

THERAPEUTIC EFFICACY OF LUMBAR OSCILLATORY ROTATION IN BACK PAIN MANAGEMENT : A REPORT OF TWO CASES.

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INTRODUCTION

Despite notable attempts to understand and treat it, low back pain and its consequential restricted spinal mobility remains essentially a conundrum and defiant to various treatment strategies. The economic cost to the suffering patient and the society runs into untold amounts of money. Finding solution to this irksome musculoskeletal condition is of great concern and therefore, poses a great challenge to both medical practitioners and patients.

For this reason among others, physiotherapists have continued to explore and harness effective treatment procedures other than traditional mode of treating low back pain (1,2,3). Based on the literature report (4,5,6) of the therapeutic efficacy of various spinal manual techniques, physiotherapists are beginning to switch over from the traditional treatment approach to prescribing and administering these techniques (manipulative therapy) in low back pain(LBP) management.

However, prescription and application of lumbar oscillatory rotation (LOR) technique in the management of LBP dysfunction has not gained much popularity like other oscillatory techniques. This may be probably due to the few literature reports with respect to the specific therapeutic value of various manipulative

techniques. Therapists seem to be guided more by anecdotal account in the choice and prescription of techniques rather than scientific basis or empirical evidence when treating patients with LBP syndrome. More and sufficient experimental data on the therapeutic efficacy of the various techniques of spinal manual therapy(SMT) are relevant therefore, to provide guidelines to the physiotherapists and medical practitioners in their prescription and application of such techniques to ameliorating the suffering of LBP patients. This has necessitated the presentation of the report.

Spinal Mobility and Pain Perception Assessment

Spinal mobility was assessed in two directions only: Anterior Spinal Flexion (ASF) and Lateral Spinal Flexion both sides (RLSF and LLSF). For ASF - the patient stood in erect position with a mark placed at the lumbosacral junction (where a line joining the dimples of Venus crossed the spine) and two other marks were made 5cm below (lower mark) and 10cm above (upper mark) the first mark. The patient was instructed to bend as far forward as possible and to indicate when there was pain on the spine. At the point patient felt pain on the spine, the distance between the upper and lower marks was measured with a non-elastic tape and

recorded (7). For LSF (RLSF and LLSF) - patient was in erect standing position and was instructed to bend to the right side with knees kept straight and the right hand pointing down to the floor. At the point patient felt pain on the spine, measurement was taken (with non-elastic tape) from the tip of the middle finger of the right hand to the floor surface (8). This procedure was repeated for the left side. Pre- and post-treatment measurements for ASF and LSF were taken and recorded for each patient. The subjective pain perception scores (PPS) by both patients on the visual analogue scale (VAS) were recorded before and after treatment.

Case 1

MN is a 25-year-old University student who presented at the physiotherapy department of JUTH, Jos with LBP dysfunction about three weeks after the onset of injury. She was performing her usual keep-fit exercises at home on supine lying when she heard a cracking or clicking sound on her back. She consequently developed severe back pain on the right (unilateral) and restriction of spinal mobility. Before leaving for hospital, patient took 400mg of feldene tablet. Patient however, came back home with a prescription of cataflam tablets 50mg daily for five days. After the course of cataflam medication, patient could manage with her activities of daily living (ADL) until few days later when she had exacerbation and pain became severe following few hours of washing (laundry) in sitting posture. Patient never had

back pain prior to this current episode. There was no nocturnal pain, but patient observed that changing position aggravated pain otherwise, lying down in supine position was comfortable. Assessment and physical examination revealed the following:

1. Facial expression of pain and distress
2. Gait/posture - straight back and sluggish movement
3. Pain perception score (PPS) - 5
4. Digital compression test (DCT) on the spine elicited pain at levels L4,5; S1 with mild tenderness
5. Spinal mobility test:
 - (a) Anterior spinal flexion (ASF) - 18cm
 - (b) Right lateral spinal flexion (RLSF) - 42cm
 - (c) Left lateral spinal flexion (LLSF) - 45cm
6. Lasegue's test (both lower limbs) - negative
7. Ely's test (both lower limbs) - negative
8. X-ray of the spine - no bony or any pathological lesion
9. All other systems were essentially normal

Impression

A provisional diagnosis or impression of Mechanical Dysfunction of the Spine (MDS) was made (with pain distribution to the right side).

Treatment

The lumbar oscillatory rotation (LOR) was administered with the patient lying on the non-painful left side (i.e. the painful right side uppermost) on the couch or plinth. The right lower limb (uppermost limb) was flexed at the

hip and knee; and the trunk rotated to the point of pain while the limb beneath was kept straight. The therapist placed his right hand on the patient's right buttock and his left hand on the right shoulder area with the oscillatory rotation effected in a push-relax sequence (9). During oscillatory rotation, the patient's body was made to roll back and forth in a rhythmic manner. Three sets of oscillatory rotation movements were administered (each set not more than 25 seconds) on the patient on alternate days (i.e on two separate treatment days). She was discharged with a list of Back Care Instructions (BCI) during activities of daily living(ADL).

Result

Patient reported she felt good and comfortable with decreased pain perception immediately after the first treatment. There was a concomitant slight increase in spinal mobility. On the third day when patient came for the

second treatment session, her facial expression was quite cheerful, she reported pain had progressively and remarkably subsided (PPS = 1), she could walk better and she slept well the previous nights. Forward bending (ASF) improved very much over the pre-treatment status. RLSF and LLSF elicited very mild pain at a level of about 37cm and 41cm respectively from the tip of middle finger of the corresponding hand to the floor surface (Table 1).

On the third day after the second treatment, patient reported her subjective pain perception score (PPS) on the visual analogue scale(VAS) was essentially zero (0). Spinal mobility (ASF, RLSF, LLSF) was essentially full and she could perform her activities of daily living (ADL) without any discomfort. Post-treatment correspondence with the patient seven months later indicated that all was well with her.

Table 1: Spinal Mobility and Pain Perception of Case no. One (2nd day after 1st treatment)

S/no.	Variables	Spinal Mobility and Pain Perception Values		
		Pre-Treatment	Post-Treatment	Difference
1.	ASF	18cm	21cm	3cm
2.	RLSF	42cm	37cm	5cm
3.	LLSF	45cm	41cm	4cm
4.	PPS	5	1	4

Note: ASF = Anterior Spinal Flexion, RLSF = Right Lateral Spinal Flexion, LLSF = Left Lateral Spinal Flexion, PPS = Pain Perception Score.

Case 2

RO is a 35-year-old pharmacist. She presented at physiotherapy clinic of JUTH, Jos

with exacerbation of LBP. Patient reported that about two years before presentation she experienced LBP a week after an attempt to move or push a kitchen cupboard at home. The severity of pain was more to the right side of her back (unilateral back pain). She had taken a lot and various types of NSAIDs (feldene, cataflam, Norflex, etc.) and a few sessions of heat treatment to no avail. Activities involving stooping or bending the trunk and change of posture on lying were reported as pain aggravation factors (PAFs). On examination, the following clinical findings were made:

1. Slightly cheerful facial expression
2. Gait/posture - no limping, but slight straight back
3. Pain perception score (PPS) - 5
4. Digital compression test (DCT) on the spine elicited LBP at levels L.3,4,5; S.1
5. Spinal mobility test:
 - (a) Anterior spinal flexion (ASF) - 19cm
 - (b) Right lateral spinal flexion (RLSF) - 37cm
 - (c) Left lateral spinal flexion (LLSF) - 41cm
6. Lasegue's test (both lower limbs) - negative
7. Ely's test (both lower limbs) - negative
8. X - ray of the spine - no bony or any pathological lesion
9. All other systems were essentially normal.

Impression:

On completion of above examination, a provisional diagnosis or impression of Mechanical Dysfunction of the Spine(MDS) was made (pain distributing to the right side).

Treatment

Lumbar oscillatory rotation was administered on the patient in the same pre-treatment starting position/posture (PTSP) as in the first case (9). The oscillatory rotation was effected in a push-relax sequence with the body made to roll back and forth in a rhythmic pattern. Two sets of oscillatory rotation movements, each set not lasting more than 25 to 30 seconds were administered on the patient on the first treatment day. However, patient reported five days later with aggravation of pain after sexual activity with her husband the previous night. Though, pain threshold level was still better compared to its level before the initial treatment, she reported. On this account, three sets of oscillatory rotation movements were administered on the patient as the second and final treatment. Among other instructions on Back Care to further reduce recurrence or exacerbation of pain, patient was specifically instructed on good and correct postures to adopt during sexual activity. Patient was discharged with the advice to make correspondence to the therapist whenever she experienced recurrence of pain.

Result

Patient reported there was a decrease in pain sensation and some degree of free spinal mobility immediately after the first treatment. The following day(1st day post-treatment) patient reported she was still pain-free and could

cope with her activities of daily living(ADL). A review was carried out on her on the second day post-treatment. Her gait/posture was quite good, pain perception score (PPS) on the visual analogue scale (VAS) was essentially zero (0), patient could bend or stoop low (anterior spinal flexion) to touch the floor surface with the tip of her middle fingers without pain. Lateral spinal

flexion on both sides improved remarkably without pain (see Table 2). Her activities of daily living had become more comfortable, she further reported. A follow-up visit two months later confirmed that patient was pain-free and had gone back to her daily responsibilities.

Table 2: Spinal Mobility and Pain Perception of Case no. Two (2nd day after 1st treatment)

S/no.	Variables	Spinal Mobility and Pain Perception Values		
		Pre-Treatment	Post-Treatment	Difference
1.	ASF	19cm	22cm	4cm
2.	RLSF	37cm	34cm	3cm
3.	LLSF	41cm	37cm	4cm
4.	PPS	5	0	5

Note: ASF = Anterior Spinal Flexion, RLSF = Right Lateral Spinal Flexion, LLSF = Left Lateral Spinal Flexion, PPS = Pain Perception Score.

DISCUSSION

Pain and restriction of spinal mobility are the two characteristic features of low back dysfunction and have therefore, become the common criteria for assessing and evaluating the relative therapeutic efficacy of manipulative therapy. The difference in the severity of pain perception before and after treatment among the two patients in the report was remarkably and clinically significant. It took just two treatments or less than one week to treat each patient to a level they were pain-free and fit for discharge.

Both patients achieved significant functional level of spinal mobility in the direction of anterior and lateral spinal flexion.

These results which are consistent with the reports of Nwuga (5); and Nwuga and Akande (6) are indications that lumbar oscillatory rotation (LOR) technique is effective in the management of concomitant pain and spinal immobility associated with low back dysfunction presented by the two cases. Furthermore, the dramatic pain relief after one or two treatments observed in this report is another

envious efficacious quality being demonstrated by manipulative therapy techniques over other conventional or traditional modalities. This has once again supported the experience of Nwuga (10).

He reported that among the 4000 patients (Case Histories) with acute and chronic LBP he treated with various manipulative therapy techniques including LOR over a period of 20 years, 25 to 30% became pain-free and fit for discharge after one treatment. However, he concluded that majority were pain-free and fit for discharge after an average of three treatments.

Some authors (10) have reported that manipulative therapy techniques are quite effective in the management of LBP, but the therapeutic effect is of short term. Sequel to this, post-treatment follow-up was initiated to observe recurrence of pain perception among the two cases. Correspondence with the first case seven months later indicated that all was well with her while the second case reported the same after two months. On the account of above, this report has demonstrated that the duration of pain relief by LOR may long outlast the short treatment period and the relief may continue for a period of months.

Another unique aspect of this technique as observed in a report (10) is that LOR seems effective and the best choice when dealing with patients who have unilateral LBP. Both cases in this report had unilateral (right side) LBP. Again the present study seems to agree with above

observation. Based on the therapeutic benefits of this report and other related studies (5, 6), it is suggestive that the traditional practice of requesting for or prescribing heat treatment, skin traction with bed rest, lumbar corset, massage, etc. should be reconsidered when the type of LBP patients (particularly those with unilateral pain distribution) described in this study present for treatment.

Finally, problems of anthropometric characteristics (i.e ectomorphic, mesomorphic and endomorphic body physique), subject population and follow-up period could influence the results of this report. On this note, it is therefore, advisable that subsequent study should enlarge the subject population, extend the follow-up period (for instance one year) and if possible consider the body physique of the subjects.

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