SPINAL DISK LESIONS

AN ASSESSMENT AFTER TWENTY-ONE YEARS

BY

JAMES CYRIAX, M.D., M.R.C.P.

*Physician to the Department of Physical Medicine,
St. Thomas's Hospital*

"One-third of all orthopaedic out-patients complained of low backache. Had the panel any suggestion for coping with this vast number?"

"They had none." (One of the questions put at the autumn meeting of the British Orthopaedic Association.)

In 1934 Mixter and Barr published their epoch-making paper describing relief from sciatica after the removal at laminectomy of part of a low lumbar disk. At the time the lesion was thought most rare, but in due course increasing experience enabled this diagnosis to be made more often. By ten years later the common cause of what had been called "sciatic neuritis" was beginning to be recognized as a low lumbar disk protrusion. Actually, Goldthwait (1911) had already ascribed lumbago and sciatica to disorders of the lumbo-sacral joint.

Cervical disk lesions soon came to the fore—the analogy was obvious—and by, say, 1950, root pressure from a cervical displacement was beginning to be widely regarded as a common cause of "brachial neuritis."

Thoracic disk lesions have only just begun to gain appreciable acceptance as the cause of "intercostal neuritis."

So much for root pain. But it had been known for centuries that lumbago often led to sciatica; that scapular "fibrositis" usually preceded brachial neuritis, and that "intercostal neuritis" might follow posterior thoracic pain. By 1950 the idea was gaining ground that lumbago was caused by internal derangement at a low lumbar level (Cyriax, 1945), and soon afterwards, that scapular and thoracic "fibrositis" might have their source in disk lesions at the relevant spinal levels (Cyriax, 1948). All this has now ceased to be particularly controversial, and the concept of a disk lesion causing pain solely in the trunk is already firmly established. Given that this is so, what effect has all this new knowledge had on the prescription of treatment? To-day, attending every hospital are large numbers of patients correctly diagnosed as suffering from disk lesions causing pain in trunk or limb. Is enough effort being made to employ effective measures on this large number of patients, some already severely disabled, and others in danger of such disablement unless given immediate attention? The answer is "no."

Cervical Disk Lesions

These usually present a unilateral scapular aching associated with pain on moving the neck. At this stage the displacement is small and immediate manipulative reduction succeeds in 99% of all cases, provided that general anaesthesia is avoided. One, seldom two, sessions suffice. Traction has been shown by radiography (Cyriax, 1954) almost to double the space at the intervertebral joint; strong manual traction is therefore maintained while the manipulations are carried out. Only slight discomfort is felt. This simple measure not only affords immediate relief from the scapular pain but prevents the later onset of brachial neuritis.

Occasionally a cervical disk protrusion causes central neckache or bilateral scapular discomfort, or bilateral brachial pain or paraesthesiae in the upper, lower, or all four limbs. In such cases immediate reduction is more important than ever; for any of these events implies that the protrusion is passing backwards in the midline. Since it has become evident that pressure from a central herniation on the spinal cord (Middleton and Teacher, 1911; Brain, 1954) and on the anterior spinal artery is responsible for cases hitherto diagnosed as amyotrophic lateral sclerosis or progressive muscular atrophy, it is reasonable to suppose that immediate reduction followed by its repetition whenever necessary may spare patients crippledom in later years.

Once root pain down the arm has begun, manipulative reduction is more difficult. When muscle paresis is absent, it remains successful in two-thirds of all cases; if a marked root palsy has supervened, failure is almost certain. The change from scapular discomfort to root pain may take years in one patient, hours in another. Hence there should be no delay; in each suitable case the manipulation should follow the establishment of the diagnosis within a few minutes.

Thoracic Disk Lesions

Whether causing posterior or anterior thoracic pain, a protrusion irreducible by manipulation during manual traction is a rarity. Should one be encountered, daily sustained traction seldom fails. By keeping the prevalence of thoracic disk protrusion in mind and examining the thoracic spinal joints for articular signs, the clinician can avoid many mistaken diagnoses of visceral lesions, hitherto obscure pain of months' or years' standing being found relievable within a few minutes. Moreover, since a thoracic protrusion can compress the spinal cord, reduction provides the prophylaxis of one cause of postero-lateral sclerosis and paraplegia.

At the thorax the maintenance of reduction is difficult. Lordosis is unobtainable; hence the patient must do his best not to stoop or lift; for eventual redisplacement is a virtual certainty. Manipulative reduction must then be repeated.

Lumbar Disk Lesions

These often start by causing chronic backache in women and attacks of lumbago in men. In the former case a small posterior displacement is present the whole time; in the latter the patient suffers bouts of acute lumbar pain and fixation caused by a major attack of internal derangement, but is symptom-free between-whiles. In backache, manipulative reduction, without anaesthesia, is usually successful; should it fail, sustained traction is called for. Between 100 and 200 lb. (45 and 90 kg.) is applied while the patient lies on a special couch for up to an hour daily. Manipulative reduction is also the treatment of choice in lumbago if the patient can bear it. If he cannot, epidural local analgesia is indicated; this abolishes the pain for one and a half hours, during which time he lies prone on a couch in hyperextension. The pain seldom returns to anything like its previous intensity.

Once reduction has been achieved redisplacement is obviated so far as is possible by postural instruction in the maintenance of lordosis and the provision, when necessary, of a corset or a plastic jacket. I have no patience with those who apply a plaster—belladonna or plaster of Paris—to the patient without reducing the displacement first. No one would dream of applying a plaster to a fracture without reducing it first, and, in my view, identical considerations apply at the lumbar spine.

When root pain has come on, reduction is often successful when straight-leg raising is limited but conduction is either not affected or only slightly. Should manipulation fail, traction is often quickly successful. Marked root paresis designates a protrusion too large ever to retrace its steps, but often implies an early cessation of pain; it is often best left alone. Primary postero-lateral herniations—that is, root pain without previous backache—in young patients are usually best left to recover spontaneously, with

or without the help of epidural local analgesia. Long-standing sciatica can sometimes be cured outright by one or two epidural injections.

When conservative treatment fails and the symptoms warrant, operation is indicated, but it is important not to confuse minor lesions in hypersensitive patients with major lesions. Laminectomy or arthrodesis is called for in 1 in 200 of the cases seen by me. It is difficult to escape the impression that, were conservative treatment on the lines set out above employed, many cases would not get to the point of laminectomy at all. Certainly many patients who had been considered unrelievable except by laminectomy have been found to respond satisfactorily and quickly to the above methods of conservative treatment.

Discussion on Treatment

Though the patient does not realize it, a disk lesion is a medical emergency. Future trouble is obviated so far as is possible if reduction can be carried out as soon as the diagnosis is established. Not only does the patient lose his symptoms there and then, but stretching of the posterior longitudinal ligament is reduced to a minimum. Since this ligament forms the only bar to further protrusion, every effort must be made to spare it the prolonged pressure of a continuing displacement, especially at the cervical and thoracic regions, where the spinal cord is in danger. Moreover, nearly all disk lesions set up pain in the trunk before the root pain supervenes; hence if reduction is carried out at this stage increased protrusion leading to root pressure is avoided.

This has been the policy for years at our physical medicine department. The methods are based on logic, are simple, and have proved effective. Manipulative reduction is usually carried out by the physiotherapy staff and students; they too attend to traction. My registrars and I give the epidural injections. In the last 17 years I have given some 15,000 such injections to unprepared out-patients without serious mishap.

The fact remains, however, that there is scarcely a hospital in the country where a minor disk subluxation is manipulated back into place while it remains minor and easy to reduce. Since patients with reducible displacement of part of a disk abound in every hospital, and the technique of reduction involves manipulation without anaesthesia, we have found that there is seldom any need for the doctor to give the treatment himself. This is delegated to trained personnel, and for the last 10 years our physiotherapists have carried out these manoeuvres with manifest success.

The adoption of mechanical traction has proved less tardy, and within only five years of its advocacy for disk lesions (Cyriax, 1950) a number of hospitals have installed, or are considering installing, a traction couch. Epidural local analgesia appears everywhere unobtainable as an immediate out-patient measure. It is sad to reflect that these three main stand-bys of early treatment are not available to most sufferers. Only recumbency, a plaster jacket, and operation remain—all methods that, in my view, are called for only should the simple and quick methods fail.

But the patients know better. They go to the lay manipulator. And many medical men, knowing that neither themselves nor their hospital can help in such cases, recommend osteopathy. But why, when doctor and patient know that manipulation is the treatment of choice, is the patient forced to have recourse to a layman—not only that, but to pay him as well? Such a state of affairs would be unthinkable in any other branch of medicine and would not be tolerated for one moment were the displacement osseous. Yet a cartilaginous displacement requires reduction no less than a bony one. It is remarkable that this medical hiatus exists in the case of the spinal joints only—the very joints at which internal derangement is most frequent. The gift to the unqualified manipulator represented by this situation must astonish him; for great public esteem attaches to

instantaneous relief from pain. Doctors thus render their own profession great disservice when the possessor of the common reducible disk lesion is left to wander to a layman.

Manipulation by Laymen

Neglect by medical men to consider manipulating a spinal joint, even after they themselves have stated internal derangement to be present, has created a group of laymen styling themselves osteopaths, chiropractors, and bone-setters. Patients do not wish to seek treatment outside the medical profession—even less so now, when they already pay the State for all medical care—but they discover that the appropriate treatment is not obtainable within the Service. So they have to go to a lay manipulator. And one must admit that, though devoid of diagnostic skill, such laymen often, in spite of not realizing the nature or the level of the lesion, relieve the patient immediately by a few simple manipulations. How easy it must therefore be for doctors or trained physiotherapists, with their anatomical knowledge, and basing themselves on a proper diagnosis, to do so too (Cyriax, 1949).

Were manipulation of the spinal joints restored to the medical sphere, not only would all suitable patients be relieved at once and the liability to further trouble be reduced to a minimum, but much abuse would be avoided, since the evil inherent in unsupervised recourse to laymen would cease—namely, repeated, fruitless, and expensive visits for conditions insusceptible to manual treatment.

Sooner or later, public agitation that spinal manipulation shall be obtainable within the Health Service will encourage the osteopathic fraternity to press again for State recognition. Luckily their fantastic claims put them outside the pale at the inquiry at the House of Lords in 1935. Let medical complacency not go too far; in Switzerland osteopaths are officially recognized, and in France osteopathy is a compulsory subject for medical students. The medical profession of Great Britain would be put in a most awkward position were another inquiry held to-day and the question asked of a number of hospitals—what arrangements exist in your out-patient department for spinal manipulation? Are the medical students shown, and the physiotherapy students at your school well grounded in, manipulation for disk displacement? It is no answer to say that manipulation is obtainable under anaesthesia by the orthopaedic surgeon on in-patients; this approach touches only the fringe of the problem, as the existence of some two thousand lay manipulators in this country demonstrates. The orthopaedic surgeon has many far more important operations to perform and, with the best will in the world, cannot deal with more than a tiny fraction of suitable cases, even if the beds were available.

Medico-legal Aspect

This has its anxious side. When a patient consults a medical man and is found to have a fracture out of alignment, a dislocated bone, or a displaced cartilage at the knee, reduction (usually by manipulation) is the accepted treatment. Were no effort made to reduce the displacement, or a good reason for refraining not set out, the attending practitioner might well find himself in medico-legal difficulty. In these times of increasing litigation it will not be long before some enterprising patient, after he has developed a major disk lesion, points out that, when he first consulted his doctor, the displacement was slight and that no effort at reduction was then made. Moreover, it may well happen that after various medical men have been consulted—and it is agreed by all that a displacement is present—the patient gives way to his friends' exhortations and visits a lay manipulator, who may afford him immediate relief. The patient can now argue very plausibly that he had an easily reducible disk lesion but that none of those whom he consulted treated him skilfully. This might be construed as negligence, not on the part of the general practitioner, but on that of any consultant he may have seen. In my

view the time is not far off when the illogical but time-honoured attitude of leaving a minor disk lesion to get larger or smaller as fortune dictates will provide us with another legal hazard.

Economic Considerations

If a family doctor is asked how many patients in bed with lumbago he has at any one moment, the usual answer is one, two or three. This implies that between 20,000 and 50,000 patients are off work at any one time because of a displaced fragment of disk. Were patients off sick because of a stiff neck, brachial neuritis, "fibrositis," pleurodynia, and sciatica all added to the list, a huge total of largely avoidable disablement would be reached. This costs the Health Service in sickness benefits far more than the expense that would be entailed in securing adequate treatment for the sufferers. Without further research, merely by a more general application of methods already evolved and continuously tested since, a great saving in pain and disablement would accrue, with huge advantage to the financial aspect of health insurance. From the economic point of view it is the logical treatment of the common disorders of the vertebral column that would make the biggest immediate contribution to industrial health to-day.

Summary

The rediscovery 21 years ago of intervertebral disk lesions explains the cause of many pains in the trunk and limbs, previously misunderstood. This clarification has not been followed by enough change in methods of treatment. Measures thought appropriate in previous decades—for example, heat, massage, exercises—remain in use at a time when reduction by manipulation or traction is required.

At present spinal manipulation for disk lesions is largely in the hands of laymen. This is a sad state of affairs; for if a patient requires treatment for an intervertebral displacement this should be administered by a doctor; failing that, by a physiotherapist working under his direction. The economic benefit is no less important than the humanitarian aspect.

Physiotherapists should be trained in accurate manipulation and thus make treatment for the reducible disk lesion possible on a large scale within the Health Service. It can be done, as our experience at St. Thomas's Hospital proves, and would render lay manipulators superfluous.

REFERENCES

- Brain, R. (1954). *Lancet*, 1, 687.
 Cyriax, J. (1945). *Ibid.*, 2, 427.
 — (1948). *British Medical Journal*, 2, 251.
 — (1949). *Osteopathy and Manipulation*. Lockwood, London.
 — (1950). *British Medical Journal*, 2, 1434.
 — (1954). *Orthopaedic Medicine*, vol. 1, plates 5 and 6. Cassell, London.
 Goldthwait, J. E. (1911). *Boston med. surg. J.*, 164, 365.
 Middleton, G. S., and Teacher, J. H. (1911). *Glasg. med. J.*, 76, 139.
 Mixer, W. J., and Barr, J. S. (1934). *New Engl. J. Med.*, 211, 210.

The Association of Universities of the British Commonwealth has just published, as a pamphlet entitled *United Kingdom Postgraduate Awards (Fellowships, Scholarships, Grants, etc.)*, Appendices II and III of the *Commonwealth Universities Yearbook*, 1955. The *Yearbook* itself will be published in May. Appendix II contains a list of postgraduate awards "for advanced study and research tenable in the United Kingdom." It has been prepared as the result of a resolution of the Congress of Universities of the Commonwealth that each of the countries of the Commonwealth should draw up a list of postgraduate and research awards available at its universities for overseas graduates. Appendix III contains a list of postgraduate and research awards tenable outside the United Kingdom. It applies only to United Kingdom graduates and does not claim to be exhaustive. The pamphlet can be obtained from the secretary, Association of Universities of the British Commonwealth, 36, Gordon Square, London, W.C.1.

PRIMARY TUMOURS OF THE SMALL BOWEL

BY

T. A. OGILVIE, M.B., F.R.C.S.Ed.

Surgeon, Essex County Hospital, Colchester

AND

H. M. SHAW, M.B., F.R.C.S.

Registrar, Essex County Hospital, Colchester

It is now well recognized that tumours of the small bowel, though rare, account for about 3% of tumours found in the gastro-intestinal tract, and that most surgeons will encounter several in the course of their career. The incidence of tumours of the small bowel is greatest in the duodenum. Willis (1948), quoting a series published by Hoffman and Pack (1937), mentions that, of 228 small-bowel tumours, 104 were situated in the duodenum. As the distance along the small bowel from the duodeno-jejunal junction increases so the incidence of tumours decreases, the symptomatology is different, and there are types of neoplasm met with in the jejunum-ileum seldom seen in the duodenum. One may therefore consider the two categories, duodenal and jejunum-ileal neoplasms.

Tumours of the small bowel are of four main types and may be innocent or malignant:

Types of Small-bowel Tumour

	Innocent	Malignant
I. Epithelial tumours ..	Adenoma	Adenocarcinoma
II. Connective-tissue tumours	Fibroma, myoma, lipoma, neuro-fibroma	Fibrosarcoma, leiomyosarcoma
III. Tumours of lymphatic or vascular origin	Angioma	Lymphosarcoma, reticulum-cell sarcoma, Hodgkin's disease
IV. Special group ..		Carcinoid

In general, it may be said that these tumours produce symptoms in one of four ways: (1) Obstruction, which may be due to an annular stricture, to intussusception with the tumour at the apex, or to volvulus. (2) Jaundice due to obstruction at the ampulla of Vater. (3) Melaena, anorexia, and loss of weight. (4) Perforation, which is a rare method of presentation.

It is not intended to discuss the signs and symptoms in detail, but rather to present the experience gained at a provincial hospital in dealing with these tumours over a period of ten years. In this period 16 cases have been diagnosed as suffering from small-bowel neoplasms. The details of these cases are shown in the table on the opposite page.

If we consider these cases together it will be seen that 12 presented with symptoms of acute or subacute small-bowel obstruction, 2 with abdominal discomfort and jaundice, and 2 with abdominal discomfort and melaena. In most of these cases pre-operative investigation was of little help in establishing the diagnosis, as in many of them operation was performed forty-eight to seventy-two hours after admission for the relief of obstructive symptoms. However, in four cases a barium meal examination was made, but was negative in each instance. The benzidine test for occult blood was performed in four cases and in each case gave a positive result. A plain film of the abdomen with the patient