

tional activities (especially sitting and walking), by facilitating the use of erector spinae; however the underlying laxity and instability of the L4-5 segments made it impossible for the client to sustain pain-free movement. She was easily flared with any new activity and repeated clinical assessment exacerbated her complaints (especially stability testing or palpation of the scar). Extension exercises in standing and prone lying initially gave temporary relief but eventually increased her pain. Massage Therapy had temporary results with minimal decreases in pain as did acupuncture, pilates or yoga. Since her pain was becoming constant and more intense and she was becoming more anxious about her future, a combined treatment using RIT and a manual therapy approach was considered.

Table 1 summarizes the subjective findings prior to the start of RIT. Note the feelings of "giving away" in the lumbar spine when stooping and lifting and also the inability to walk more than 20 minutes without noticeable clicking in the hip and numbness into the right foot. Note also, the moderately high Roland Morris score⁵.

Table 2 summarizes the findings on physical examination. Note the increased segmental muscle tone on observation and the active range of motion findings. Note also, the painful excess movement with torsion and 'anterior to posterior' shear at L4-5 on motion palpation testing suggesting an increase in the neutral zone^{6,7}. Consistent with these findings, note the difficulty in isolating trans-

verse abdominal muscle activation during walking and 4-point kneeling and the single leg stance findings with motor control testing.

Treatment

The client received a course of eight RIT injections to the L4, L5, and S1 ligaments and the right sacroiliac and hip joints, as well as neural therapy (See Article by Dr Banner, pages 23-26.) The injections were given every six weeks for a period of approximately eight months. During this time she was encouraged to continue with her work and activities of daily living. She was encouraged to apply heat after the injections if necessary, and not to take anti-inflammatory medications and exercise unless she was unable to tolerate her pain. The client was unable to work for a week following the injection and she had increased complaints of pain for a 3-week period after RIT. This client was unusually sensitive to the injections as most report one to two day post-treatment soreness. Due to various known medication reactions this client chose not to use analgesics for her pain. During this 3-week period, only hands off treatment were indicated because of the amount pain and spasm. She was followed monthly by the Manual Therapist and appropriate mobilization and specific functional exercises were carried out over the course of 12 months.

As time progressed, the core stability exercises that had been attempted unsuccessfully prior to RIT became increasingly tolerable. Movement patterns that were previously painful such as sit to stand and rolling in bed now could be performed within normal limits. The exercise prescription followed a progressive functional approach. For example, some exercises were commenced from a supine and side-lying position to relearn the activation of transversus abdominus and multifidus. Once the patient could perform these more basic exercises properly without pain, she was progressed to more dynamic challenging positions such as exercises on a "physio" ball, 4-point kneeling, bicycling and walking further distances. There was minimal need for specific mobilization or manipulation of any spinal segments as the lumbar segments moved well with no apparent restriction. Specific stretching and mobilizations were performed for the right hip joint, which exhibited stiffness into flexion /adduction/medial rotation. Once the mobility of the hip improved, strengthening exercises in functional weight bearing using a stride pattern were prescribed. The majority of the exercise program required compliance at home, as the client was only reviewed on a biweekly basis.

Follow-up at 14 months

The follow-up findings 14 months after the start of RIT and the manual therapy treatments are shown in Table 3 (subjective) and Table 4 (physical). Note the 80% improvement in pain and function reported by the client in Table 3. She was able to sleep 6 to 8 hours and reported no feeling of "giving away" or sliding with active lumbar range of movement. The score of the Roland Morris improved from 16 to 5 out of 24.

Table 4 highlights the ability to maintain a neutral spine in standing and throughout dynamic movement

Table 1. Subjective findings prior to RIT

- Constant low back & right leg pain (see pain chart)
- Numbness aggravated by sitting > 10 minutes
- Pain stooping to clean floors or toilet
- Pain lifting > 5 kilos
- Standing 5 minutes exacerbated symptoms
- Sitting 10 minutes increased pain
- Bicycle for 30 minutes increased pain
- Pain relieved by flexed postures
- Interrupted sleep due to pain: 2-4 hours maximum
- Falling once a week
- Depressed because of constant pain & frequent absences from work
- Minimal medication: Tylenol Plus for pain control - only PRN by her choice
- Unable to work a full day without lying down in medical center to apply heat for 15 minutes
- Noted "giving way" feeling at low lumbar region
- Unable to walk > 20 minutes, often noted clicking & pain in right hip when walking.

Outcome Measures

- Roland Morris Disability Index: 16/24
- NPRS: 6 out of 10 at its worst (see pain chart)

Client Goals

- primary goal was to work 5 days in her modified job & enjoy activities of daily living with less pain.