



Prolotherapy Application In Patients with Low-Back Pain

Bel Ağrılı Hastalarda Proloterapi Uygulaması

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Abstract

- Aim** Low back pain is a common disease . Prolotherapy is a form of treatment characterized by injection of proliferant solutions to strengthen and restore old joints, ligaments and tendons.
- Method** Between September 2015 and January 2016, 15 patients underwent lumbar prolotherapy protocol after muscle strength and neurological examination. The patient was injected (15% dextrose 20 cc + 2% lidocaine 1cc). Visual analog scale was used for pain assessment.
- Result** The distribution of patients was 10 female and 5 male patients. The average age was 57.93. After 4 sessions, VAS values decreased significantly. Painful conditions that do not pass after prolotherapy repetitive back surgery operations can also be applied.
- Conclusion** The lowest was 30 years old, the highest was 85 years old. A total of 4 sessions were performed for each patient with an interval of 15 days. At the end of 4 sessions, VAS results were evaluated as 8 of 10 female patients, VAS values of 0 (zero), VAS of 2 patients were evaluated as 2
- Keywords** Prolotherapy, low-back pain, analgesia.

Abstract

- Amaç** Bel ağrısı, tüm toplumlarda her zaman karşılaşılan yaygın bir hastalıktır. Proloterapi, eski eklemleri, kırık bağları ve tendonları güçlendirmek ve restore etmek için proliferant çözeltilerin enjeksiyonu ile karakterize edilen bir tedavi şeklidir.
- Yöntem** Eylül 2015 başından Ocak 2016 tarihleri arasında 15 hastaya Kas gücü ve nörolojik muayeneden sonra lomber proloterapi protokolü uygulandı. Hastaya enjekte edildi (% 15 dekstroz 20 cc + % 2 lidokain 1cc). Ağrı değerlendirilmesi için visural analog skala kullanıldı.
- Bulgular** Hastaların dağılımı 10 kadın, 5 erkek hasta idi. Yaş ortalaması 57,93 idi. 4 seans sonunda VAS değerleri anlamlı oranda azaldı. Proloterapi tekrarlayan sırt cerrahisi operasyonlarından sonra geçmeyen ağrılı durumlar da uygulanabilir.
- Sonuç** Hastalar en düşük 30 yaşında, en yüksek 85 yaşında idi Her hastaya 15 gün ara ile toplam 4 seans uygulandı. 4 seans sonunda VAS sonuçları 10 kadın hastanın 8'i, VAS değerleri 0 (sıfır), 2 hastanın VAS'ı 2 olarak değerlendirildi.
- Anahtar kelimeler** Proloterapi, bel ağrısı, analjezi.

Introduction

Low back pain is a common disease encountered in all societies at all times. In parallel with the development of societies, it has gained an epidemic feature over the years.¹ The incidence of low back pain throughout life varies between 80%, annual incidence between 2% and prevalence between 15-19%.² Low back pain diagnosis and treatment expense, disability, loss of labor force it creates constitute a high cost group of diseases. Lumbar disc hernias make up a large proportion of mechanical low back pain. It is also important in terms of its resistance to treatments and the high cost resulting from it. Studies show that smoking, obesity, advanced age, female gender, heavy work conditions, physical inactivity, low education level and psychiatric disorders are the main risk factors.³ The purpose of treatment in lumbar disc hernias; to control pain, increase functional activity, reduce workforce loss, prevent disability and provide rehabilitation in chronic cases. The high cost and risk of disc surgery has made the importance of conservative treatment methods more prominent today. In their studies, Scheer and Kang found a high rate of improvement (90-95%) with conservative treatments in disc hernias. Prolotherapy is one of the conservative treatment methods.^{4,5}

Prolotherapy is a form of treatment characterized by injection of proliferant solutions to strengthen and restore old joints, cartilage ligaments and tendons. Prolotherapy is an injection technique that stimulates healing (Picture 1). Various irritant substances are injected into the problematic ligament, tendon, joints. It was first used by Hackett in 1950. The technique has been used by physical therapists and osteopaths for 50 years. Cases where tendon and ligament problems that occur after trauma cannot heal with insufficient tissue repair and cause chronic pain are the cases where prolotherapy is the most successful. Prolotherapy is a non-surgical regenerative treatment method in which an irritant solution is applied to painful and degenerated tendons, ligaments and adjacent joint spaces in small volumes and aimed at cell renewal and tissue repair.

Irritant solutions often contain dextrose. However, polidocanol can also contain combinations of manganese, zinc, growth hormone, ozone, glycerol, and phenol. The most commonly used solutions are 15% dextrose for extra-articular and 25% dextrose for intra-articular.⁶ The aim of prolotherapy is to strengthen the damaged structures by activating the healing process (figure 1), thereby ensuring joint stabilization and reducing symptoms. Thus, it is aimed to increase the blood circulation of the ligaments by creating a sterile inflammation. The regeneration process is started by activating osteoblasts and fibroblasts at the injection site. It is recommended to use local heaters on the day of injection. The injection is repeated at 3-week intervals. Inflammation is kept under control by C-reactive protein (CRP) monitoring throughout the treatment. It can be used in many degenerative diseases.⁶

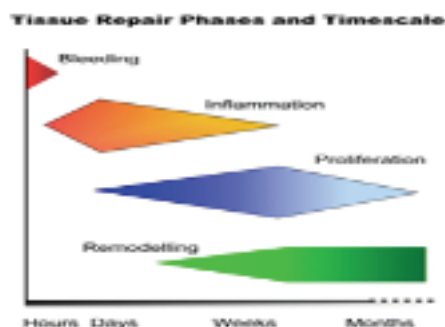


Figure 1: Tissue healing stages

Is taken Prolotherapy; sternoclavicular joint instability, lateral epicondylitis, lumbalgia, osteitis pubis, gonarthrosis, and Achilles tendinopathy and plantar fasciitis. For the application of prolotherapy, the symptoms must originate from the musculoskeletal system and systemic and serious pathologies that may underlie must be eliminated. Studies have reported that more effective results can be obtained in chronic low back pain if combined with other treatment modalities instead of applying prolotherapy alone.⁷

With this case series, we wanted to show that prolotherapy provides an effective analgesia in appropriate cases in patients with lumbar disc pain.

Cases/Method

Patients diagnosed with lumbar disc at the Private Kütahtaya Anatolian Hospital Neurosurgery clinic from early September 2015 until early January 2016 were included. Informed consent forms of the patients were taken by signing. The inclusion criteria were patients with chronic pain between the ages of 18-85, who were diagnosed with lumbar disc by magnetic imaging technique, by radiology and neurosurgery, who were eligible for prolotherapy with emotional status and who used analgesics as additional therapy. Patients with vas value less than 3, those with local anesthesia allergy, antiaggregant, those with inflammatory rheumatic disease and tumoral disease were not included in the exclusion criteria. Lumbar prolotherapy protocol was applied after muscle strength and neurological examination. The patient was injected (15% dextrose 20 cc + 2% lidocaine 1cc). Pain was localized by superficial and deep palpation. Injection sites were marked with a surgical pen. Area disinfection was achieved with isopropyl alcohol. Depending on the localization of the region, the injector tip depth was selected and the injection was made. And prolotherapy was taken for injection therapy. A maximum of 60 cc was used. Sterile 0.60x80mm sized 23 gauge (Braun) was used as the needle. The tissue was traumatized by making the needle contact with the bone. It was suggested not to take anti-inflammatory after the procedure. At the end of the procedure, the area was heated with the help of the local infrared heater to increase blood circulation. Patients were kept under observation for 20 minutes and the patient was discharged without any complications. CRP and sedimentation values were followed as an examination. Isometric stretching exercises were recommended for 2-3 months later. The patient's sessions were performed in 4 sessions in 3-week intervals. Visual analog scale was used for pain assessment. Pain intensity was evaluated numerically out of 10.

VAS, also called visual pain score; It was developed by Price et al. as a pain score.⁸ It is a validity and reliability scale. It is about 10 cm in size; On both ends of the vertical or

horizontal plane, the numbers are ordered from the smallest to the largest (zero is the lowest number = it indicates that the severity of the pain is almost absent, ten, the highest severity of pain). It is the score that quantitatively determines the degree of pain of how many centimeters the distance of the location shown to the zero point.

Findings

Lumbar prolotherapy protocol was applied to patients diagnosed with lumbar disc (Picture 2). Patient pain intensities were recorded; VAS: 6-8. The distribution of patients was 10 female and 5 male patients. The average age was 57.93. The lowest was 30 years old, the highest was 85 years old. A total of 4 sessions were performed for each patient with an interval of 15 days. At the end of 4 sessions, VAS results were evaluated as 8 of 10 female patients, VAS values of 0 (zero), VAS of 2 patients were evaluated as 2. 4 of the male patients were evaluated as VAS value after treatment.¹ The patient did not continue treatment after the second session due to symptoms related to cerebrospinal fluid leakage. However, this patient's VAS value related to lumbar pain after the second session was 0 (zero).



Picture1: Prolotherapy injection technique.

Picture 2: Prolotherapy injection technique (Iliolumbar ligament injection).

Discussion

The term prolotherapy and contemporary injection techniques have been formalized since the 1950s. Hypotheses were that prolotherapy provided local healing in intra and extraarticular tissue with chronic injury, but there was no evidence. Generally, hypertonic solution was used.⁹ Prolotherapy provides an analgesic effect by increasing the

blood circulation of the degenerated joint with the sterile created infection, while at the same time strengthening the joint ligaments.

In the United States, one in three people complain of chronic pain.¹⁰ There are very few studies on prevalence in our country; In the study conducted by Erdine et al., pain prevalence is determined as 63.7%.¹¹ When analgesics are used correctly in pain management, 85% of patients can achieve adequate pain control. Steroids and non-steroidal preparations stand out pharmacologically. Non-steroidal and steroid analgesics used may present with high doses of gastrointestinal side effects in long-term use.¹⁰

In a meta-analysis conducted by Saragiotto et al., Research on 1825 participants; shows that the effect of using 4g paracetamol daily in patients with acute low back pain on life and sleep quality is not different from placebo.¹² With prolotherapy, many postural disorders and ligament instabilities can be eliminated without going to surgery and using many analgesics.⁶

Prolotherapy is used for therapeutic purposes, especially in ligament instabilities. Diagnosis of ligament instability can be made by orthopedics, physiotherapists, physicians who receive prolotherapy training. Ligament instability is seen in many degenerative joint diseases as well as athletes.⁶ Jonely et al. showed that a 35-year-old nulliparous female patient had a sacroiliac joint and pelvic arch dysfunction for 14 years, with prolotherapy and manual therapy sessions, and a visual pain score of 0 at the end of 1 year.¹³ According to our results prolotherapy can provide analgesic effect even in patients who have been operated before but have not relieved from pain.

Painful conditions that do not pass after prolotherapy repetitive back surgery operations can also be applied. In the case series of 79 patients with a history of failed back surgery, Solmaz et al. A significant decrease in VAS and ODI indices was detected after prolotherapy application

of Solmaz et al.¹⁴ Apart from prolotherapy, various steroid injections have been tried in the literature, but not enough success has been achieved in pain management. In a study by Mc Cormick et al. (N=78), injection of various steroids in patients with lumbosacral radiculopathy confirmed by electromyography was compared; but it is stated that there is no difference in terms of pain reduction.¹⁵ Prolotherapy gives very successful results not only in waist problems but also in superficial joint tendinitis such as shoulders.¹⁶

The method of prolotherapy is most successful in diseases of the shoulder joint (frozen shoulder). Since weight is not loaded on the joint, healing can be faster. In a randomized double-blind study, prolotherapy injections were shown to provide long-term improvement in 73 patients who received physical therapy with painful rotator cuff tendinitis ultrasonography.¹⁶

Considering the complications of surgery and pharmacological treatment to the patient and hospital, prolotherapy offers a much more economical treatment process.⁶

Whether prolotherapy has undergone surgery or a group of patients who do not want to be operated, it can provide an effective analgesia according to many pharmacological and interventional treatments. An effective analgesic effect can be achieved in degenerative joint diseases with prolotherapy injections. It can be used as a treatment method in suitable cases where physical therapy that does not want to be operated has failed.

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