A Rare Case of Iliopsoas Weakness in a Woman after Delivery—The Effect of Physiotherapy

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Abstract. A 32-year-old female was referred to our hospital for physiotherapy. This woman had severe pain in the right thigh and weakness in the iliopsoas muscle. She had difficulty in walking. According to her history, the pain started in the 28th week of pregnancy and continued to deteriorate progressively in the following weeks. The gynecologist did not want to subject the woman to any examinations and prescribed bed rest until delivery. Ten days after delivery the symptoms had not subsided, and the woman sought the help of an orthopedist. X-rays revealed an increase in lumbrosacral angle, while tomography and magnetic resonance imaging revealed no disc herniation. Electromyogram was negative. The physician referred her for physiotherapy that included transcutaneous electrical nerve stimulation, short wave diathermy and strengthening exercises. The woman after fifteen treatments was absolutely free of symptoms and could use the lower extremity in most of her daily activities. This case report shows the significant role of physiotherapy in the rehabilitation of iliopsoas weakness in a rare incident.

Key words: Iliopsoas weakness, Physiotherapy, Strengthening exercises

INTRODUCTION

Recent epidemiological studies suggest that 50% of pregnant woman experience some low back problems during their gestation period, that usually occur between 20 and 28 weeks and several causative factors are considered as responsible1). The changes in body posture during pregnancy alter the biomechanics of the lumbar spine. The weight gain both of the woman and the fetus can impose more stresses in the lumbosacral region, the paraspinal and abdominal muscles2). Pressure on some nerve roots from a herniated disk produces symptoms affecting the lower extremities. Most common symptoms are pain, numbness, aching, decrease of reflexes and in most of the cases weakness of hip or ankle extensors. Usually disk herniation occurs between L4-L5, L5-S1, or S1-S23). In the present case report we present a rare and unusual iliopsoas weakness that occurred in a woman during pregnancy.

CASE REPORT

A 32 year old woman was referred for physiotherapy ten days after delivery. According to her own report, during the 28th week of her pregnancy, she began to feel a mild pain in the right thigh along with weakness in walking and climbing stairs. In the following weeks the symptoms...
continued to deteriorate progressively. Her gynecologist advised her to have bed rest until delivery, receive no medication and avoid any kind of clinical, biochemical or other type of examination. Her pregnancy was uncomplicated, and she had no history of specific back or hip injury. She had not any back pain, paresthesia, or urinary retention. Manual muscle test examination revealed weakness of right hip flexors and normal motion in internal-external hip rotation, abduction-adduction, and hip and knee extension. Calf muscles were normal and no radiculopathy with numbness was present. Lumbar spine X-ray showed a dramatic increase in lumbrosacral angle (Fig. 1). Lower thoracic and lumbar spine tomography and magnetic resonance imaging failed to reveal herniation. Since these examinations were negative, the patient was received an electromyogram test that was negative too. The prescribed physiotherapy modalities, included transcutaneous electrical nerve stimulation (TENS), thermotherapy (short wave diathermy) and strengthening exercises.

The TENS unit used was the eclipse model (Medronic Inc) in conventional mode and the electrodes placement sites used were the Sp12, Sp13, and Liver 10 & 13 acupuncture points; the rate was 60 msec, the frequency 120 Hz and the intensity was at the tolerance level. The duration of each treatment session was 35 min. Diathermy was used (Entraf Nonious Holland), with intensity adjusted to 120 watts, and the electrode on the right thigh region for 25 min at a distance of 20 cm. The main exercises included were to strengthen the iliopsoas, the rectus femoris and the other muscles of the lower extremity (The exercise program is described in Appendix 1).

After each treatment significant improvement was observed with regard to the pain intensity in the iliopsoas muscle strength and the ability of the woman to walk. After ten sessions of treatment there was a dramatic decrease in pain intensity as well as an obvious recovery of the iliopsoas muscle. The rehabilitation continued and after fifteen sessions of treatment, the symptoms disappeared, and the patient could use her leg in many daily activities.

**DISCUSSION**

It is known that the iliopsoas muscle is innervated from the lumbar plexus from L2,3 and its major action is to flex the hip joint by flexing the femur on the trunk. In addition to this action, the iliopsoas has to flex the trunk as a unit on the thigh from a lying position, or any position when movement is meeting resistance. Furthermore, the physiological elasticity of the iliopsoas muscle plays an important role in maintaining the correct standing and sitting posture. Decrease of the ability of a patient to flex the hip joint was observed in a case of weakness of the iliopsoas muscle. This lead to a marked disability in stair climbing or walking up a slope, getting up from a reclining position and bringing the trunk forward to the sitting position, prior to rising from a chair. In extremely serious weakness, walking is difficult, because the leg must be brought forward by pelvic traction (from the abdominals), rather than by hip flexion. The woman of the present case reported manifested these symptoms not only during the gestation period, but also after delivery.

In the present study computed tomography, MRI and electromyogram failed to reveal the pathology that caused the two main symptoms: the weakness of iliopsoas and the severe pain in the thigh. We believe that the etiology of this particular case was a change in biomechanics of the lumbar spine during pregnancy. This is a physiological procedure to allow the fetus to grow. It is known that during this period significant changes occur in the collagen of the ligaments of the hip and pelvis region. An increase in the excretion of hormone relaxin is observed resulting in a laxity of the ligaments both
in the hip and iliosacral joints. This ligament relaxation, with stretching of abdominals, causes anterior inclination of the pelvis. The lumbrosacral angle increases significantly and puts excessive forces on the soft tissues of the pelvis.

The fast recovery of muscles strength and the decrease of pain, shows that the symptoms of this particular case were not related to nerve roots. It seems that the fetus applied pressure to the main iliopsoas muscles fibers on the femoral artery, producing ischemia which resulted in muscle spasms due to firing of the Golgi tendon organs. Since this pregnant woman had to help with housework, probably, permanent pressure on the femoral artery finally interrupted the circulation causing pain and weakness. After the patient delivered decompression of the femoral artery occurred and the recovery process began.

The etiology of this case report, is reinforced by the fact that the combination of TENS and short wave diathermy improved both the iliopsoas pain and strength in two ways. First, it is known that many physical therapists have used TENS to decrease pain in the last 20 years. In our example, pain was dramatically decreased after the second session. This does not happen when the nerve roots are pressed, because the recovery phase needs more time. Second, short wave diathermy is traditionally used to increase circulation and to decrease muscle spasm. The ability of the woman to walk more freely and to gain the iliopsoas strength rather quickly, showed the effectiveness of this modality.

CONCLUSION

This rare case confirms, first, the role of the physical therapist, who must cooperate with the physician and target the correct diagnosis of a musculoskeletal problem, and second, the effectiveness of physiotherapy modalities, such as TENS and short wave diathermy, in the recovery of the iliopsoas function.

APPENDIX 1. THE EXERCISE PROGRAM

Lying
1. Left hip and knee flexed. Holding the knee flexed on the chest. Right hip and knee flexion towards the chest followed by full extension. The leg is held still and extended over the bed for about 3 sec. Repeat. At the end of the first set, light massage was performed on the thigh region.
2. Left hip and knee flexed with the foot on the bed. Right hip and knee flexed at 90 degrees. Arms at the sides. Right hip and knee extension followed by full flexion. The extended leg is held still for about 3 sec. Repeat.
3. Left hip and knee flexed with the foot on the bed. Arms at the sides. Right hip flexion with the knee fully extended. Lowering and lifting up of the extended leg. Repeat.
4. Hip and knee flexed. Feet on the bed and arms at the sides with the elbows flexed at 90 degrees. Posterior and anterior pelvic tilt. This exercise was executed very carefully, to prevent excessive strain on the lumbar spine. After four sessions the patient could execute the exercise by pressing the lower back on the bed.

Abdominals
1. Hip and knee flexed. Feet on the bed and arms extended over the chest. Mild flexion of the trunk until the scapula isn’t touching the bed. Repeat.
2. The same as above position with the arms crossed on the chest. Mild flexion of the trunk until the scapula isn’t touching the bed. Repeat.
3. The same as the above position with the arms flexed and the fingers crossed behind the neck. Mild flexion of the trunk until the scapula isn’t touching the bed. Repeat.

Side lying
1. Lying on the left side with both hip and knee flexed at 90 degrees. Right hip and knee flexion towards the chest followed by full extension.
2. Lying on the left side with left hip and knee flexed at 90 degrees while right hip and knee are in extension. Right leg is lifted up and extended (Abduction of the right leg).
3. Lying on the right side with left hip and knee flexed at 90 degrees while the right leg is in extension. Right leg is lifted up and extended (Adduction of the right leg).

Supported sitting position
1. Upper body supported on the back of the bed. Hips and knees flexed at 45 degrees with the feet on the bed. Hands holding the borders of the bed. Right hip flexion followed by
extension.
2. The same as above position on the bed with the left hip and knee flexed and the right hip and knee extended. Right hip flexion with the knee fully extended.

Kneeling
1. Arms and knees flexed on the bed at 90 degrees. The right hip is flexed inwards to the chest till almost touching the shoulder region. Return to the starting position.
2. The same as the above position. Right hip extension with the foot touching the end line of the bed. Return to the starting position.
3. The same as the above position. Stretching the arms forward while the pelvis is sitting on the back of the feet. Remaining in that position for 5 sec. and return to kneeling.

Unsupported sitting position
1. In sitting position with both feet hanging out of the bed. Hips and knees flexed at 90 degrees. Right hip flexion bringing the flexed knee towards the chest and holding for about 3 sec.
2. The same as the above position. Right hip flexion with the knee fully extended. Lifting up and lowering.
3. The same as the above position with the spine straight. The trunk is slightly bent forwards and then backwards.
4. The same as the above position. Swing both legs from side to side keeping the feet together.

Standing
1. Feet apart at the same width of the shoulders. Both hips and knees flexing at 45 degrees. Holding that position for about 5 sec and then stand again. Progressively, flexion degrees were increased.
2. The same as the above position. Right hip and knee flexion towards the chest, holding there for about 3 sec. and return.
3. The same as the above position. Right hip abduction and adduction.
4. The same as the above position. Right hip internal and external rotation.

5. Walking.

All exercises were executed at the early stage in 3 sets of 5 repetitions each, while the progressive target was 10 sets of 10 repetitions.
During the execution of the exercises, the lumbar spine was supposed to be in the neutral position so that sway back could be avoided. The following exercises were executed by the patient at home once a day:
a) Lying exercises 2 & 3.
b) Side lying exercises 1 & 2.
c) Unsupported sitting position 1, 2, 3 & 4.
d) Standing position 1, 2 & 5.

REFERENCES