolapse which is not recognized sufficiently, either by practitioners or by general surgeons, and even perhaps by orthopaedic surgeons. This is the patient who gets a sudden severe attack of pain, very often involving both legs and with bilateral motor weakness; his bladder is involved, he has retention of urine, and he has a sacral analgesia. This is a real surgical emergency. If these patients are not dealt with within 24 hours or

so, then the recovery of their bladder damage will often be impossible and they will suffer irreparable and permanent loss of bladder control. In the neurosurgical unit these patients are operated on at any time of the day or night. It is one of the real emergencies that we deal with, and this is often not recognized. This is why I made such an important feature of questioning the patient about bladder symptoms and signs. If there is any suggestion of bladder involvement, any hesitancy in micturation, any loss of control, then this is an indication for surgical intervention.

Of the investigations done in cases of lumbar disc prolapse the first and foremost is a straight X-ray of the lumbar spine. There seems to be some confusion as to why we do this. A straight X-ray film of the lumbar spine does not show up the disc which is causing the current clinical picture. It may show some diminution of the space between the lumbar vertebrae, but this indicates old disc trouble rather than the current one. The real reason for X-raying the lumbar spine is of course to eliminate other possibilities, such as neoplasm or infection. Another investigation which we do routinely in these cases, and for the same reason, is the sedimentation rate. Myelography is often done also, and here there is no general agreement on its value. My own feeling is that this is a very useful investigation and personally I do it in every case, and for several reasons. It is quite possible to have a clinical picture of a disc at one level and yet have another disc lesion in addition—double discs are not at all uncommon. If one makes a diagnosis on clinical grounds alone, then the other disc may be missed and require a subsequent second operation. It seems to me that, if one is considering surgery, all the necessary surgery should be done at one time. And the myelogram will show up the possibility of affected discs at more than one level. The myelogram will also show up the presence of another lesion—that is, it will suggest the diagnosis of neoplasm when perhaps one is thinking only of a prolapsed disc. Another valuable point about the myelogram is that in the unit at Killearn we do not remove the myodil after the myelography, so that if there is any subsequent doubt about the findings or results, even in the immediate postoperative phase, the patient can be rescreened at once and the situation re-assessed.

There also seems to be some doubt in many people's minds about the surgical procedure that is actually carried out, and most people seem to think that the answer is a laminectomy. The fact is, however, that in most neurosurgical units a laminectomy is not routinely done for disc prolapse. The operation now done at Killearn is the interlaminar approach, in which the ligamentum flavum is removed but no bone is removed at all. Any idea that the patient has bone removed from his back, which is thereby weakened, is therefore

quite erroneous. Surgeons vary considerably as to whether they operate unilaterally or bilaterally, and this is a purely surgical problem. Personally I always make a bilateral exposure.

As to the immediate postoperative course of these patients in hospital we usually get them up as soon as they feel like it, usually by the second or third day. The sutures are taken out about the fourth or fifth day. By the end of a week they are attending the gymnasium, and they are usually out of hospital within 10–14 days. Their subsequent progress largely depends on their job. If the patient is a sedentary worker who does not need to do heavy bending or lifting, then he can probably return to work inside two weeks from his discharge. If, however, the patient is a heavy worker, then he must avoid heavy work for at least 2–3 months, and very often these people will have to change their jobs. Even the sedentary worker must refrain from bending or lifting for 2–3 months, and even such dangerous occupations as golf and gardening are best avoided.

It is often necessary to warn these people that they may have further troubles. Many of them seem to think that they have these troubles because they have been operated on, but in fact these people are going to have trouble with their backs because they have the sort of back that produces trouble. They have already had a disc and the possibility of having another is always there. The operation really has very little to do with this.

The results of surgery depend a great deal on the timing of the operation. The longer the patient has had pain, the more frequent his attacks, and the longer the period that the attacks have been spread over in time, the worse results we will get. If the patients are treated promptly—within perhaps six months of their initial attack or recurrent attacks—then the results are very good and something like 75–80 per cent of the patients will have good results. But the longer the patient has had signs and symptoms the less likely he is to get a good result and the proportion of good results drops accordingly. This merely reinforces what I have said before: that in cases of pain it is important to deal with the problem as promptly and as radically as one can.

To forestall the inevitable question, I want to say a few words about manipulation. My personal viewpoint is that I am quite baffled by the rationale behind manipulation. I have never had it satisfactorily explained to me. It may be that manipulation does have some place in the patient whose pain is restricted entirely to his back, but where there is any question of root involvement my firm personal opinion is that manipulation is inherently dangerous and should not be done.