

Manipulative methods for treating locomotor pain in general practice

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I WAS interested to read Dr J. W. Fisk's article (1970) on his experiences using manipulation for the relief of backache. I practice in the north and the east end of London and I doubt if our reputation for treating locomotor pain is very much better. Patients here usually do not have access to cheiropractors or osteopaths, and so either put up with their pain, or are sent for physiotherapy or fitted with a belt.

Many of my patients come from industry and the docks where they sustain injuries usually resulting from lifting but there are also those in sedentary work.

How do we recognize the suitable patient for manipulation? The technique can be applied to any condition, but is not likely to benefit those suffering from muscular aches and pains, rheumatism, fibrositis, neuralgias and nerve root symptoms. Patients with evidence of complicating inflammatory arthropathy or other pathology are not excluded from treatment but they do merit special care.

The diagnosis of a manipulable lesion depends first on history. Attention is paid to the patient's general condition, and a precise history is taken of the pain and other symptoms. These frequently date from an accident or car crash. The original areas of pain and how these have changed must be investigated. Local and referred pain in the areas of the dermatomes point to the site of the lesions (Kellgren 1939, Harman 1951).

We may take as an example the patient presenting with low back ache. Lumbago later changing to sciatica suggests L.V, S.I. dermatome involvement and a lesion involving the sensory supply of that root.

A general review of lumbar flexion, extension or side flexion frequently shows a normal range of movement. An attempt must be made to assess the individual intervertebral movement by feeling the movement with the index finger over each interspinous ligament whilst the spine is moved.

Normally there is diminishing movement at each successive interspinous level from L.I, to L.V. Lack of movement at any one level should correspond to the dermatome suggested by history and the patient will often volunteer which is the affected joint. This loss of normal movement is the important physical sign on examination.

A diagnosis has now been made of the level of the lesion and any coexisting disease has been investigated. Finally an x-ray is taken of the spine. Normally this will show age changes only and rarely contributes to the diagnosis but is essential to show up the occasional, unexpected lesion such as secondary malignant deposits. The x-ray finding must not be allowed to shake the clinical diagnosis. A degenerative change such as a 'reduced disc space at L.V, S.I.', in a man of say 50 years, has little bearing on L.II dermatome pain with evidence of a manipulable lesion at this level. The diagnosis is complete when manipulation at this precise level restores movement and relieves symptoms.

The object of manipulation is to relieve the 'jammed joint', the cause of the loss

in mobility. If the upper spine is rotated it finally locks as a rigid bar, as each apophyseal joint reaches its full range of movement. If the upper spine is rotated say clockwise and the lower spine in the opposite direction then at full rotation one has two rigid bars meeting at a particular level. More twist from above lowers this level and *vice versa*. In manipulation this level is adjusted to correspond to the level of the lesion and then using a sharp thrust, of minimal amplitude, the joint surfaces are momentarily drawn apart and the obstructed movement is released by gapping the 'jammed joint'. The joint should now be felt freely moving and local muscle spasm largely abolished. It may be helpful to check this manoeuvre using a skeleton.

What is the nature of the lesion? This is speculative as few of our patients are operated upon or come to post mortem examination with these troubles as a primary diagnosis.

The differential diagnosis includes disc lesions, which are suggested by the sudden onset of symptoms, usually with root pain with motor and sensory root signs, made worse by weight bearing (standing or sitting and better by lying down). This contrasts well with the patient with ligament or capsule pain who can work it off by walking but cannot comfortably lie down or sit still for any length of time. The final proof of a disc injury requires a myelogram and operation. A few have congenital abnormalities of the spine. Sacralized lumbar vertebrae or fused cervical vertebrae with or without cervical ribs reduce spinal movement but strengthen the spine—a natural 'spinal fusion'. Spondylolisthesis or spina bifida occulta on the other hand may frequently contribute to a lesion by increasing movement. It is very important to think of L.V, S.I. and the sacroiliac joints as a single unit.

I believe the manipulation lesion is usually due to an area of roughness on the margin of the apophyseal joint (maybe a fleck of calcium in an old and minor tear of the capsule), which engages the opposite articular margin hooking over the edge of the cartilage plate and locking the joint. This provides a reasonable hypothesis for the lesion, explains how manipulation can relieve symptoms. It also explains the muscle spasm which occurs in the paravertebral muscle and why this is relieved at the time of manipulation (Wyke 1967).

There are of course many variations and methods of manipulation at each level and each operator has his own way of using them. They have to be adjusted to the patient and, most important, to the relative size of patient to the operator. Techniques which require one to reach around say an 8 stone person may be impossible with a 15 stone subject.

Each would be manipulator must develop his own style which will probably change with experience. I shall describe one basic manipulation for each level and having pointed out the individual nature of the method, emphasize that an apprenticeship with a manipulator of only hours is superior to any amount of reading about the same method.*

In the lumbar spine (including sacroiliac joints) the manipulation is usually made with the patient lying on his side. The spine is flexed to the desired level for manipulation and then the upper leg is allowed to fall forward over the side of the couch rotating the spine to that level. The shoulders are rotated in the opposite direction onto the couch and the patient is stretched by pulling the lower arm and shoulder. The method can be monitored for each manoeuvre by checking the tension over the affected intervertebral interspinous ligament. When the two parts of the spine are locked at the right level the manipulation can be made.

In the neck the same principle is used. Here the patient can be sitting leaning loosely against the operator. His shoulders fix the lower spine. The right side of the chin is

*This can be done by joining the British Association of Manipulative Medicine.

cupped in the right hand and the left occipital region is supported by the left hand. The greater the degree of flexion the lower will be the joint moved. So to manipulate say C.5, 6. flex the neck to almost full extent, rotate to L. (side flex to the opposite side—owing to the anatomy of the neck this is automatic) to the full extent and then make the manipulation.

The dorsal spine is rather different because of the support afforded by the ribs and attitude of their facet joints. They are normally manipulated anteroposteriorly rather than by rotation. Thus the operator's right hand is made into a bridge which is placed under the segment to be manipulated as the patient is rolled onto his back. His arms are crossed over his chest and the operator exerts a downward thrust through the sternum to make the manipulation.

Up to this point no mention has been made of injection therapy. This is either the use of hydrocortisone as is widely used for tennis elbow, but extending the use to both intra and extra articular structures or most usefully with local anaesthetics to relieve muscle spasm so that a joint may be manipulated without using undue force. (By abolishing the vicious circle—spasm producing pain causing more spasm.) Local anaesthetic can also be used as a diagnostic weapon for if a particular ligament is infiltrated and the pain relieved then clearly this is the source of the pain.

I think the great lesson is not to manipulate only, or to only inject or prescribe, but by 'hook or by crook' using any reasonable method to relieve the patient of his discomfort.

Method

The data presented in this paper were taken from the case records of 195 consecutive subjects manipulated for pain of spinal origin. The incidence of lesions at particular levels was noted. Various manipulative treatments had been used and the length of time to recovery noted. This benefit whilst obvious to the onlooker and the patient at the time, is hard to measure objectively. The recovery time recorded in this series is based on the time from first treatment to return to work or the patient reporting full relief of symptoms. Manipulation at the present time in the practice cannot be a first line treatment. Normally by the time treatment is initiated the patient will have been given a chance to respond to conventional treatment, for example indomethacin and rest at home. The patients in this series had shown no improvement in this period (about two weeks). They were usually seen at weekly intervals for treatment.

Where the response to treatment was not rapid, or where there was any clinical doubt, patients were x-rayed at the local hospital. This was necessary in 20 per cent of the series.

Results

TABLE I
INCIDENCE OF LESIONS

Level of lesion	Incidence		Total	Complicated cases	Unexpected pathology on x-ray
	Men	Women			
Cervical	31	40	71	5	1
Thoracic	15	10	25	0	0
Upper lumbar	25	21	46	9	1
Lumbosacral	36	33	69		
Peripheral joints	7	11	18	2	0
Total	114	115	229	14	2

The incidence of lesions are shown in table I. Some patients had multiple distinct lesions. Cases complicated by inflammatory arthropathy, disc lesion, neoplasm or significant congenital anomaly are listed. The last column shows cases of unexpected pathology revealed by x-ray and not initially clinically suspected. The majority of lesions occurred in the cervical and lumbosacral areas in this series, and the sexes were roughly equal. The complicated cases were treated though with greater caution and are included in the analysis.

TABLE II
RECOVERY RATE AT VARIOUS SPINAL LEVELS

Level of lesion	Total patients	Patients' recovery period								Others
		1/52		2/52		4/52		6/52		
		No.	%	No.	%	No.	%	No.	%	
Cervical ..	66	35	53	10	15	13	20	3	5	5
Thoracic ..	23	14	61	2	9	3	13	1	4	3
Upper lumbar ..	49	31	63	4	8	6	12	0	0	8
Lumbosacral ..	73	43	59	10	14	6	8	1	1	13

The recovery rate of spinal lesions is shown in table II. The patients attended at weekly intervals. If they still had symptoms they were offered further treatment at that time. The column 'others' include those who responded only after six weeks or showed no benefit. This figure suggests that many of the patients responded to a single treatment. A few showed benefit after successive weekly treatments.

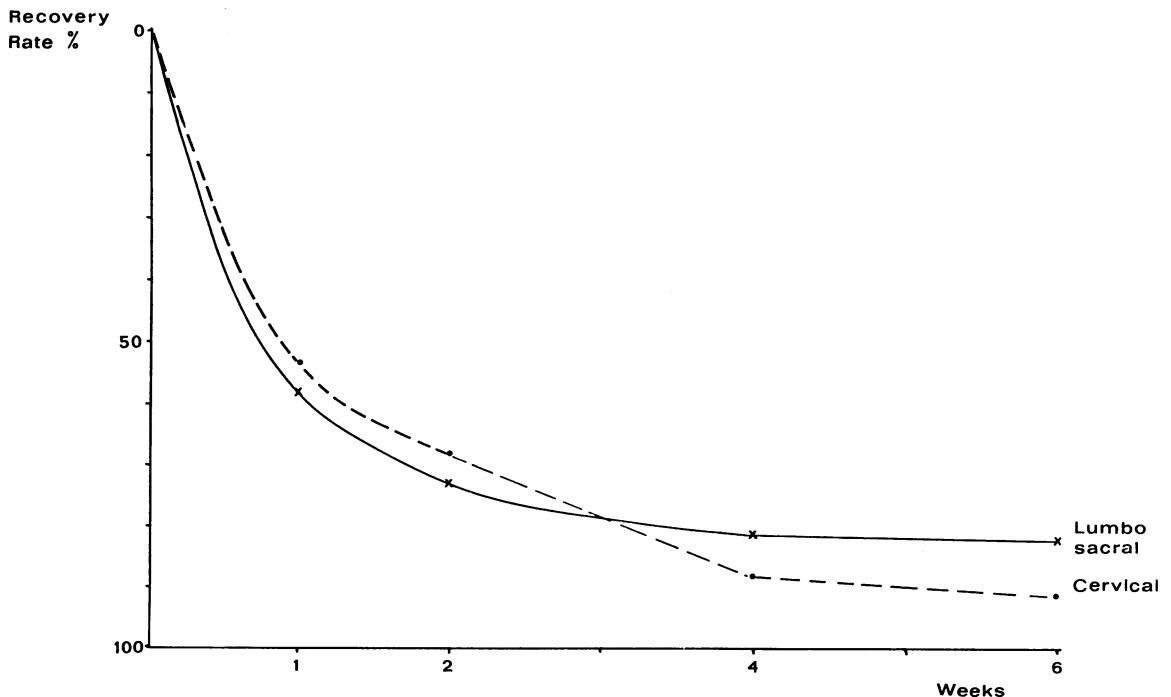


Figure 1.

Figure 1 presents the data for cervical and lumbosacral groups in graph form. The recovery rates are similar and more than two thirds of the patients have been relieved within two weeks by one or two treatments.

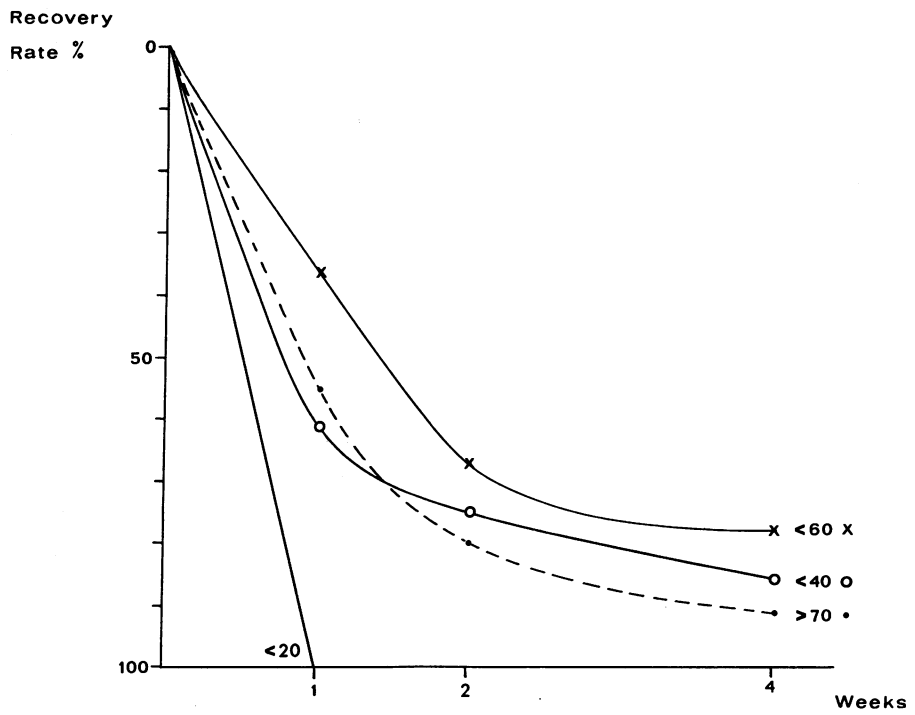


Figure 2.

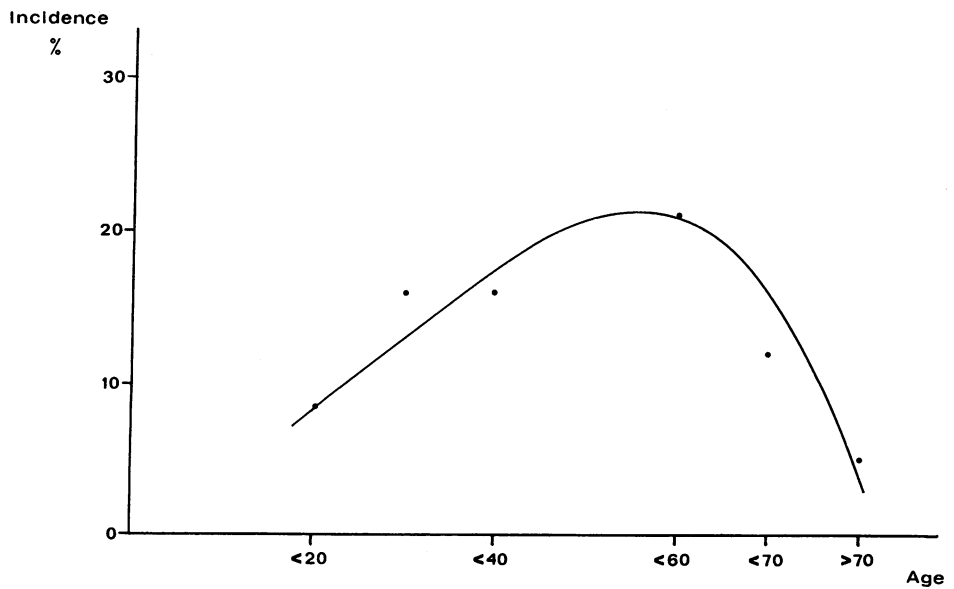


Figure 3.

TABLE III
INCIDENCE AND RECOVERY RATE OF THE MAIN LESION AT VARIOUS AGES

Age	Incidence		1/52		2/52		4/52		Others		No benefit	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
20	16	8	16	100	—	—	—	—	—	—	—	—
30	29	15	19	66	3	10	4	14	1	3	2	7
40	29	15	20	69	0	—	4	14	1	3	2	7
50	41	21	23	56	6	15	2	5	2	5	5	12
60	46	24	20	43	11	24	6	13	6	13	4	9
70	24	12	10	42	7	29	5	21	2	8	0	0
70	10	5	6	60	1	10	2	20	0	—	1	10
Total	195											

The incidence of lesions at various ages is shown in table III. These results are presented graphically in figures 2 and 3. The incidence of lesions rises to a maximum in the 40 to 60 age group. The rate of recovery is similar in all age groups. The results in the under 20 age group, though small, confirm the clinical impression that treatment is rapidly effective in this group.

Discussion

I support Dr Fisk's first conclusion that these are common conditions, possibly the commonest serious condition that one sees. Serious in that they are disabling and may continue for weeks, months or years necessitating change of employment and loss of income.

The techniques of manipulation are safe and I have yet to see anyone injured in any way by them. The more 'specific' manoeuvres are less 'brutal' and this is essential if one expects patients to return for any continuing treatment of what is already a painful condition.

The incidence of manipulable lesions was found to be about equal in both sexes and the lesions occur in all ages. A cause for the onset of the lesion was sought, and these include injury both direct or more usually that occurring during the lifting of heavy objects. Backache in late pregnancy is common and persists long after delivery in some cases. The high incidence of cervical lesions in women might be due to carrying heavy shopping bags or children. The commonest lesions are in the lower cervical, upper lumbar and lumbosacral areas.

Unexpected pathology in this series by x-ray was uncommon.

All age groups are affected. The incidence of lesions is shown to rise with age to a maximum in the 40 to 60 age group. It is possible that this is a cumulative effect due to the failure of conventional treatments to correct completely the lesion, which not infrequently later relapses. The sudden fall in numbers over the age of 70 may be due to men retiring from work and the disability losing much of its urgency. Many of the general population regard 'rheumatism' as inevitable over middle age, and often accept quite severe degrees of pain. The patients in the over-70 age-group led a noticeably active life and did not normally have backache. The incidence at this age is probably higher than the figures in this study suggest; they include only those active enough to sustain new lesions.

A good response to treatment is shown at all ages. Bearing in mind that these patients had failed to show any tendency to improvement after primary conventional treatment, I am convinced that this is evidence of the value of manipulation and only a small proportion could be due to spontaneous relief.

Conclusion

A further series of patients is presented to support and amplify the conclusions of Dr Fisk in treating this common but rather neglected aspect of our patients' well being.

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MEDICAL APPARATUSES IN DOMESTIC USE

Injecting instruments

The public in this country having evinced a desire of adopting the custom, which had long prevailed in France, of resorting to the use of intestinal injections of "lavements", a call was made upon ingenious persons for the production of machines better suited to the taste and feelings of the English, than those used by our continental neighbours. A variety of improvements of this kind has consequently sprung up, the best of which, unquestionably, is the Aperitive Fountain, invented by Dr Scott. In shape it somewhat resembles a book: the fluid is propelled from it by means of a small double-action pump (concealed in the interior), the action of which is so simple and easy that it may be worked by the finger and thumb. The peculiarity and utility of the "double-action" is thus described by the inventor.

"Numerous persons having complained of uneasiness and suffering, resulting from the introduction of air into the bowels by lavement machines, it became a desideratum to construct a pump upon a principle that should altogether exclude it. This desirable object is attained by means of the double-action pump, to understand the superiority of which, it is necessary to explain how it differs in its action from all other pumps. Upon drawing up the piston of the common pump or syringe, the fluid rises into the barrel; and when the piston is pressed down, the fluid is forced out, and air takes its place. The next stroke displaces the air, and again fills the barrel with fluid; consequently the pump is alternately charged with air and fluid at each stroke of the piston during operation. The double-action pump, on the contrary, admits no air after it is once put in motion; for the fluid not only enters the pump at the up stroke of the piston, but at the down stroke also; and therefore flows into the cylinder both at the top and the bottom in succession, so that the pump is charged and discharged at the same stroke; consequently (however paradoxical it may appear) it remains constantly full; the piston continuing to work under water, air being totally excluded. Thus, the up stroke of the piston draws the fluid in at the bottom of the pump, and at the same time forces out the contents of the pump through the tube that leads from the top; whilst the down stroke draws the fluid in at the top of the pump, and forces it out at the side, it is thus two pumps in one. Another superiority of the double action is, that instead of discharging the fluid in gushes with a pause between (after the manner of other lavement machines), it propels it in a continued stream. These two advantages have, therefore, deservedly given the double-action pump a decided preference."

John Savory. *A companion to the medicine chest and compendium of domestic medicine*. 1840. London. John Churchill. p. 309.