EMERGENCIES IN GENERAL PRACTICE**MANAGEMENT OF LOW BACKACHE**

BY

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Low backache is a very common complaint, and many of those afflicted by it spend a great deal of their time not only in suffering from it but in having it investigated and seeking a permanent cure. It is true that we can relieve the acute attack of pain; we can also alleviate severe and persistent sciatica by removing an offending intervertebral disk; but the management of many cases of chronic low backache and of recurrent attacks of lumbago and sciatica can tax the skill and ingenuity of the medical attendant to the uttermost. Although there is no doubt that the degeneration and subsequent protrusion of an intervertebral disk is the common cause, there is much to be said for retaining the terms "lumbago" and "sciatica" to describe the syndromes to which these lesions give rise. Certainly patients find the old-fashioned nomenclature reassuring, and many will cheerfully put up with an attack of "lumbago" every now and then but will not endure the same symptoms and disablement if told that they have a "slipped disk."

I shall limit myself here to a broad description of the clinical patterns encountered in cases of lumbar backache, and then discuss their management. Many different pathological lesions will cause backache, so it is useful to divide cases into those where a serious, or at all events a definite and significant, lesion can be found by clinical or radiological investigation and the much larger group where no such lesion can be demonstrated. Cases of lumbar disk protrusion are included in the second group, although occasionally, of course, a disk protrusion may cause symptoms and changes of the utmost seriousness.

Serious Disorders Causing Backache

This group, which will be dismissed briefly, may be divided into those with a lesion of the spine or spinal cord and those with other causes for their pain. Amongst the latter are pelvic cancer, renal diseases, disease of the large bowel, and many gynaecological conditions. With these, by and large, backache will not be the only symptom; the history and type of pain are often distinctive; and there are distinguishing signs on proper clinical examination. The sciatica of rectal cancer or pelvic metastases is a much more severe and persistent type of pain than that due to a protruded disk. In my experience it does not appear till the growth is fairly easily discoverable by proper investigation. Serious spinal lesions can be suspected from the history or from clinical examination, but a radiograph will usually clinch the matter. It is for the exclusion of these serious lesions that radiographic examination of every case of lumbar backache is so important. Below are listed the principal serious causes of low backache.

Neoplasms.—Primary growths such as angioma or osteoclastoma are rare. Metastases are comparatively common and may present with chronic lumbar pain or as a lumbago-like attack due to spontaneous fracture of a vertebra.

Myelomatosis.—Cases often present with "backache," usually dorsal or lumbo-dorsal but sometimes lumbar. Like ankylosing spondylitis, the diagnosis is often missed for some time.

Paget's Disease.—This is often discovered in the pelvis or lumbar-spine on routine investigation for other conditions.

Sometimes pain is due to a concomitant osteoarthritis rather than to the bone disease itself. In the lumbar spine it may give rise to root pressure and sciatica or paraplegia.

Tuberculosis.—It is a good thing to remember how often the disease can occur in adults in whom there is commonly an associated pulmonary lesion. A tender kyphos is a late sign.

Osteoporosis.—The senile variety is a common cause of "lumbago" in elderly people, the acute attack of pain being due to sudden fracture or collapse of a vertebral body. These may be multiple—there may be recurring attacks—and pain may be intractable; but pain from a single collapse often clears up surprisingly well and quickly with complete rest in bed. *Idiopathic vertebral osteoporosis* occurs in middle-aged women and gives rise to very persistent lumbar or more often dorsal backache. A spinal support usually helps.

Spondylolisthesis.—The forward dislocation of the upper vertebral body usually occurs at the lumbosacral junction, but may be between the fourth and fifth lumbar vertebrae. Mild displacements may occur as the result of degeneration of an intervertebral disk, but the true condition is associated with a congenital defect of the pars interarticularis. Where this defect is found without there being displacement it is referred to as *spondylolysis*. Both conditions are often discovered during routine x-ray examination of cases of low backache, especially if oblique views of the lumbosacral region are taken. Symptoms may be "triggered off" by an accident to the back, but there is always the congenital predisposition. The usual symptom of spondylolisthesis is sciatica, which may be bilateral.

Fractures.—Although chronic low back pain is a frequent complication of the ordinary traumatic fracture, the pain is seldom at the site of or due to the wedge-shaped vertebra. In fractures of the vertebral body or the transverse process the subsequent chronic pain is almost always the result of injury to the soft tissues, particularly to the lumbo-sacral intervertebral disk. The exception to this is in those rather unusual cases where the vertebral body is wedged to one side or the other. So-called Kümmell's disease is no longer regarded as an entity, but is the result of necrosis and collapse of the vertebra following an undiagnosed fracture.

Ankylosing Spondylitis.—The established case with fixed spinal deformity presents no difficulty in diagnosis. The earliest radiological signs appear in the sacro-iliac joints, and the sedimentation rate may be raised. This disorder should always be suspected in young men with low back pain where the pain radiates into both gluteal regions.

Less Serious Causes and the Clinical Patterns

Let us now consider the pathogenesis of the much larger group where there is no clinical or radiological evidence of serious underlying disease. Here trauma, osteoarthritis, degeneration of intervertebral disks, or postural strains may be important, either singly or in combination.

Strains from bending or lifting and heavy falls may cause compression of the lumbar intervertebral disks, tearing of the lumbar muscles or their attachments to the pelvis, tearing of the interspinous and other ligaments, or contusions of the articular cartilage of the facet articulations. These injuries will cause pain at the time, and subsequently may give rise to a more chronic or a recurring type of backache from the stretching of scar tissue or adhesions. Osteoarthritis of the spinal articulations may cause symptoms before it is clearly demonstrable radiologically, just as it will in the larger and more obvious joints such as the knee or hip. As elsewhere, it may follow trauma or complicate congenital deformities. Osteoarthritis of the facet articulations often narrows the neural foramina, compressing the emerging nerve roots.

It is generally conceded, I think, that protrusion of an intervertebral disk is preceded by some degenerative process. The history of patients with disk lesions suggests that mechanical protrusion as an immediate effect of injury is rare, although compression strains are often followed by degeneration and later extrusion of disk substance. In many cases—probably the majority—the exact cause of the degeneration is unknown. But once it has taken place extrusion is likely to follow. This has two effects: first, the loss of the disk cushion between the vertebral bodies produces abnormal stretching of the capsule of the posterior facet articulations and later degenerative arthritis of those joints; and, secondly, the extrusion itself may compress the sciatic nerve roots.

Finally, in the back just as in the feet continued overstretching of ligaments from poor posture, excessive weight, weak muscles, or some combination of these three factors may produce adhesions in and around the ligaments, which are painful. This assumption cannot be supported by histological evidence, but strong circumstantial evidence is provided by the rapid recovery of symptoms in the feet or in the back following appropriate exercises and, where necessary, manipulation.

The pathological picture may be confused by a combination of these four processes, and treatment rendered consequently more difficult. Simple tearing of ligaments or muscles might be easy to treat were it not for an added disk injury or the development of osteoarthritis in an injured facet articulation. Injuries to backs which are already the seat of osteoarthritic changes are as difficult to put right as similar conditions in the hip or knee. But, however complicated the underlying lesions, and however varied the patient's story, the clinical picture emerges as five well-defined syndromes. These are: (1) immediate post-traumatic back pain; (2) lumbago; (3) sciatica of acute onset; (4) chronic low backache; and (5) chronic sciatica. I admit a man may suffer a painful injury to his back, which is followed by attacks of lumbago, varied by acute sciatica and chronic intervening low backache, and eventually develop a chronic sciatica. Such a history is a clear indication of disk injury, degeneration, and protrusion. But it is often by the arrangement of some or all of these five common syndromes that we can reach a correct diagnosis.

Five Common Syndromes

The description of these syndromes can be brief, as they are so well known. I shall avoid referring to any other pathological processes than the four already discussed, except to add a note of warning where a similar syndrome may occur as a result of one of the more serious disorders.

(1) *Immediate Post-Traumatic Back Pain*.—There is a history of accident, with immediate onset of pain. (It is important to distinguish between an "accident" and something which happens during a man's ordinary lifting work. The significance of accidents in the production of disk protrusions has been exaggerated because this distinction has not always been made.) The possible lesions have already been mentioned, but fractures must not be forgotten and x-ray examination is therefore important. Tearing of muscles and ligaments can be identified by the site of tenderness. Injury to an intervertebral disk can only be suspected at the time but will declare itself later; perhaps a few hours later; perhaps some weeks or months later; but not years later.

(2) *Lumbago*.—I define this syndrome as low backache of sudden onset, accompanied by fixation of the back and often actual deformity of the trunk. There may be scoliosis, kyphosis, or simply flattening of the lumbar region. The actual attack is usually brought on by bending or lifting, sometimes after shaving over a low basin, often on getting out of bed. There has usually been some preceding mild back pain, and there is often a history of recurrent attacks. The cause of the syndrome may be rupture of post-traumatic adhesions, sprain of an osteoarthritic joint, or protrusion of an intervertebral disk. If there is marked deformity,

the last is the common cause. Spontaneous fracture of a vertebral body from metastases, myelomatosis, or senile osteoporosis may produce exactly similar attacks.

(3) *Sciatica of Acute Onset*.—An attack of sciatica "out of the blue," as it were, is rare. Usually there is a history of low backache or attacks of lumbago, or of an injury to the back. The acute attack is thereafter precipitated by bending, lifting, or straining. An acute injury to the back may be followed a few hours later by acute sciatica. In the absence of radiological evidence of root involvement due to sudden collapse of a vertebral body, or of neurological evidence of involvement of the cord, it is fair to say that protrusion of a disk is the only cause of this type of acute attack.

(4) *Chronic Low Backache*.—More or less continuous low back pain may occur after injuries to the spine or attacks of lumbago, or between attacks of acute sciatica. Some patients, however, describe none of these things, but simply refer to the insidious onset of low backache. In these cases it is particularly necessary to exclude tuberculosis, neoplasm, ankylosing spondylitis, and spondylolisthesis. Post-traumatic adhesions will cause chronic back pain, which is usually brought on by activity and relieved by rest and associated with particular movements which stretch the adhesions. There is usually an area of tenderness in the lateral spinal muscles or over the sacro-iliac ligaments. Another frequent cause of this type of pain is the stretching of ligaments which have contracted on account of persistent postural abnormalities, or overstretching of normal ligaments owing to muscular insufficiency. The muscles may have been weakened by some illness or subjected to overstrain from a change of occupation, increased activity, or a marked gain in weight. In this group of cases the back behaves in the same way as the feet. Osteoarthritis may give rise to chronic low backache, but it is arthritis of the posterior or facet articulations which is significant here, and not the lipping of the vertebral bodies which is so often seen in radiographs. It may need very good radiography to detect the change in the posterior articulations; but from the clinical point of view it is often justifiable to diagnose lumbar osteoarthritis in those cases of chronic low backache which prove resistant to all forms of treatment.

(5) *Chronic Sciatica*.—Many cases of sciatica are of insidious onset without any of the drama which characterizes the acute disk protrusion. The pain may be of all grades of severity. Really severe pain of insidious onset is a signal for a most careful search for a pelvic or spinal neoplasm. The ordinary case is usually the result of either a disk protrusion or osteoarthritis of the posterior articulations, and it may be very difficult to differentiate between these two possible causes. Oblique radiographs showing the neural foramina are of special value here. The cause of chronic sciatica is not always spinal or pelvic, I believe; neurologists still claim an occasional case of true sciatic neuritis, and I have met with several cases, caused by compression of the nerve in the thigh by the edge of a hard chair.

Clinical and Radiological Examination

The pattern of the disorder and its probable cause can usually be determined from the history and the patient's description of his symptoms. At one time clinical examination of the back was confused by a mass of tests and signs purporting to indicate the site of the lesion. Nowadays attention is directed to a few important signs: Is there tenderness in the lateral spinal muscle, with a history of injury? Is there rigidity of the whole lumbar spine, without muscle spasm? (This suggests osteoarthritis.) Are there signs of involvement of the lumbo-sacral joint? Is there a sciatic scoliosis? Is there evidence of compression of lumbar or sacral nerve roots?

The cardinal signs of a lumbo-sacral lesion are pain and/or restriction of forward flexion or backward extension or both, with relatively free flexion of the back from side to side.

There has been a great deal of new work on the radiological examination of the spine, but the main purpose of routine radiography in backache remains the exclusion of fractures and serious diseases. It is *not* the identification of a protrusion of an intervertebral disk. A negative radiological report does not mean that a clinical diagnosis of a disk protrusion is unjustifiable.

Must all these cases of backache be examined radiologically? I would say: after injury—Yes; in cases of chronic backache—Yes; in cases of recurring lumbago or recurring sciatica—No, although it should be done at some time to satisfy the patient and always before a manipulation.

Treatment of the Lesser Disabilities

I shall not discuss the treatment of the serious disorders. For the five syndromes of the less serious disabilities our therapeutic armamentarium is comparatively small. We have: rest in bed; physiotherapy; plaster jackets, corsets, and supports; manipulation; and operation.

There is a strong impression that if patients with lumbago or acute traumatic strain were put to bed immediately both the period of disability and the rate of recurrence might be much reduced. From the economic point of view it is obviously difficult to do this. It is also difficult to put a patient to bed without arousing the suspicion in his own and his family's mind that he must therefore be seriously ill. But I have found on many occasions that immediate confinement to bed, with heavy sedation, will clear up an attack of lumbago surprisingly quickly. Similarly, the man with an acute strain of the muscles or ligaments of the back should go to bed at once and stay there until he can move freely and painlessly. In both lumbago and acute traumatic back strain a delay of 24 hours may vitiate this whole method of treatment.

In the treatment of chronic low backache rest in bed will usually relieve the pain, and it is of particular value in restoring the morale of those who have endured pain for a long time. It will help them to co-operate better in their subsequent programme of exercises. In these cases recovery will not be rapid. The same thing applies to acute and chronic sciatica; many of these patients are compelled to go to bed by the severity of their symptoms, but they must all be warned that it may take at least six weeks before relief is obtained. To be effective, "bed rest" must be total: bed-pans and bottles must be used, and usually, though not always, it means hospitalization. The mattress must be firm and must not sag in the middle; only one or two pillows are permitted, and there must be no sitting up for meals. Provided the patient remains horizontal, it does not matter whether he lies prone, supine, or on his side; he can curl up if that position relieves his pain.

Physiotherapy

Heat in any form is valuable in relieving pain in the back. Massage alone does not generally succeed in relieving backache and will almost always make sciatica worse. When prescribing exercises, it must be decided whether their object is to mobilize joints and stretch adhesions or to strengthen muscles in order to prevent joint capsules and ligaments from being overstretched. Strengthening exercises for the posterior spinal muscles are most important after "bed rest." Before the patient begins to get up he should be free from pain and able to perform extension exercises of the type which are familiar in the treatment of vertebral fractures. Once the patient is up and about, mobilizing exercises should be started, although in cases of acute or chronic sciatica it is wise to postpone forward flexions of the spine for some weeks. Apart from the after-treatment of patients who have been in bed, extension exercises are always of value in the treatment of disk degeneration and osteoarthritis, and mobilizing exercises in patients with post-traumatic or postural adhesions.

Plaster Corsets and Spinal Supports

A plaster corset is often a reasonable substitute for rest in bed if chronic back pain or chronic sciatica is not particularly severe, or sometimes in more acute cases if economic considerations prohibit rest in bed. There is no need to include the whole trunk in plaster, and a lumbar corset will suffice. Sometimes immediate relief is obtained, more often there is partial relief at first and full amelioration may take four to six weeks. I make a practice of always leaving the plaster on for at least a month, and do not remove it until a month after all pain has gone. It does not matter if the plaster becomes loose, provided pain does not recur with the loosening. Extension exercises are important for the patient in a plaster corset.

Three main types of spinal support or manufactured corset are available: a "dorso-lumbar" corset with posterior steels; a metal support with upper and lower encircling bands, posterior steels, and an abdominal plate which prevents forward flexion; and a lumbo-sacral belt with a rectangular curved plate posteriorly. The object of these appliances is not to immobilize the lumbar spine but to provide support for the lumbar curve and to limit forward flexion. Many patients with disk lesions feel a need for something to "hold them together," and a belt or corset is subjectively useful. The support is useful in the later stages of the treatment of acute sciatica, especially after a severe and prolonged first attack, in lumbar osteoarthritis, and in intractable and long-continued postural backache. It will not prevent recurrence of attacks due to disk protrusions, but it tends to check the frequency of attacks in men who have to continue at lifting or bending work. A corset is hardly necessary in recurring lumbago of short duration or where there are long intervals between the attacks.

Manipulation and Operation

Manipulation can do three things: replace displacements, break down adhesions, or stretch contracted capsules of injured or osteoarthritic joints.

An acute attack of lumbago can be relieved by a manipulation. The chances are best if the manipulation is done within a few hours of onset. An anaesthetic is not necessary. Acute sciatica can similarly be relieved, but there is a risk of increasing the protrusion; paraplegia has also been reported, but it is a rarity. Chronic backache, if thought due to post-traumatic or postural adhesions, should be treated by manipulation if mobilizing exercises have not produced definite relief in about three weeks. Manipulation is also worth a trial in some patients with mild early osteoarthritis.

Only operations for removal of intervertebral disks or for spinal arthrodesis need be considered. The successful operations for protruded disks are those carried out for neurological reasons; that is to say, for persistent or oft-recurring sciatica with clear signs of tension on a nerve root or of increasing neurological disturbance. In my view these operations are best performed by a neurosurgeon.

Lumbar or lumbosacral fusion is sometimes indicated in osteoarthritis, usually when the arthritis is associated with a disk degeneration. Arthrodesis is performed either by removing the disk substance and packing the vertebral space with cancellous bone (body-to-body fusion) or by means of bone grafts between the laminae and spinous processes (posterior fusion). By either method the difficulties are considerable, the operation is one of some magnitude, entailing a period of at least four months' post-operative disablement, and success, especially from posterior fusion, is by no means certain.

Conclusion

Apart from some serious disorders which must always be carefully excluded, lumbar backache is due to injuries to muscles and ligaments later followed by adhesion formation; to postural strains which produce adhesions; to disk degeneration with associated mechanical strains on the facet

articulations and protrusion with sciatica; and to osteoarthritis. Injuries and postural strains can be dealt with fairly successfully and easily by a judicious use of rest in bed, exercises, and manipulation.

Neither disk degeneration nor osteoarthritis can be cured by treatment, and we are left with the problem of the management of recurrent acute attacks or of chronic pain. In some cases of disk protrusion with sciatic nerve root compression operative removal of the disk is advisable. In a few cases of localized osteoarthritis spinal fusion is necessary.

Next article on Emergencies in General Practice.—
"Drunk in Charge," by Dr. A. B. Davies.

Refresher Course Book.—Copies of the second volume of collected articles from the Refresher Course for General Practitioners are still available at 25. (postage—inland 1. 6d., overseas 1s.) each from the Publishing Manager, B.M.A. House, Tavistock Square, London, W.C.1, or through any bookseller. The first volume is now sold out.

ROYAL SOCIETY OF HEALTH ANNUAL CONGRESS AT BLACKPOOL

[FROM A SPECIAL CORRESPONDENT]

Meeting at Blackpool, the Royal Society of Health held its 63rd annual congress from April 24 to 27, under the presidency of the MARCHIONESS OF READING. Besides the meetings of the 11 Sections, there were the usual conferences for medical officers of health, domiciliary nurses and midwives, engineers and surveyors, health visitors, and sanitary inspectors. A new Section—the "World Health Section"—was inaugurated with a plenary session at which the invited speaker was the Director-General of the World Health Organization, Dr. M. G. CANDAU. Below is a short selection from the many papers read at the congress.

A Programme for Preventive Medicine

Health, said Professor C. FRASER BROCKINGTON in his presidential address to the Section of Preventive Medicine, during the last century had been both the subject of serious popular interest and one of the principal objectives of government. It was a condition that depended very largely on the environment. The pioneers of public health had recognized that this was so. Though the main physical features of the environment, such as housing, water supplies, and food hygiene, had been much improved, other problems connected with the way people live, and with social factors in their homes and workshops, still remained. The hospitals had been unnaturally elevated to a position of pre-eminence, while environmental factors had tended to recede into the background. Now it was essential to re-focus medical care on to the community and lessen the emphasis on hospitals. There should be a service of community health linked to the family—both in the home and at work—and continuous study of disease and ill-health within the community.

The concept of the family doctor was firmly rooted in Britain, and Professor Brockington suggested that most of our difficulties could be solved by a merger of public health and general practice. The general practitioner should work in close partnership with the midwife, health visitor, home help, and other workers employed by the local authorities. Pleading for the development of health centres, he declared that these would give the general practitioner both the scientific and the social instruments for a modern approach to health. A new service for community care would become the friendly rival of the hospital service and would tend to reduce the calls upon the hospital. Recent studies had favoured the view that the care of the sick in their homes was better for them than admission to hospital. The new service should include welfare, as this could not be administered separately. Both general practice and public health

as at present administered covered the same areas; and the present local government service, fortified by a statutory local medical committee, with modifications to ensure adequate representation of other community health workers, would provide the ideal administrative scheme.

In the same Section, Dr. HUNTINGTON WILLIAMS, Commissioner of Health, Baltimore City, U.S.A., and Sir ALLEN DALEY read a combined paper on public health practice. Though the administrative structure in Britain and the United States differed, the problems were basically the same, they said. In both countries the people were keenly interested in health problems, and in both there was unbridled criticism of the work of the public authorities. But it had to be remembered that each of the 48 states in America had its own legislative assembly, the Federal Government in Washington having only limited powers of interference in the states' domestic affairs. The state or city commissioner of health, or health officer, had much greater power than the medical officer of health in Britain, and was subject only to the governor or mayor. He or his board of health could often make sanitary regulations which corresponded to our by-laws, and they could enforce them in the local courts. Thus there was no common pattern of work in the public health departments in the United States, nothing comparable to the uniform system of administration prevailing in the British public health services. Private practice was strongly entrenched in the United States, and there would be immense opposition, not confined to doctors, if any proposals were made on the lines of the British National Health Service. (As a point of interest, it is a legal duty for American doctors to report cases of infectious or communicable disease, but no notification fees are paid.)

In the field of health education, television was now commonly used by American health departments, medical societies, and other health agencies. By this means it was possible to bring carefully prepared health information direct into the homes of millions of persons each week. The same was true of sound broadcasts. The earlier years of public health endeavour had been directed towards lowering the death rate; now the community wanted real substance given to the longer life-span possible to-day.

Spoilt Children

Introducing his paper on "The Growth of Independence in the Young Child" in the Section on Mental Health, Dr. JOHN BOWLBY said that the effective promotion of health demanded a thorough understanding of the developing organism and of the origins of disease processes. Thus, if our aims regarding mental health were to be achieved, there must be among other things a well-based theory of the nature of dependence and independence and of the ways in which health development in this field can be disturbed. Unfortunately, owing to the relatively little relevant research, there were here a number of "pre-scientific" and erroneous theories. He then proceeded to discuss the so-called "typically spoilt child," defining him as one who is for ever seeking attention, selfish about his belongings, envious of those of others, and anything but independent.

In theory, a personality of that kind developed if a child was given too much attention in his early days so that he never learnt to get on without it. In fact, there was no evidence to support this theory. All the experiences of workers in child-guidance clinics pointed to an opposite conclusion. It was often found in investigation that the child had had anything but an easy time; he had experienced rejection, harsh discipline, or separation. All too often the parents' efforts to give the child affection had been a pathetic but inadequate attempt to make up for the feelings of hostility and rejection experienced by another side of them. Dr. Bowlby believed that this was a rationalized form of sibling rivalry. The difference between the infant's actual dependence on his mother and his "feeling" of dependence on or need for an attachment to her must be distinguished. The infant's helplessness at the time of birth made him absolutely dependent on her ministrations, though this decreased through the years of childhood. At birth and in the weeks that follow