THE PLACE OF MANIPULATIVE TREATMENT IN LESIONS OF THE LUMBAR SPINE

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Few methods of physical treatment have given rise to such controversy as manipulation has done, and the reason for this is not difficult to discover. Manipulative methods of treatment, when applied to lesions of the lumbar spine, are necessarily empirical, even though sometimes dramatic in their success. In common with non-specific therapeutic methods in other fields of medicine, it engenders violent antagonisms, some of which are derived from scientific or pseudo-scientific causes, while others have a more personal basis. It is certainly true that for many years a large number of unqualified practitioners rejoicing in various titles have obtained a steady income from manipulation, and it would be unreasonable to suppose that they could continue to practise if they did not meet with some degree of success, often after medical men have failed to bring the alleviation of symptoms desired by the patient. Many doctors therefore appear reluctant to accept manipulation as a *bona fide* method of treatment, more usually regarding it as some form of 'quackery.'

The term 'manipulation' can be defined as the production by the operator of a movement at a joint which is not attainable by natural active means on the part of the subject himself at the material time. By definition, therefore, manipulation is a passive movement, and some medical practitioners who would be horrified at the suggestion that they employed manipulative methods of treatment take advantage of a little self-deception by the use in their prescriptions of such terms as 'passive exercises' or 'passive mobilization.' Any form of lumbar spinal traction must also be regarded as a manipulative procedure.

It is expedient to recall what manipulation can achieve in purely anatomical terms. Only three results are possible:

- (1) Adhesions can be broken down.
- (2) Contracted joint capsules can be stretched.
- (3) Displaced structures can be replaced—a principle in common use in fracture clinics.

Manipulation of nearly any normal adult joint

will result in a sense of something 'giving' usually with an audible click, the most common example of this being the ability of some people to make their fingers click by applying traction or hyperextension. Herein lies the basis of the claim made by many (usually lay) practitioners to have 'replaced' some offending bone, a claim, needless to say, which considerably impresses the client. Any observant person can vouch for the pleasant sensation of freedom and well-being induced by manipulation of the spine; this is but an extension of the active process of stretching beloved by most human beings and animals when tired or first thing on waking. Since manipulation of the normal and symptomless spine is usually accompanied by not inconsiderable clicks, it may be readily understood why many people can be induced to part with money at frequent intervals in order to have the 'misplaced' bones 'put back' or 'kept in place.'

In most fields of medicine it is accepted that before embarking on any form of therapy an accurate diagnosis must be made; this in turn depends on a thorough knowledge not only of the symptoms and physical signs which go to make up the syndromes of disease, but also of the pathology of the region or system concerned. The competent clinician is aware that there are disorders which affect the lumbar spine which manipulative treatment is liable to aggravate, in some cases to the extent of causing a catastrophe. The most critical medical scientist cannot blame the clinician for applying an empirical method of treatment provided that the empiricism is freely admitted, that the necessary methodical steps have been taken to reach an intelligent diagnosis so far as this is possible, and that the method of treatment itself has not already been *proved* either useless or harmful. Manipulative methods of treatment frequently come into disrepute either because those who employ them lack the specialized knowledge necessary to exclude the presence of a pathological state which would contra-indicate that form of

treatment, or because the status of a diagnosis is conferred upon a merely descriptive term such as 'lumbago' or 'sciatica,' when, in fact, no attention at all is being paid to aetiological factors. The latter situation can arise as the result of ignorance or intellectual dishonesty, which may be unwitting, but unfortunately is sometimes conscious because convenient.

Doctors who themselves set out to perform the remarkably easy techniques involved in the manipulation of the lumbar spine, or who cause others (usually a trained physiotherapist) to do so, should therefore first of all acquire a thorough knowledge of the nature of disorders which occur in that region, and, equally important, of those conditions which by the nature of their symptoms mimic disorders of the lumbar spine. An excellent description of spinal pathology is given by Collins (1949), whilst accurate clinical and radiological information can be obtained from standard textbooks dealing with rheumatic diseases and with orthopaedics. Probably the most enlightened approach to these problems available in a condensed form are provided by Wiles (1955), Coltart (1956) and the *British Medical Journal* (1956).

Absolute Contra-indications to Manipulation

A study of what has been written during the past 10 years on the subject of manipulation will show that there is really less controversy than would at first sight appear amongst those with sufficient authority to command respect. All seem agreed that there are definite contra-indications to the use of manipulation in disorders of the lumbar spine. These include both primary and secondary neoplasms of bone; intra-spinal tumours; myelomatosis; Paget's disease; tuberculosis or osteomyelitis; osteoporosis of whatever aetiology; and fractures. To this list most would add spondylolisthesis and ankylosing spondylitis. Cyriax (1957), however, believes that a spondylolisthesis is often associated with an intervertebral disc lesion which can be helped by manipulation, and that in spondylitis an attempt to force extension at the lumbodorsal region of the spine may sometimes be necessary as part of the effort required to prevent the occurrence of further deformity. In the present state of our knowledge it would seem that such a procedure as this might with advantage be carried out under the protection of a corticosteroid 'umbrella.'

Debatable Contra-indications to Manipulation

Cyriax states that 'manipulation is contra-indicated in all lumbar disorders not caused by disc lesions (except in spondylitis deformans).' Watson-Jones (1957), speaking of the treatment of

low back pain and prolapsed intervertebral discs by manipulation, maintains that 'it is a harmful procedure no matter what the source of the low back pain may be. . . . Simple bed rest and then the protection of a corset achieve far greater success than any type of manipulation.' Different authorities reveal considerable disagreement as to what in clinical terms constitutes a disc lesion and also as to the type of lumbar spinal disorder which will best respond to manipulative treatment; therefore dogmatic statements should be viewed with caution in the absence of reasoned evidence and accurately defined terms.

The actual movements used in manipulating the lumbar spine vary little between one operator and another. Since the spine is incapable of moving in more than a limited number of ways, this is perhaps not altogether surprising. What is a little startling, however, is the fact that, using almost identical methods, different operators claim to be manipulating for the cure of conditions apparently as unrelated as 'sacro-iliac strain'; 'lumbo-sacral strain'; prolapsed intervertebral disc; post-traumatic adhesions; 'strained' ligaments; 'strained' muscles; and nipped synovial fringe, 'facet syndrome' or osteoarthritis involving the posterior intervertebral joints. In the absence of a history and the physical signs (including neurological abnormality), which most experienced practitioners would accept as good evidence of a prolapsed intervertebral disc, there are no features which are beyond doubt *known* to differentiate these various conditions one from another. An appreciation of spinal pathology, coupled with a knowledge of the mechanisms of referred pain, will convince one that most of these factors could indeed play a part, often in combination, at one time or another in the production of back pain and sciatica. But the difficulty of providing proof of the relationship between cause and effect in these conditions is immense if only because they carry no mortality.

Fortunately, those with experience of the management of spinal disorders are again agreed that among this nebulous group of conditions there are contra-indications to manipulative treatment. Thus Cyriax states that 'a complaint of frequency of micturition, paraesthesiae felt in the scrotum, saddle-numbness at the buttocks or insensitiveness of the rectum . . . call for immediate laminectomy and provide an absolute contra-indication to manipulation.' He also regards pain referred to the coccyx, labium, testicle or penis as calling for caution and advises against manipulation under such circumstances. Few would disagree with his contention that if the manipulative manoeuvre employed increases the signs and symptoms no more should be done. In this context, however,

one gains the impression that the more experienced the practitioner the less likely is he to pick the wrong type of case for manipulation. The serious causes having been excluded, most experienced clinicians find themselves left with a large number of patients apparently suffering from some form of mechanical lesion of the lumbar spine. For the sake of convenience, or because convention demands it, a diagnostic label frequently has to be provided and the actual choice of this will, for lack of substantiation, depend upon the individual practitioner's theoretical view of the nature of the disorder. Some will favour manipulation at an early stage, some at a later one in the course of the malady, but only few will maintain that manipulation should never be used. Thus Wiles suggests that 'manipulation is an important feature of the active treatment of both acute and chronic back pain. It is a simple business and should be part of the therapeutic armamentarium of every doctor and physiotherapist . . . No satisfactory reason has so far been advanced to explain why manipulation often relieves pain, nor is it likely that the problem will be solved until the causes of the pain are better understood . . . The more abrupt the onset, the greater the chance of relief.' This seems a healthy attitude to the matter of empiricism which was mentioned earlier. It is noteworthy that both Cyriax and Wiles strongly emphasize the need for a full neurological examination in every case. Mercer (1950) believes that lumbago is probably caused by some internal derangement at a low lumbar intervertebral joint and states that 'recovery of more than half the cases occurs with a complete manipulation of the lower lumbar region.'

Many experts believe that prolonged disability may occur as the result of adhesion formation at the site of ligamentous strain and Mercer states that 'manipulation is of extreme value in mobilizing joints and breaking down adhesions prior to back and postural exercises,' whilst McMurray (1949) thinks that 'manipulation may often produce very considerable improvement, both by relief of symptoms and range of movement' in the presence of adhesion formation.

The difficulty resulting from the use of a haphazard nomenclature is a potent cause of disagreement over the indications for manipulation. Thus Mercer, in discussing sciatica, mentions that old cases of 'neuritis' associated with chronic 'fibrositis' frequently benefit from manipulation of the back and thorough stretching of the sciatic nerve under anaesthesia, followed by progressive active exercises. Later in the same text he states that 'spinal manipulation in cases with prolapsed disc is contra-indicated and, indeed, unfortunate results may follow manipulation.'

Richardson (1957) feels that manipulation is the

only practicable form of direct attack on a mechanical derangement in a posterior intervertebral joint; if the underlying lesion is, in fact, disc degeneration, then the place of manipulation is more debatable, though if it is believed that a prolapse or sequestrum can be replaced without damage to the nervous system the use of manipulative treatment would appear to be justified. Where loss of spinal movements has occurred for any reason and has not been restored by mobilizing exercises, he thinks that manipulation may be indicated in order to stretch or break fibrous adhesions or capsular contractions.

Speaking of the manipulation of osteoarthritic joints, Watson-Jones states that 'forcible manipulation . . . never gives more than temporary relief and, indeed, commonly aggravates the degenerative change. . . . Osteoarthritis of the intervertebral joints of the spine needs protection from over-use and not force.' This view probably represents an over-simplification of the application of manipulative methods to degenerative changes in the lumbar spine. Posterior intervertebral osteoarthritis occurs hand in hand with disc degeneration, even though, as in other joints, symptoms may develop before radiological change is apparent. In the author's experience careful manipulative mobilization (sometimes lumbar traction is the method of choice), combined with active exercise and the provision of a corset, may produce greater relief from symptoms than the use of exercise without manipulation. The key word here is 'careful'; any attempt to cause gross overstretching is liable to produce just the aggravation of symptoms mentioned by Watson-Jones. In this context one can but reiterate the necessity for remembering that the method of treatment is entirely non-specific and preoccupation with the necessity for 'putting something back' is liable to lead to enthusiastic over-treatment.

Statistics and Manipulation

Claims made for or against the use of manipulation in lesions of the lumbar spine are singularly lacking in statistical evidence. Richardson has reminded us that 'whatever the theoretical considerations for manipulation, widespread acceptance of this form of treatment must depend on results,' and during a recent discussion the present author pointed out the necessity for large-scale controlled trials so that more attention could be paid to the natural history of disorders and less to clinical impressions (Newton, 1957).

Only two efforts have apparently been made in this country to perform a controlled trial. The first (Coyer and Curwen, 1955) contrasts the treatment of acute backache by manipulation and by bed rest. The second (Christie, 1955) compares the

results of treatment of backache by lumbar traction with those obtained by the use of an inert lactose pill. Both trials deal with a relatively small number of patients, and both can be criticized on purely statistical grounds, but together they constitute a step away from a field overgrown with jargon and clinical impressions.

Techniques of Manipulation

As with any other type of practical procedure, the technique of manipulation can only be learned at first hand from someone accomplished in its use and a description of the different methods used by various operators would be out of place in an article of this nature. There are, however, a few fundamental principles which are worthy of note no matter what the actual technique employed.

No manipulation of the lumbar spine is designed to produce a range of movement greater than that anatomically intended. Ignorance of this point is responsible for the mishaps which may occur when *inexperienced* practitioners attempt to manipulate under anaesthesia with full relaxation.

To achieve good results maximum relaxation is always required and the ways of attaining this will vary from one operator to another. Many prefer to employ general anaesthesia and some (McIver, 1957) favour the use of a relaxant as well. Others prefer to have the co-operation of the patient, maintaining that so long as the normal protective mechanisms are available in a conscious subject it is virtually impossible to cause inadvertent damage. The added advantage is thus gained of not having to do more at a time than is strictly necessary; the movement which is thought most likely to succeed is selected first and on completion the patient is able to co-operate in assessing whether there has been improvement in his symptoms or range of active movement. Cyriax recommends that 'after each attempt the effect is estimated by, for example, if coughing hurt originally, asking the patient to cough; if straight-leg raising was limited, ascertaining its range again; if one or more trunk movements hurt, asking the

patient to stand and try them again.' In his experience manipulation under anaesthesia is justified only in very rare cases of severe lumbago characterized by agonizing twinges of pain at the slightest attempt at movement. Wiles remarks that 'an anaesthetic is not often necessary, but whether one is used or not, the manipulation must be gentle.'

In all cases where anaesthesia is not employed maximum relaxation and co-operation is required on the part of an often apprehensive subject. The method of attaining this varies from one practitioner to another, but a firm yet sympathetic approach, combined with adequate explanation of what is to be done and what is expected of the patient, usually goes a long way to achieving the desired effect. Many people employ the soothing effect of rest under a radiant heat lamp, while others favour a short period of lumbar spinal traction before manipulation.

So far as the actual technique is concerned, there is no 'best way.' Various methods of manipulation achieve equally good and equally bad results in the hands of different practitioners. Anyone intending to employ this form of treatment would be well advised to learn from an experienced tutor and later, if he wishes, to modify his methods in the light of his own experience.

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