opinion of the effect of treatment on his symptoms, and an assessment of changes of his joint signs resulting from previous treatment. The second assessment is that made during each treatment session. It is made following the use of individual techniques to prove the value of that particular technique. It is difficult to teach the extent of improvement in symptoms and signs which indicates that a particular technique should be continued or when changes should be made. Much of the judgement influencing changes in techniques comes only with experience but experience will only provide the basis for this knowledge if the habit of assessment is established.

We are not always able to improve a patient's symptoms and signs. However it is extremely valuable if the physiotherapist is able to tell the doctor confidently that continued physiotherapy will not produce any further improvement in the patient's symptoms or signs. The doctor is then in a position to make clearer judgements regarding the further management of his patient. When physiotherapists are able to do this the profession will be fulfilling its role more successfully.

RESPONSIBILITY

Physiotherapist to doctor

If the patient is to receive the best possible care, it is essential that we work in very close co-operation with the medical profession. Regarding manipulation this is particularly relevant with specialists in orthopaedics, neurosurgery and physical medicine. It is essential that the medical practitioner should be able to refer his patients confidently for physiotherapy knowing that manipulative treatment will be gentle and that very careful assessment of progress will be made throughout treatment. By undertaking treatment of his patients we are accepting a very real responsibility. If we accept this responsibility properly the medical profession will be able to make use of our faculties of observation and assessment to great advantage.

Neurological Examination

One aspect of our responsibility warrants particular emphasis. It applies to our ability to carry out a reliable neurological examination to determine alteration in nerve conduction due to compression of the nerve root. It is vital that we should be able to do this competently so that we can watch progress. We should not undertake treatment of patients by manipulation without competence in neurological examination.

CONCLUSION

It is generally accepted that manipulation is part of physiotherapy, and thus we accept certain responsibilities. These include responsibilities as a profession and responsibilities as individuals.

As a normal routine, patients must be examined with sufficient accuracy and detail to enable the effect of treatment to be assessed and the value of individual techniques proven. Obviously it is necessary to achieve competency in the use of many techniques to manipulate. We also need to cultivate the habit of assessing the value of each technique used in treatment. This habit will do more good for physiotherapy than any other single facet of our work.

Finally, we have a very important responsibility to work closely with the doctors who refer patients for treatment, and it is by this means that manipulation, as a part of ethical medical care, will proceed in the right manner.

THE LUMBO-SACRAL SPINE

An Approach to Treatment

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"The spine is a bunch of bones. Your head sits on one end and you sit on the other." Art Linkletter in "Kids Sure Rite Funny!".

It is customary to start an article with a review of the literature on the subject, a description of techniques used, followed by illustrative case histories and discussion.[1] As this is such a vast subject it is proposed to start with the description of a patient and her response to treatment and then follow with a discussion of some of the points which arise.

THE PATIENT

On 29th February, 1972, a married Coloured female aged 26 years was referred to the manipulation unit for mobilisation of her lumbar spine. The diagnosis was "lumbosacral breakdown". She was examined by a physiotherapist on 1st March, 1972.

Symptoms

She complained of pain across the lumbo-sacral junction spreading at times into both legs (see Fig. 1 "Body Chart"). The pain spread farther down the left leg and it was more painful than the right. She also said that she had intermittent paraesthesiae in the lateral aspects of both thighs. The backache was a constant deep ache, worse than the leg pain. There were no other symptoms. Her backache was aggravated by sustained flexion, sitting for two or three hours (e.g. at a cinema), getting up from sitting, turning over at night, long sitting (e.g. in a bath) and upright kneeling. On waking in the moring her backache had eased, but was worse again a few minutes after getting up. Coughing hurt her back.[2]

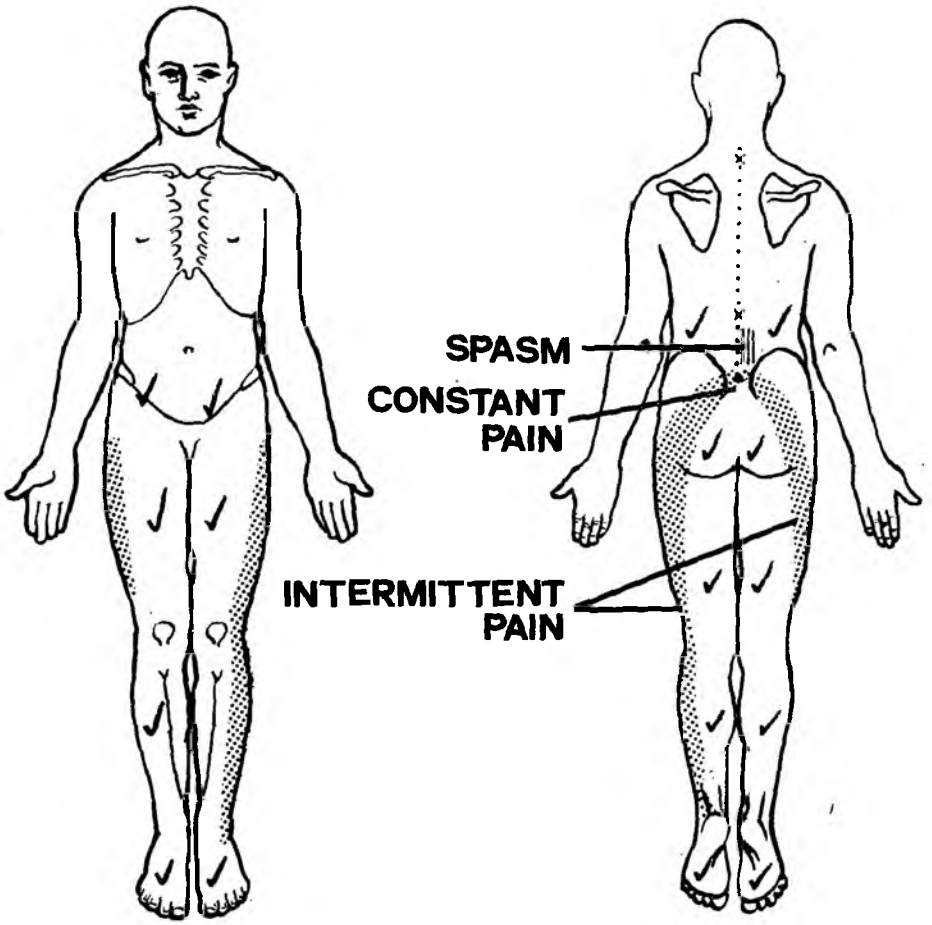
The leg pain and pins and needles came on after sitting for two or three hours, was worse on the left side and caused her to limp for a few steps after standing up because of pain and a "lame" feeling in her legs. After a few minutes the leg pain disappeared and the backache eased a little.

Prone lying eased her back pain and she preferred to sleep prone on a bed with a board and inner-spring mattress. Slight tilting of her pelvis towards flattening of the lumbar spine in standing also eased her backache a little. There was no latent pain and the joint was not thought to be irritable.[3] She had no symptoms of cauda equina compression[4, 5] and her general health was good with no recent weight loss.[6] She had had an infection of the cervix which had caused abdominal pain four years previously.

She was taking Brufen, Doloxene and Beserol which she said did not help her. X-rays taken on 22nd February, 1972, were reported normal. The fifth lumbar vertebra was set rather high relative to the iliac crests in the A-P view.[7, 8] There was a slight tilt to the right at L4/5 disc space, with a widening on the left.[2] The lumbosacral facet joints were asymmetrical, the right being more saggittal and the left more frontal.[5, 7, 8, 9]

History

She had fallen onto her buttocks in 1969 when she was seven months pregnant but had felt no pain then. In August, 1970, she bent forward and was fixed in flexion with severe pain in her back.[2, 10] She managed to get to bed and on rising the next morning could straighten up but had back pain which radiated to both legs as far as the knees. She was referred to the physiotherapy department where she was examined by a doctor on 21st September, 1970. The pain then was aggravated by bending and lifting and relieved by rest. Flexion was limited and sacro-iliac joint tests were positive on the left. Straight leg raising, neurological tests and X-Rays were normal. (See Fig. 2 "Examination Record".)



BODY CHART 1st MARCH 1972

Previous Treatment

Ultrasound and transverse frictions to the lumbosacral and posterior sacro-iliac ligaments were prescribed, to be followed by flexion and extension exercises when the backache was less irritable. Treatment started on 23rd September, 1970. The patient complained of pain during frictions and once of a numb feeling down the left leg. The treatment was continued and on 6th October, 1970, flexion and extension exercises were added. The patient felt pain while doing the flexion exercises. On 8th October, 1970, shortwave diathermy was added, after which she had "terrible pain" down her left leg. Ultrasound, frictions and exercises were done twice more, after which the patient was "not well" and was put to bed for one week. She had one more treatment on 19th October, 1970, and was discharged the next day feeling "much better".

On 17th September, 1971, she had a recurrence of low backache with no exciting cause. It had been present for two weeks and radiated to the left knee. She was generally well. On examination by the doctor forward flexion was restricted and painful. Sacro-iliac tests were negative. Straight leg raising was 90 degrees on the right and 45 degrees on the left.[12] Neurological tests were negative. There was tenderness over L5/S1 and the left posterior sacro-iliac ligaments. It was diagnosed as a lumbo-sacral strain and the treatment prescribed was Brufen, Beserol, a corset, ultrasound and transverse frictions to the lumbosacral joint and left posterior sacro-iliac ligaments. The last two were carried out once, after which ten minutes of vibromassage was substituted for the frictions. On 8th October, 1971, shortwave diathermy was added. Treatment was on alternate days.

She saw the doctor again on 29th October, 1971. Lumbar traction[12, 13, 14, 15] was added. The treatment she was now having was shortwave diathermy, ultrasound, vibromassage and 40 lb. of traction for 10 minutes on alternate days. Her back remained "very painful". On 1st February, 1972, the vibromassage was discontinued.

On 29th February, 1972, she saw the doctor again. On examination all signs were as before, except that straight leg raising was 90 degrees on both sides. She was referred to the manipulation unit on 1st March, 1972, stating that she was getting worse. She was no longer wearing a corset.

Signs

On examination by the physiotherapist she had no spinal deviation in standing.[16] Flexion was markedly limited by increased back pain, her fingers reaching the upper borders of the patellae.[17] It was decided to use this movement when assessing progress. Extension was estimated to be full range but aggravated the back pain so no overpressure was given. Lateral flexion to the left was full range but hurt in the left buttock, as did full rotation to the left tested in sitting. Lateral flexion and rotation to the right were full range and painless. No attempt was made to elicit the leg pain.[6]

Mr A. S. 1/3/72.

DAY PAIN Back p. const. Fluctuates. Leg p. - intermittent, - worse (L). Backache, deep, worst.

REST Eases B. p. BED Board, spring mattress

POSITION Prefers prone. NIGHT PAIN - on turning

RISING B. p easier, worse after a few minutes.

STIFFNESS Nil

AGGRAVATES Bath, kneel. EASES Prone lg., pelvic tilt in stand.

* ACTIVITY Sust. F p. B.

* SITTING Pain B + legs after 2-3 hours, mostly (L) leg, P+n Thighs (eg. cinema)

STANDING from sitt. p. B.

WALKING after sitt. limp ∴ leg p + "lameness". B. p eased + no L. p. after a few mins.

COUGH p. Back IRRITABLE No LATENT PAIN No

CAUDA EQUINA ✓ G.H. ✓ WEIGHT ✓

TABLETS Ponfen, Doloxene, Beserol – not helping.

X-RAYS 22/2/72 NAD. High L5. Alt tropism, frontal (L).

PREVIOUS HISTORY Fell on butt. 1969 7/12 preg. No B.p. Bending ang 70 – stuck F – bed – up a.m. unstuck, p. B to both knees.

EXAMINATION RECORD

CURRENT HISTORY Recurrent p. 7/9/71. No trauma. Getting worse

PREVIOUS TREATMENT Physio. 21/9/70. Bedrest 19/10/70-eased. U.S., Mas. frictions, F+E exes, vibromassage, S.W.D., Corset, L.T 40 Hrs/10 mins alt days. Not helping.

TREATMENT ORDERED Mobilise

DEVIATION Nil.

* F patella, ↑ B p.

E ✓ B p.

NF ✓✓

SIJ ✓✓

LF (L) ✓ p (L) butt.

LF (R) ✓✓

SLR (L) 90° p (L) butt.
(R) ✓✓

MUSCLE PAIN
Hip abd. ✓

ROT (L) ✓ p (L) butt.

ROT (R) ✓✓

PKB ✓✓

NEUROLOGICAL ✓

PALPATION Spasm (R) L3 → 5
↓ IV L5 p B, spasm (R)
" L4 p B
" Sacrum p B. T/T ↓ IV L5 ✓

TREATMENT 3.3.72 % ↑ B p Weds. Some ache now, B only.
o/e F ½ tibia p B, -dev. (L) at end.
T/T ↓ IV - L5 abdom. p, spasm (R) at IV
Rept. 2 x
6.3.72 % Sits Two' cinema, no B or L p.
o/e F ankles p B.
T/T ↓ IV - L5+4 x 3 Spasm (R) at IV+
↓ IV L/S Some B p
8.3.72 % No p.
o/e F ✓✓ E 2x prev., p B.
T/T ↓ IV L5+4 ✓

o/e F ⅓ tibia
Fankles -Warned.
o/e F 1" above ankle
F toes.
No limp. Bend easier.
o/e F flat on floor, B p (R).
F ✓✓ For final check.
o/e
E ✓✓ Disch.

TREATMENT RECORD

Neck flexion in supine was painless.[2] Straight leg raising was full range, but on the left hurt in the left buttock at 90 degrees. Prone knee bending, sacro-iliac tests,[6, 10, 19] neurological tests and muscle tests for pain[4, 18] were negative.

On palpation in prone lying,[6] spasm was evident in the spinal extensors on the right from L3 to L5. Thumb pressures and hand pressures[6, 16, 20] on the spinous process of L5 aggravated the pain across the low back and increased the spasm on the right at the end of the range. Slight central pain was elicited on hand pressure over the sacrum and on the spinous process of L4. No passive intervertebral movements for stiffness[3, 19, 21] were done.

Treatment

Following this examination flexion in standing was again tested. She could reach a third of the way down the tibiae before increased back pain stopped the movement. Central pressure over L5 was therefore selected as the treatment procedure and repeated for twenty seconds in an oscillating manner using a small amplitude of movement almost to the end of the range. On flexion her fingertips now reached her ankles. She was warned about possible pain later, due to treatment,[14] and left. The whole procedure including recording of examination and treatment took thirty minutes. (See Fig. 3 "Treatment Record".) It cannot be said that the above was a waste of time.[17, 22]

On being questioned two days later she said that she had had some increased back pain after treatment which had settled to a slight central ache by the following morning. This was still present. On testing flexion, her fingertips reached halfway down her tibiae before back pain stopped the movement. She now deviated slightly to the left at the end of the flexion range.[16, 23] The central pressures on L5 were repeated. Spasm could still be evoked on pressure near the end of the range, so the treatment movement was done short of this. She had some abdominal pain on pressure. Flexion now reached one inch above her ankles and after two further repetitions of the technique she could touch her toes.

On 6th March, 1972, she reported that she could sit through a cinema show without increased back pain. On leaving the cinema she had no leg pain, nor did she limp. Bending was easier too. On examination she could bend to reach her ankles. Central pressures on L5 and L4 were done. During this procedure some back pain and spasm were elicited on pressure at L5 at the end of the range. The pressures were repeated short of the painful range twice more. After each procedure her flexion improved until she could put her hands flat on the floor, feeling some back pain to the right of the midline. Rotation mobilisation[6, 20] was therefore used, the patient lying on her left side with the lumbosacral joint positioned midway between full flexion and extension. Pressure to the end of the range elicited slight back pain and was done in an oscillating manner for thirty seconds. On testing, flexion was full range and painless. Two days later when she was asked to report for final assessment she said that she had no pain. Flexion was full range and painless. Extension was now full range though painful. It was apparent that the estimated full range at the first examination was only half her normal range. At this point it was established that she had been a ballet teacher and her back was more supple than the normal.[15] She could now bend back twice as far as before, but she had some central pain at the end of the range. Central pressures over L5 and L4 were done and extension became painless. She was referred back to the doctor who discharged her and she has not returned since.

DISCUSSION

This case history is reported in detail to illustrate certain aspects of the approach to treatment used in the manipulation unit at the Groote Schuur Hospital.

Manipulation is not Magic

This case should dispel a mistaken idea that there is some mystery attached to this form of treatment. There is no "magic touch" involved.[8, 21] Manual techniques using passive intervertebral movements are used. They are selected on the sound basis of a detailed examination of the joint at fault and are persisted with or discarded as the result of precise assessment of their effect during and after treatment. Neither is any "impressive" apparatus with coloured lights or "magical" properties used. The approach requires adequate knowledge, a perceptive and deductive mind, manual sensitivity and skill—all attributes of any good physiotherapist. It necessitates the ability and the will to think mechanically,[10, 24, 25] and to take a positive and practical interest in the patient. The treatment is based on reality, not mysticism.

Examination by the Physiotherapist

It is also hoped to impress upon the reader the necessity for examination of the patient by the physiotherapist who is to carry out the treatment, and the need continuously to re-assess progress and the value of the techniques used. It also illustrates the advantage, to the patient, doctor and physiotherapist, of mutual trust and co-operation, allowing the physiotherapist some scope in the selection and application of the prescribed treatment[24, 35] yet relying on her responsibility.[17]

There are many reasons why physiotherapists should examine patients before starting treatment. These have been mentioned elsewhere.[14, 24, 26, 27, 28] One of the most important results of using this approach is that the work becomes more interesting and treatment more effective. Useless techniques may be discarded early in the treatment, thus saving hours of wasted treatment time.[4, 16, 24] Orthopaedic outpatient physiotherapy becomes more respected by doctors and the outpatient public because it proves its curative value. This leads to an enhanced professional status for physiotherapists[4, 24] if they are accepted as an indispensable part of the treatment team.

Techniques Used

It is not intended to imply that the techniques selected in this case are always the best, nor that patients with low back pain will not benefit from any of the methods of treatment used previously. It merely shows the method of selecting a technique, and that the one used in this case was the correct one for that patient at that stage of her pathology.[29] The fact that the patient had already had several methods of treatment previously, without benefit, facilitated selection by the process of elimination. Selection criteria have been discussed elsewhere.[4, 6, 14, 20]

A versatility of skills is important if one is to be able to select the correct one for each patient that comes along. To this end, mobilising and manipulative techniques should be taught as part of physiotherapy training at undergraduate[2, 17, 18] and postgraduate[20, 30] level.

Experienced physiotherapists may think that this patient could have been symptom-free in one session. It must be remembered that she was treated in an undergraduate teaching unit, where her progress, under the circumstances, was considered satisfactory. She had no painful treatment and safety was ensured by stopping short of evoking spasm. Although there are patients whose history, pathology, signs and symptoms indicate that manipulation should be selected as the first technique, it does not follow that manipulation always offers a faster cure than the more gentle mobilisation.[11, 14] Neither does mobilisation always have to be used as a prelude to manipulation for novices[2] or only in acutely painful conditions.[14] Many patients have been referred for mobilisation which has succeeded where previous manipulation had failed or had aggravated the condition.[22] Both techniques should therefore be available to the physiotherapist to be used when suitable.

Experienced physiotherapists will find a great deal more in the case history described, upon which one could comment and upon which interesting discussion could be based. The Temptation to discuss the possible underlying pathology[4, 5, 9, 10, 11, 18, 25] and the way in which it is responsible

for, or may be deduced from, the symptoms and signs has to be resisted in order to keep this article short.

CONCLUSION

Patients who complain of low back pain arising from the lumbosacral spine are legion, as this is the most commonly affected lumbar level.[2, 5, 9, 31] In spite of our lack of precise knowledge of the cause of symptoms in the majority of cases,[6] and of the effect of our techniques on the joints,[29, 32, 33, 34] it seems that physiotherapists should be trained to examine the spine properly. They should also be able to use many varied skills and techniques and be able to assess their effectiveness and usefulness. Working in close harmony with the referring doctor creates an unbeatable team.[2] Patients would need to look no further for relief from their low back pain if this approach were adopted.[18]

SUMMARY

A detailed case history is presented to illustrate the nature of manipulative therapy, the necessity for spinal examination by physiotherapists, the need for the ability to use many skills and to apply an educated mind to the treatment of patients with low back pain. The advantages of close co-operation between doctors and physiotherapists while allowing for some autonomy in their overlapping roles is underlined. The need for including examination and assessment, mobilising and manipulative techniques as part of the training of physiotherapists is stressed.

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OPSOMMING

'n Gevalstudie is in besonderhede voorgedra om die aard van manipulatiewe terapie te illustreer. Die noodsaaklikheid vir ondersoek van die werwelkolom deur fisioterapeute asook die vermoë om verskeie vaardighede met deeglike kennis en insig toe te pas in die behandeling van lae rugpyn, word bewys. Die voordele van 'n noue samewerking tussen dokter en fisioterapeut, wat nogtans 'n sekere mate van autonomie in hulle oorvleuelende rolle toelaat, word onderstreep. Die wenslikheid dat tegnieke van ondersoek, evaluering, mobilisasie en manipulasie in die opleiding van fisioterapeute ingesluit word, word beklemtoon.

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