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CASE REPORT

Pain Mesotherapy Adventure of Three Sisters Who Applied to a Traditional And Complementary Medicine Center

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Abstract
Today, musculoskeletal pain is frequently seen in the working population. Analgesic drugs are frequently used in the treatment of this chronic pain. However, analgesic drug treatment causes various side effects. Mesotherapy is an application method that aims to heal by injecting a small amount of medication under the skin. In this method, less medication is used compared to systemic treatment and a similar effect is achieved. Although mesotherapy has a wide range of uses, it does not yet have a standard protocol. For these reasons, every study conducted in the field of mesotherapy is quite valuable. It was aimed to contribute to the literature by evaluating the mesotherapy results of three sisters from the same family who applied to our center with various pain complaints. The pain of the sisters, aged 44, 47 and 50, was evaluated with the Visual Analog Scale (VAS) before and after mesotherapy. The pain levels, which were 10/10, 8/10 and 10/10, decreased to 7/10, 4/10 and 3/10 after three sessions of mesotherapy, respectively. In addition, all of them reported an increase in their quality of life. The decrease in pain in these patients with similar genetic and sociodemographic characteristics, consistent with previous studies, can be interpreted as significant.
Keywords: Pain, Mesotherapy, Siblings, Musculoskeletal

INTRODUCTION

In the twenty-first century, chronic musculoskeletal pain has become quite common, especially in the working population [1]. Studies such as the United States Bone and Joint Initiative in the USA and the Fit for Work Europe in Europe have shown that musculoskeletal disorders cause significant functional limitations in the adult population [2,3]. Musculoskeletal pain reduces the patient's quality of life by causing increased physical disability, decreased social functioning and mental health deterioration. Thus, it consumes a large amount of health and social care economic resources [4]. In addition, nonsteroidal anti-inflammatory (NSAID) and myorelaxant drugs, which are frequently used systemically in the treatment of these pains, have a very high side effect and drug interaction profile [5]. As an option, intra-articular injections and interventional spinal procedures are used. However, this should only be done under sterile conditions and by highly trained personnel due to the risk of infection and bleeding.

According to the Traditional and Complementary Medicine Regulation published in the Official Gazette on October 27, 2014 in Turkey, mesotherapy is the application of local, small doses, intradermal injection of herbal and pharmacological drugs with special needles and special techniques, aiming to improve organ pathologies of mesoderm origin. It can be applied by certified physicians and dentists as a complementary treatment for muscle, joint and skin pathologies. This method, which can also be defined as local intradermal treatment (LIT), is a technique used to slowly spread drugs to the tissues below the injection site in order to prolong the pharmacological effect compared to intramuscular injection or other systemic applications [6]. It is offered alone, alone or in combination with other pharmacological/non-pharmacological treatments. One of its greatest advantages and purposes of use is to obtain optimum benefit with lower drug doses and therefore fewer side effects and costs compared to other treatments. The "mesoderm layer" that gives the method its name is one of the three germ layers

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in which tissues develop during the embryonic period. It is assumed that the skin, muscle, bone, cartilage, ligament, fat and cardiovascular system tissues originating from the mesoderm layer are in communication with each other and that a substance applied to the skin, which is one of these tissues, will also affect the tissues in its projection [7]. Although this hypothesis has not yet been scientifically proven, its beneficial effects on patients have been shown by many studies. In addition, although mesotherapy has a wide range of uses such as pain relief, sports medicine, chronic venous disease, immune prophylaxis and cosmetics, it does not yet have a standard protocol. Application frequency, total number of sessions, drugs and doses used, application depth, etc. vary according to the practitioner and the patient [7,8]. For these reasons, increasing scientific studies on mesotherapy applications is of great importance both in terms of understanding the mechanism and in creating a standard protocol.

CASE PRESENTATION

Our case series includes three sibling patients who applied to Samsun Training and Research Hospital Traditional and Complementary Medicine (GETAT) Application Center. Patients applied to our center in February 2024.

The first case, a 44-year-old woman, presented with a pain in the lumbar region that had lasted for about 7 months, which eased somewhat with rest, but continued uninterruptedly throughout the day. On inspection, there was difficulty in walking. The patient could lie on the stretcher with the help of two people. There was serious tenderness in the lumbar region. The patient consulted Brain and Nerve Surgery before applying to our center, and no surgery was considered, and NSAID treatment and exercise were recommended. The previous lumbar Magnetic Resonance (MR) image is as shown in the figure (Figure 1). It was interpreted as *"L5-S1, L4-5 disc distances have narrowed. Signal changes compatible with type I degeneration were observed in the end-plates facing the L5-S1 disc, and type II degeneration was observed in the end-plates facing the L4-5 disc. Loss of intensity was observed in T2-weighted series due to degeneration in L5-S1, L4-5, L3-4 discs."* The patient defined his pain as 10/10 according to Visual Analogue Scale (VAS).

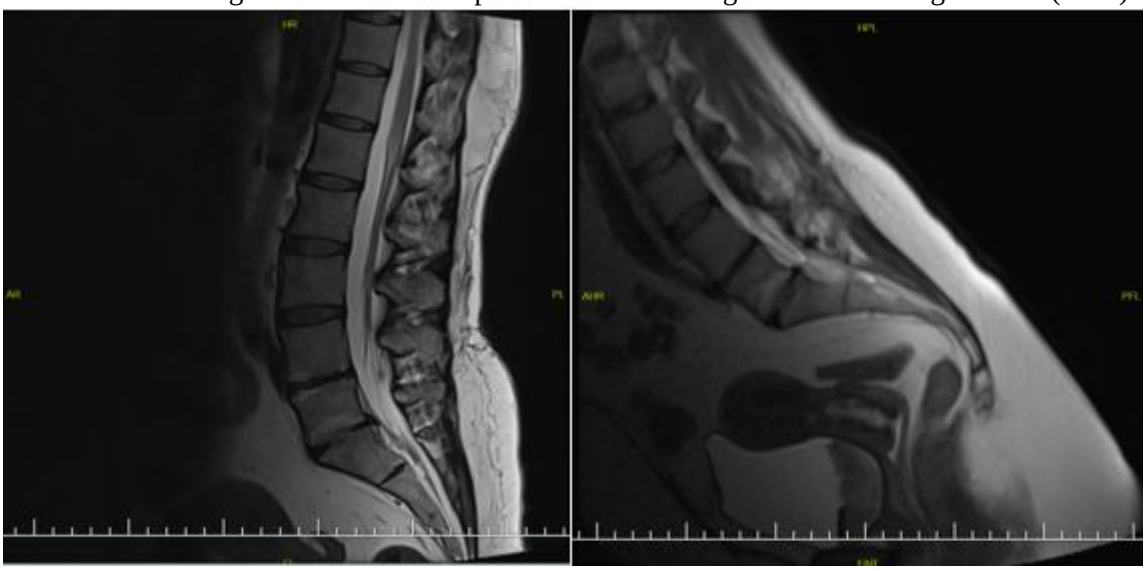

Figure 1. First case's lumbar MRI image

The second case, a 47-year-old woman, had pain in the interscapular and cervical areas that had been present for 1 year, varying depending on the position, and was described as having an intensity of 8/10 according to VAS. On physical examination, there was stiffness in the cervical area that could be felt by palpation. The third case was a 50-year-old woman. She had right knee pain that recurred from time to time and increased in the last month and a half, reaching a level of 10/10. The previous knee MRI image is as shown in the figure (Figure 2). It was interpreted as *"Grade II degeneration was observed in the anterior and posterior horns of the medial meniscus. A grade IV laceration was observed in the posterior horn of the lateral meniscus body. Linear signal increases in favor of interstitial rupture were noted between the anterior cruciate ligament fibers."* The second and third patients do not receive any treatment other than NSAIDs. No pathology was found in the vital signs and laboratory results of all three patients.

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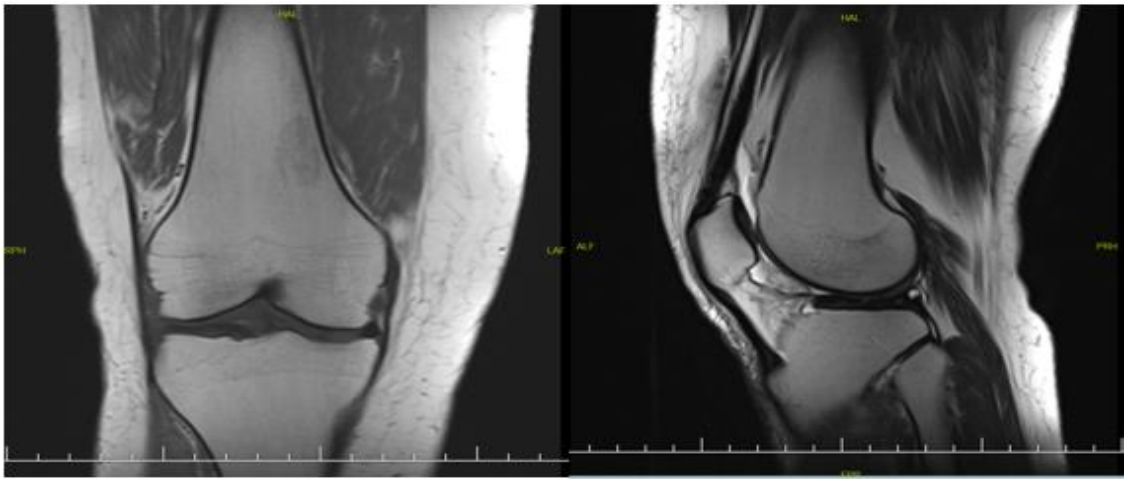

Figure 2. Third case's knee MRI image

Mesotherapy treatment was planned for all three patients once a week. The drugs used in the treatment protocol are a combination of lidocaine without adrenaline, thiocolchicoside and physiological saline. Although the total applied amounts vary depending on the size of the applied area, the application is made at approximately one centimeter intervals and at a depth of 2-4 millimeters into the skin, with 0.02-0.05 milliliters of medication applied in each injection. Point by point (Pbp), papule and napage techniques were used (Table 1).

Table 1. Features of cases

Cases	**1. Case**	**2. Case**	**3. Case**
Gender	F	F	F
Age	44	47	50
BMI	28,7	22,5	27,3
Number of applications	3 (1/w)	3 (1/w)	3 (1/w)
Administered drugs	L,T,PS	L,T,PS	L,T,PS
Amount applied	2 mL	1,5 mL	0,75 mL
Application method	Pbp, papule, napage	Pbp, papule, napage	Pbp, papule, napage

(BMI: body mass index, L: lidocain, T: thiocolchicoside, PS: physiological saline, Pbp: point by point)

According to the VAS results of the second week, the first case defined pain as 7/10, the second case as 5/10, and the third case as 7/10. They also stated that the frequency of pain decreased and their quality of life increased.
In the third week, they described pain as 7/10, 4/10, and 3/10, respectively (Figure 3).
Accordingly, there was a significant decrease in the pain level of the cases. This has led to an increase in their participation in business life and physical activity.

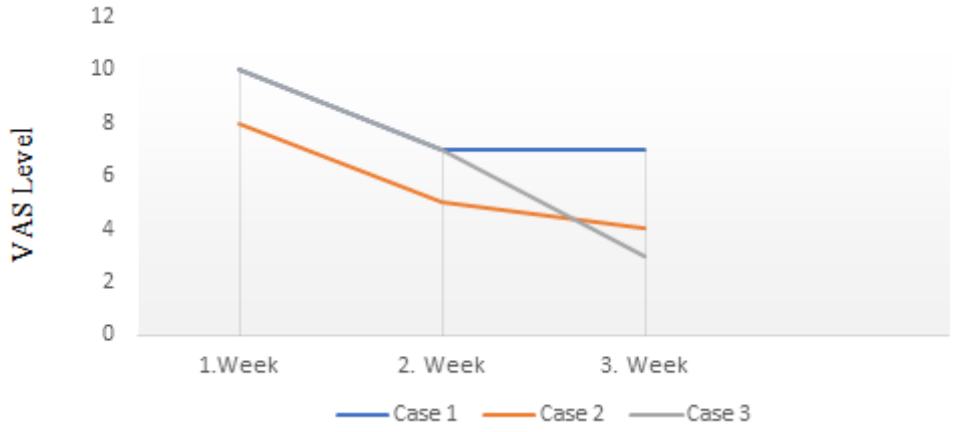

Figure 3. Pain level-Time graph

DISCUSSION

Compared to other GETAT applications, scientific studies on mesotherapy, which is a relatively new method, are insufficient. A meta-analysis published in 2021 examined mesotherapy studies conducted between 1999 and 2020 in musculoskeletal pathologies. It was shown that mesotherapy had the same or sometimes even higher effects with fewer side effects when compared to systemic treatment [3]. The VAS system was used for pain scoring in all known studies. The most important side effects obtained were short-term minimal bleeding, ecchymosis, and rarely allergic reactions.

Case-control studies on mesotherapy were mostly conducted in multiple sessions spread over several weeks. In a study conducted in our country in 2019, single-dose mesotherapy and parenteral treatment methods were compared in patients with extremity injuries who applied to the emergency room. According to this study, a significant decrease in VAS was observed at the 10th, 30th, 60th, and 120th minutes in patients who received mesotherapy compared to the systemic treatment group [9]. Another study comparing 5 sessions of mesotherapy with systemic administration of NSAIDs and corticosteroids in patients with acute low back pain used VAS and Roland-Morris disability questionnaire (RMDQ). No significant difference was found in 6-month results between mesotherapy and systemic treatment on either scale [10].

Another study compared 5 sessions of mesotherapy, systemic treatment and bee venom application in patients with low back pain of more than 3 months duration and recorded the results immediately after treatment and 6 months later. Here again, VAS and RMDQ values after treatment were similar in all three groups. In the measurements after 6 months, a significant decrease was observed in the mesotherapy group compared to the other two groups [11]. In a study on patients with knee osteoarthritis and pes anserine bursitis, oral and mesotherapeutic diclofenac were compared using VAS, Knee Injury and Osteoarthritis Outcome Score (KOOS) and ultrasound. Accordingly, significant decreases were detected in VAS and KOOS in both groups, and interestingly, a decrease in inflammation was observed in ultrasonography in the mesotherapy group [12]. In another study, mesotherapy and systemic treatment were compared in patients with neck pain according to Neck Disability Index (BDI) and VAS. According to the results of the 3rd hour, 1st day and 3rd day, positive results were obtained in the mesotherapy group compared to the systemic treatment group [13].

To our knowledge, there is no published study on the results of mesotherapy treatment in sibling patients. Although our case series had fewer sessions compared to other studies, an approximately 50% decrease in pain was observed according to VAS scoring and no side effects were observed. In these respects, it was seen that it was parallel to the results of other studies in the literature. It is important that our patients are similar in many aspects such as genetic and sociodemographic characteristics, physical activity and nutritional habits due to being siblings, and it differs from other studies in this respect. The fact that the quality of life of the patients could not be analyzed with a standard tool and therefore verbal comments were taken into consideration subjectively is a limitation of our study. Using standardized scales to measure quality of life may provide more objective results. The low number of cases is also an important limitation.

CONCLUSION

The responses of three siblings of the same gender, with similar genetic characteristics, who received the same frequency and the same number of mesotherapy sessions showed that pain decreased and quality of life increased according to VAS. One of the unique aspects of our study was that our patients were siblings. This situation emphasized the potential importance of genetic factors. It is a fact that our study needs to be improved due to reasons such as the small number of cases, the fact that the applied doses, application depth and application points were not fully standardized. The standard dose and number of sessions help to keep the amount of drug used constant. This will allow the measurement of the effect to be obtained with the fixed amount of drug and the comparison of the amount of side effects with the dose. The most common side effects obtained in mesotherapy are minimal bleeding and hematomas. Therefore, it is also important that the application depth and points are standard. It is possible that the applied drug doses and the number of sessions will be more standardized with future studies. It is thought that much lower doses of drugs are used to achieve the same effect as current treatments in mesotherapy. When the amount of drug used is standardized according to the dose and the number of sessions, drug savings can be measured by comparing it with systemic treatment. This will also contribute to

pharmacoeconomics.

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Author contributions: Conceptualization: [DEC]; Design: [DEC, OO]; Writing: [DEC, OO]; Investigation/Data collection: [DEC, OO]

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