

**EMERGENCIES IN GENERAL PRACTICE****ACUTE LUMBAGO AND SCIATICA**

BY

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In revision or refresher courses it is customary to stick stolidly to traditional textbook ideas, but in the case of lumbago or sciatica nothing could be less helpful to the general practitioner than the standard textbooks. In the following account I make no apology for putting forward some decidedly bold and unorthodox statements in the management of an acute case of lumbago or sciatica; only by stimulating some clear thinking on this fascinating subject can theories be put to the test and progress made.

The domestic management of an acute attack of lumbago or sciatica is a confidence trick, and the confident practitioner wins the trick by imparting to the patient the feeling that he is in the hands of someone who understands what is happening inside his spine. If we try to visualize what a patient's mental image of a "slipped disk" must be, it is not very difficult to appreciate his anxiety and lack of faith during the conservative treatment of an intensely painful attack of lumbago. If in imagination a patient thinks his disk is in a state varying in degree from Fig. 1 to Fig. 2, how can he expect aspirin, hot bottles, and bed rest to "put it back again"? This,

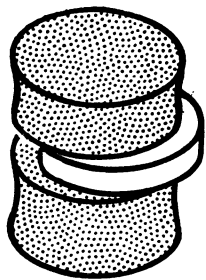


FIG. 1

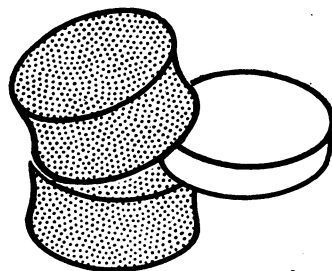


FIG. 2

of course, is the source of the whole trouble, because the true pathology is nothing like what the term "slipped disk" suggests, and it is well to remember that the medical profession never invented this term, which seems to have grown up in the popular press.

Unfortunately the teaching of the average general practitioner is at the moment inadequate to enable him to offer any other mental image to take the place of the "slipped disk." This is where time spent in describing the probable pathology of lumbago and sciatica will provide the practitioner with the ability to handle this type of case by reassurance far more successfully than by any practical hints or tips. The medical profession ought to present a united front on a basic theory and leave the argument of scientific details to their own conclaves. Can one blame the patient who is dissatisfied when diagnosed by different doctors as suffering from fibrositis, lumbago, sacro-iliac strain, lumbosacral strain, fatty herniations, sciatica, and, finally, a "slipped disk"?

It is the purpose of this account to show that in the first three or four weeks of an acute attack of lumbago a consultant can do no better for a patient than can any conscientious general practitioner, for the simple reason

that the only sensible therapeutic measures are aspirin, bed rest, and hot bottles. The trouble starts when someone suggests that the patient might have a "slipped disk." No sooner has the question been put than the patient knows instantly that the practitioner's answers are contradictory and lacking in conviction; a consultant must be sent for immediately.

**The Identity of Fibrositis**

It is only about ten years since most physicians were quite sceptical of the theory of disk protrusion as a common cause of sciatica, and clung to the belief that sciatica was most probably some form of neuritis or radiculitis. So far as sciatica is concerned, ten years have completely changed this attitude; but there is still fierce and heated argument if anyone suggests that the common condition of acute "fibrositis" or acute "fibromyositis" is produced by a disk lesion. Here is the crux of the matter. If one refuses to believe that acute lumbago—that is, acute "fibromyositis" of the lumbar muscles—is due to a disk lesion, then it is impossible to make sense of the clinical facts and to construct from the observed facts a story which will stand the tests of close questioning by intelligent patients. The layman accustomed to assessing evidence can make a doctor look a very sorry expert when the "slipped disk" is being discussed.

Doubtless it will be said that to demand, in the interests of unity, the acceptance of a dogma that fibrositis is due to a disk lesion is not in the spirit of science. To this I would reply that it is better for the public and more constructive for science to have some sort of working theory, which will be proved or disproved by practice, rather than to drag along in the present unhelpful chaos.

The principal evidence which connects fibrositis (acute lumbago) with a disk lesion is threefold: (1) Acute lumbago is often followed by acute sciatica with signs of compression of a nerve root. At operation a protrusion can then be demonstrated. (2) The fulminating onset of some cases of acute lumbago cannot be explained by an inflammatory theory. Onset "out of the blue," often in healthy young athletes, suggests a mechanical cause like the locking of a knee by a loose cartilage. (3) Repeated examination of muscles by the biopsy of "fibrositic nodules" has failed to reveal any histological abnormality. These so-called "nodules" are almost certainly areas of muscle spasm.

The feature of fibrositis which at first sight appears difficult to explain by disk protrusion is that acute fibrositis often appears spontaneously or follows exposure to wet or cold. Though fibrositis certainly can follow trauma it does not always do so, and even after trauma there is often a latent interval. This difficulty seems less formidable now that there is evidence to show that the nucleus pulposus can swell by the uptake of fluid and that in this process it can generate internal pressures probably high enough to cause pain.

**A Theory of Disk Pathology**

The following is a reconstruction of the stages of a disk lesion, and in support of it I believe there is more evidence for it than against it. I shall give the description in terms which can be used when talking to an intelligent patient:

(1) The normal disk is a hydraulic cushion consisting of a tough, but flexible, outer casing which is inflated to a considerable tension by the property of imbibing water possessed

by the soft pulpy centre (Fig. 3). A mechanism exists to govern the access of fluid to the chemical substances which form the pulpy centre, and thus the tension inside the disk is automatically adjusted to the load imposed on it by the activities of the subject.

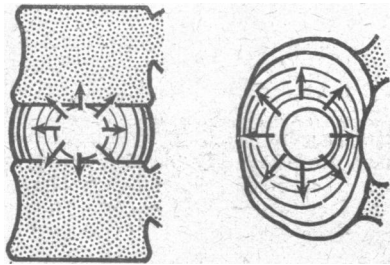


FIG. 3

(2) For reasons as yet unknown the pulpy nucleus can sometimes suddenly acquire access to more fluid than normal, and the rise of internal tension so produced is felt by the patient, as a stiffness of the

back. If the condition is acute the back muscles may go into guarding spasm and a moderately severe attack of lumbago or fibrositis is produced.

(3) This episode of raised disk tension can now settle to leave a relatively normal disk. There may be a parallel to this sequence in acute glaucoma in which the raised intra-ocular pressure is easily detected but still unexplained. In other cases it is probable that when the tension episode subsides it leaves behind a molecular change in some of the mucopolysaccharides (chondroitin sulphate), which appears to be the essential water-attracting substance of the nucleus. After each new tension episode one presumes that more and more of this changed substance is left behind, and that this process of denaturing of the nucleus is the same process which occurs slowly and without acute episodes in the normal ageing process of the disk. It must be emphasized that this process, when evenly distributed through the disk, results in what is correctly termed a "degenerated" or "desiccated" disk (as distinct from a "slipped" or "protruded" disk).

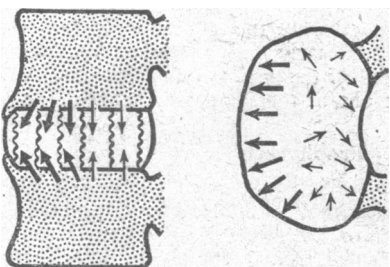


FIG. 4

edges of the vertebral bodies above and below the "perished" disk show osteophytic lipping as a result of the localized areas of mechanical trauma to which they are exposed now that the hydraulic mechanism no longer distributes the body load evenly over the end-plates of the bony bodies (Fig. 4).

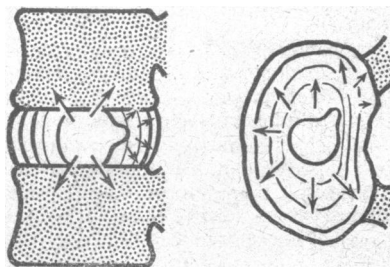


FIG. 5

start of a disk herniation. The annulus is very thick, and it may take several acute pressure episodes before the nucleus works its way through the numerous layers of the annulus till it comes to lie immediately under the surface of the disk

I prefer to tell patients that the degenerated disk, to keep up the analogy of the hydraulic cushion, is one in which the substance of the disk has "perished" and has simply lost its original flexibility. In the later stages of degeneration the

(4) If in the course of an acute episode of raised internal tension (lumbago) some of the deep fibres of the annulus are ruptured and penetrated by the swollen nucleus, we now have the

(Fig. 5). This process of moving up to the surface is usually to one side of the midline, and in right-handed people is decidedly more common on the left than on the right. When this happens the pain referred to the muscles acquires a unilateral element, and pain and tenderness may be localized first to the region of the sacro-iliac joint, later to the fold of the buttock, and later still to the back of the thigh. This is a "referred sciatica," and is distinguished from true sciatica by the fact that there is no evidence of root compression and straight-leg raising is not seriously impaired, because there is as yet no external protrusion of the nucleus through the annulus.

(5) These leakages of the nucleus to the surface may terminate in a true disk hernia or protrusion which now for the first time will stretch a nerve root and produce true acute sciatica (Fig. 6). The pain now will pass down below the knee and into the foot, and it will be associated with a marked degree of limitation of straight-leg raising, indicating the direct stretching of the nerve root. There may or may not be signs of impaired nerve conduction.

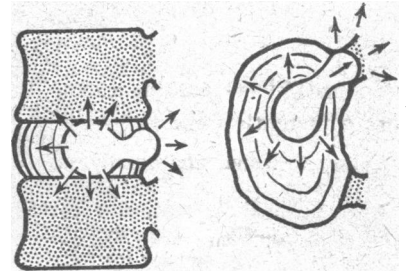


FIG. 6

It is to be noted that in this condition the disk has not "slipped." The disk has swelled to an abnormal volume and the excess has bulged out to form the protrusion. It will now be obvious to the patient why there is no possibility of manipulating the protruded excess back into the interior. It is here that the patient can understand the necessity for removing excessive body weight from the disk and the need to wait till the episode subsides and shrinkage of the nucleus withdraws the protrusion spontaneously. In these cases there will be no narrowing of the disk space in the radiograph.

(6) So far, the process has merely concerned the hydraulic bulging of the swollen disk, but there is almost certainly a second kind of mechanical element present. This is the production of a sequestrum of degenerated nucleus (or even possibly of degenerated annulus). Crudely speaking these sequestra are lumps of coagulated nuclear substance. Localized degeneration can produce a sequestrum lying in a track passing from the centre of the nucleus to the threatened point of penetration of the annulus (Fig. 7). This can actually be seen at necropsy. The sudden movement of such a sequestrum may be the cause of those fulminating attacks of very acute lumbago which come on, without warning, in patients who have been quite normal a few minutes before.

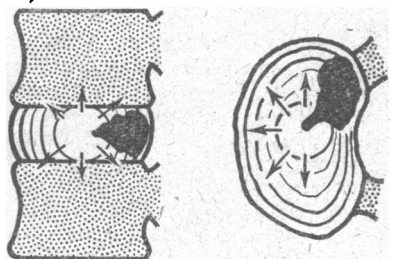


FIG. 7

In these cases the patient may actually feel or hear a "click" in the back at the moment of onset of the pain. The swollen disk type of lumbago described in (3) is slower in development than the sequestrum type, or, if sudden, the attack is heralded by slight discomfort present some hours or days before the main attack. The sequestrum type of lumbago is the one which has sometimes been relieved by manipulation or which sometimes clears up quite suddenly, and in this the clinical features are very similar to the recurrent locking of a knee by loose meniscus.

(7) If the localized disk sequestrum becomes displaced so that it protrudes from the exterior of the disk (Fig. 8), the classical picture of acute sciatica is produced in exactly the same way as in (5), and it can only be distinguished from the

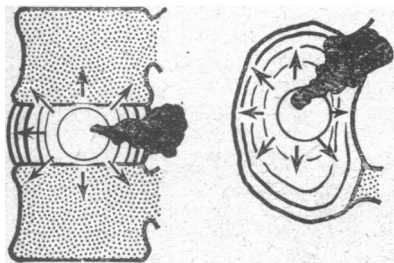


FIG. 8

pressure type in retrospect by the fact that conservative measures will probably not produce a cure. Here the protruded substance is not held out by the raised internal tension inside a swollen disk, and it is not a semi-fluid mass transmitting

the internal pressure of the disk. The sequestrum is a tough fibrous wedge which is permanently jammed between the bodies and stretching a root. In this case there may be narrowing of the intervertebral disk space in the radiograph. These are the cases which eventually have to be operated upon and which, incidentally, give the best results, because, if the sequestration of the disk is sufficiently well advanced, the removal of the protrusion leaves behind no more material to give trouble at a later date. When considering operation there is a lot to be said for not operating too early and for leaving the disk till it is fully "ripe" for picking out the sequestrum. In some very severe cases a sequestered disk can be completely extruded to lie free in the spinal canal. Sequestered disk substance can easily be recognized by the naked eye, because it has none of the pasty, semi-translucent quality of a normal disk, but has the opaque-white, shredded appearance of boiled lobster meat.

(8) Finally, to complete this account of the different types of disk disorder the true "acute back strain" must be added. This is frequently encountered in labourers lifting weights when a sudden additional load is thrown on them, as when a mate drops his end of the load. Immediate intense pain and rigidity is experienced, and severe symptoms may persist for at least three weeks before they start to clear up. There seems every reason to believe that these are ruptures of the deep layers of the annulus without actual protrusion of the nucleus. The subsequent course is indistinguishable from that of any severe fulminating lumbago.

### Treatment

From these considerations of the probable pathology, certain points emerge in the handling of acute cases of lumbago or sciatica which need stating with considerable emphasis.

It is not well enough realized that the substance of the intervertebral disk is a unique tissue and that there is no reason to believe that its swelling, shrinkage, degeneration, and rupture are governed by the ordinary processes of inflammation and repair. It is a totally avascular substance, and, like the meniscus of the knee-joint, once ruptured it is probably incapable of repair. Though we customarily prescribe rest, and often fixation (by analogy with ordinary processes of inflammation), there is no proof that this shortens the period of three or four weeks which is often needed before symptoms of an acute disk episode subside. I have never been convinced that a patient who stays in bed any longer than he is forced to by the mere intensity of the pain thereby shortens the total duration of the attack. Indeed, there is evidence to suggest that movement is favoured by nature, because many patients in very severe pain cannot tolerate immobilization and prefer to be constantly changing their position, never remaining quite still for more than a few minutes at a time. Once the acute episode has truly started to regress (that is, after three weeks) it is not likely that activity will bring it back again; in this respect it is quite unlike ordinary inflammation.

### Cases for Surgery or Special Treatment

The acute tension episodes, no matter how painful, or whether associated with sciatica and neurological signs, in

the majority of cases will settle merely by the passage of two, three, or four weeks. The commonest error is to underestimate the duration of acute pain—far more often than is realized an acute attack will persist for over three weeks. During this time all that can be done is to sedate, apply heat, and recommend rest.

On being called to the initial violent attack of pain an immediate hypodermic injection of morphine,  $\frac{1}{4}$  gr. (16 mg.), will often be necessary. Thereafter this drug should not be needed more than once or twice and should then be reserved for the night, in order to procure sleep. It is at night that the pain, which may be tolerable during the day, seems to exhaust the patient and cause panic. Pethidine in 50-mg. tablets is useful after the first two or three nights. During the daytime two codeine compound tablets (*N.F.*) every two hours are usually adequate if combined with heat. Heat is best applied by relays of hot-water bottles to the affected buttock and back of thigh. If there is a localized area of extreme tenderness in the loin or buttock, it is often tempting to inject a local analgesic (20–50 ml. of  $\frac{1}{2}$ % procaine hydrochloride), especially as the patient expects the good physician "to do something." Some transient relief sometimes follows this procedure, but, as it cannot shorten the attack, it is doubtful whether it is worth the trouble, except on psychological grounds.

If, after three to four weeks, pain and disability are still persisting the possibility becomes a probability that a solid sequestrum has been displaced and that the patient may eventually become a candidate for surgery. The initial intensity of the pain is no measure of the need for surgery; and in any case, speaking generally, in a first or second attack one would never recommend surgery until at least three months of disability had been present. In hospital the best results of disk surgery are produced by a long waiting-list. During the subacute phase, after the initial three to four weeks, a plaster jacket is perhaps the best method of encouraging a certain amount of activity while watching the progress with a view to surgery at a later date, but there is not much point in applying plaster before the expiration of the first three or four weeks. In the early acute phase bed rest, taking the load of body weight off the disk, is infinitely better than to try to fix the spine and at the same time keep the body weight on the disk.

### Prophylaxis

I will take the risk of saying quite categorically that there is no evidence to suggest that an attack of lumbago which has been "untreated" or "neglected" in its early stages could have been prevented from later passing into a full disk protrusion by "treatment." It is the fear of being responsible for this which causes many practitioners unnecessary worry and imposes such a strain and expense on the Health Service. With the obvious exception of attempting to lift heavy weights or to work too early in a fully bent position, I believe this opinion should be firmly and widely voiced in the popular press.

### Conclusion

The importance of a cheerful and even a light-hearted approach by the physician cannot be too strongly emphasized. It is much healthier for the patient's attitude to future recurrences of back trouble, which in some measure is almost certain to occur from time to time, to try to regard lumbago as the sort of music-hall joke it used to be ten or twenty years ago. This does not mean that the practitioner need be insensitive and heartless, but that well-meaning but over-conscientious worry about "slipped disks" does not help the patient in the early stages of an acute attack.

I am indebted to the Department of Medical Illustration, Manchester Royal Infirmary, for the illustrations.

Next article on Emergencies in General Practice.—  
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