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Myofascial pain syndrome as a cause of acute radicular pain: a case study

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ABSTRACT

Background: Low back pain is a common disease among young people causing pain, disability, and loss of many valuable working days. Low back pain can have various causes, one of which, usually disregarded, is the myofascial pain syndrome, which is caused by trigger points in the muscles and which leads to occasionally acute low back pain with radicular patterns. Timely and correct diagnosis of the cause of low back pain can help greatly in opting for the appropriate medical plan.

Case Presentation: The patient is a 34-year-old man suffering from chronic low back pain for the last four years. He had been afflicted by acute radicular pain in his left leg because of intense physical activity the day before seeking treatment. In the examinations conducted, the patient's straight leg raise (SLR) test result was positive at 20 degrees, his left leg's Achilles reflex was absent, and he could not stand on his left toes. Through palpation of the gluteal area, several trigger points were palpated and discovered in the gluteus muscles, especially gluteus medius and piriformis. Conservative treatment including resting, medicine, and physiotherapy was initiated, which improved the patient's conditions to some extent Subsequently, a dry needling process was conducted for the gluteal region trigger points. After the sixth session of dry needling, the patient improved significantly, his SLR test was negative, and he returned to his normal work.

Conclusion: Attending to various causes of low back pain with a radicular pattern, including myofascial pain syndrome, can help greatly in selecting an appropriate treatment plan. In the cases where low back pain is accompanied by active trigger points in muscles, dry needling and injection can help avoid invasive and expensive treatments.

Keywords: low back pain, myofascial pain syndrome, trigger points, lumbar disc herniation

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Introduction

Low back pain is a common health problem among approximately 80 percent of the general population [1]. One of the main causes of low back pain in younger people is considered to be a sedentary lifestyle [2]. There are many causes of low back pain, and in most cases it stems from multiple causes. Proper diagnosis can help in treating this disease. Although various diagnostic imaging procedures can efficiently help differentiate between different causes, taking a complete history and performing a precise examination seem to be essential for correct diagnosis. An acute radicular low back pain, positive SLR, and extruded disc in magnetic resonance imaging (MRI) tend to guide the specialists toward surgery. However, it is doubted whether all patients with an extruded disc in MRI need lumbar surgery, as it may be a chronic lesion or an artifact of imaging. In fact, paying closer attention to the differential diagnosis, usually disregarded, can lead to the rejection of surgery. The myofascial pain syndrome (trigger point) is a case that seems very similar to radicular low back pain [3]. Inattentiveness to this syndrome, which has effective non-invasive treatments can impose expensive and invasive treatments on the patients [4]. Even after surgery, these patients do not considerably improve since the pain originates from trigger points along with the radiculopathies. Trigger points are painful points in muscles which create palpable nodules in muscles fibers [5]. The pain from trigger points may develop a pattern very similar to that of a radicular one. Based on the position of the active trigger points, other symptoms such as limitations in range of motion, sensory symptoms, and even autonomic dysfunctions such as discolorations or skin temperature changes [5] may appear. These trigger points occur as a result of muscle overload, fatigue, major and minor traumas to the muscle tissue, psychological stresses, and sleep disorders [5]. The extrusion of the lumbar disc in the lumbosacral region can irritate the roots of nerves, causing a radicular pain in the lower limb. In addition, the active trigger points in the gluteal region can create pain with a radicular pattern [6]. For example, the existence of trigger points in the gluteus minimus and piriformis muscles creates a pain similar to the radicular pain pattern in L5-S1nerve roots in spreading to the outer thigh, shin, and even the toes [7]. In the studies conducted, the relationship between gluteal region trigger points and radicular low back pain has been proved. One of these studies was conducted by Adelmanesh et al. on patients with radicular low back pain. Among 271 participating patients, 207 (76.4 percent) had trigger points in the gluteal regions. In 76.6 percent of these patients, the trigger points were located on the same side as the radicular pain. However, only three of the healthy people (1.9 percent) had these trigger points, which was a statistically significant difference [8].

Case presentation

Medical History and Examination

The patient was a 34-year old employee who was suffering from acute radicular low back pain in the left lower limb two days before his referral. The backache was in the lower vertebrae and radiated to the calf area. There was also numbness in his toes. The patient had a history of acute low back pain which started four years ago and had improved with rest, medicine, and physiotherapy. The recent pain had occurred after moving heavy objects. The patient had an antalgic gait and was unable to walk normally.

The SLR test for the patient was positive at 20 degrees. The left Achilles' reflex was totally destroyed. There existed severe tenderness in the lower vertebrae. The patient did not have any complaint regarding urination and defecation, and was able to walk on his heel, but was unable to do so on the left toes.

The patient's pain intensity was 9 based on the VAS scale. The MRI showed an extrusion of the lumbar L5-S1 disc with severe pressure on the left inter-vertebral foramen and protrusion of the inter-vertebral disk in L4-L5 (Figure 1). The patient's blood test reports including ESR, CRP, and CBC were normal.

Treatment

The following treatments were started for the patient:

Relaxation and resting: The patient was allowed to get up from bed by assistance of a four-bar metal lumbar corset. The medicines included two methylprednisolone ampoules with a three-day interval, 5 milligram prednisolone pills every eight hours, 100 milligrams slow-resistant diclofenac pill, 4 milligram tizanidine pill to be taken every night, and Vitamin B1 (300 milligram). After 10 days, re-examination was carried out. The patient's VAS had lowered to 7; the radicular pain still existed toward the left leg; SLR was still at +20. Vertebral tenderness had decreased slightly. Physiotherapy including hot pack, transcutaneous electrical nerve stimulation (TENS), and ultrasound were started on the back, gluteal, back of thigh, and left calf area on an every-other-day basis. The patient was taught how to perform back-strengthening exercises. He was asked to do these exercises twice a day. After another week, the patient underwent another examination. It was found that his VAS had decreased to 5, while the back pain had

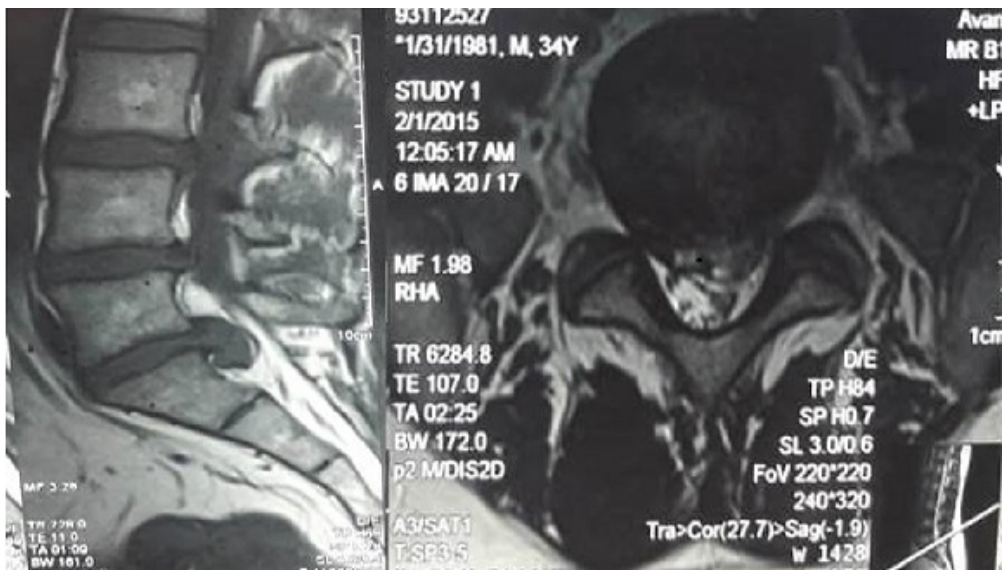

Figure 1: Lumbosacral MRI of the patient

reduced and was reported only in the posterior section of the thigh. The patient's SLR was +40 and the DTR for the left Achilles was absent. Meanwhile, he continued his medical treatment. The prednisolone was tapered off from week 3 onward. In the next examination conducted after a month from the inception of the disease, the patient's back pain had reduced dramatically and his VAS was 4. Examination showed that there was still mild tenderness on the lower vertebrae, but the left SLR test was unremittingly positive. In the examination of the gluteal area, deep trigger points were palpated in muscles whose pressurizing caused severe radicular pain, stating that this was his major pain. Pressurizing these trigger points caused a pain at the same initial magnitude the patient had experienced in the first stages of the disease. Through meticulous examination, it was clear that these pains were related to the gluteus minimus and piriformis muscles. Six sessions of dry needling were performed for these trigger points using an acupuncture needle (0.35x90 centimeter).

Treatment Results

In the first two sessions, the patient experienced severe pain. However, the pain started to reduce after the third session and considerable improvement was observed in his gait. After the sixth treatment session, the patient's SLR was negative and the pain intensity on the VAS scale had reached 1. Two months after the onset of the disease, the low back pain had decreased through conservative treatments including rest, medicines, physiotherapy, and dry needling. The patient was able to resume his previous job. The only sign which was still observable in the examinations was the lack of a left Achilles reflex, which seemed to be due to an old chronic lesion of the S1 root injury and did not appear to have any connection with his recent symptoms.

Discussion

Attending to the various causes of low back pain can help alleviate symptoms effectively. In our case, the patient was afflicted with chronic low back pain as a result of heavy physical activity. According to the patient's history, clinical examination, and MRI report, the source of the low back pain seemed to be the extruded disc in L5-S1. Without considering further causes and keeping in mind the patient's symptoms such as radicular pain, positive SLR, absence of left Achilles reflex, and the extruded disc in the MRI, he would have been operated upon the initial stages. However, since the main cause of his pain was not the extruded disc, surgery would not have improved his condition. Through precise examination, it was found out that the existence of active trigger points in the muscles of the gluteal region, particularly gluteus minimus and piriformis, had caused positive SLR, muscle tightness, and a reduction in the range of motion. Using dry needling to treat the trigger points yielded a considerable reduction of the patient's pain and turned his SLR into a negative value.

Based on previous studies, the treatment of trigger points has been proved to have a positive effect on patients with low back pain. Saieedian et al. conducted a study on 89 patients with chronic radicular low back pain. The patients were investigated in two groups. All of them received relaxation, medicines, and physiotherapy as treatment. However, one of the groups was administered injections aiming at treating trigger points, while the other did not receive any treatment on the trigger points. Whereas patients with

trigger points who received the injection had a statistically significant reduction in the pain score negative SLR values, only 19 percent of the control group had negative SLR values [9]. In a case study reported by Rainey CE, a 30-year old woman with chronic low back pain and several trigger points in the multifidus muscles of L3, L4, gluteus maximus and medius had experienced considerable improvement after receiving two sessions of dry needling and electrical stimulation therapy on these trigger points [10]. Itoh et al. investigated the effects of acupuncture on the trigger points of 26 elderly patients with chronic non-radicular low back pain. These researchers reported more positive effects on the pain of these patients compared with those undergoing sham therapy [11]. The majority of the studies conducted to date have been carried out on patients with chronic low back pain who have had healthy neurological profiles. The importance of our study lies in the fact that our patient suffered from acute radicular low back pain along with neurological manifestations. Appropriate treatment for trigger points in the gluteal region lead to an effective response and the patient regained his previous active state by receiving conservative treatment with minimum invasive procedures.

Conclusion

Conservative treatment including rest, use of proper drugs, physiotherapy, and effective treatment of trigger points can help improve a significant number of patients with low back pain, even radicular ones with neurological manifestations. Considering the invasive treatment of lumbar discs and the complications and relapse after surgery, it is recommended to devote sufficient time to proper diagnosis and conservative treatment, and carry out rehabilitation for patients with acute low back pain without progressive neurological injuries.

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