© 2016 IJSRST | Volume 2 | Issue 3 | Print ISSN: 2395-6011 | Online ISSN: 2395-602X
Themed Section: Science and Technology

A Healing Therapy- "PROLOTHERAPY" in Dentistry

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ABSTRACT

Prolotherapy is an innovative technique that relieves pain by directly impacting the underlying condition causing that pain. In contrast to many medical treatments that may provide only temporary benefits, this safe & proven treatment offers lasting relief. The present review focuses on this relatively new technique for pain relieving & its application in dentistry.

Keywords: Prolotherapy, Regenerative Injection Therapy, Musculoskeletal Pain

I. INTRODUCTION

Prolotherapy also known as "proliferation therapy, "regenerative injection therapy" or proliferative injection therapy" involves injecting an otherwise non-pharmacological and non-active irritant solution into the body, generally in the region of tendons or ligaments for the purpose of strengthening weakened connective tissue and alleviating chronic musculoskeletal pain.[1] Research studies have shown that over 80 percent of people treated with prolotherapy report a good or excellent result. The precise mechanism of action for prolotherapy is currently unclear.[2]

Historical Background:

The concept of creating irritation or injury to stimulate healing has been recorded as early as Roman times where hot needles were poked into the shoulders of injured gladiators. Prolotherapy's use began in the 1930s and was originally used in the treatment of ligamentous laxity. In the 1950s Dr. George S. Hackett, a general surgeon in the United States, began performing injections of irritant solutions in an effort to repair joints and hernias. This practice is what would eventually evolve into modern day prolotherapy. [3]

II. METHODS AND MATERIAL

A. Technique:

Prolotherapy promotes long-term, often permanent pain relief by stimulating the body's ability to repair itself. It involves injecting an irritant solution into a joint space, weakened ligament, or tendon insertion to relieve pain. Commonly used agents are hyperosmolar dextrose, glycerin, lidocaine, phenol, sodium morrhuate (a derivative of cod liver oil extract). The injection is administered at joints or at tendons where they connect to bone. The total appointment time takes approximately 30 minutes, including preparation, treatment and recovery time. Performed in a medical office, prolotherapy relieves pain without the risks of surgery, without general anesthesia or hospital stays, and without a prolonged recovery period. In fact, most people return to their jobs or usual activities right after the procedure. Treatment sessions are generally given every two to six weeks for several months in a series ranging from 3 to 6 or more treatments. Many patients receive treatment at less frequent intervals until treatments are rarely required, if at all.[4,5]

B. Indications for Prolotherapy:[6]

- Low back pain
- Knee osteoarthritis
- Achilles tendinopathy
- Shoulder dislocation
- Neck strain
- Sacroiliac joint dysfunction
- Costochondritis
- Lateral epicondylitis
- Fibromyalgia
- Pain from whiplash injury
- Plantar fasciitis

C. Contraindications:[6]

- Local abscess
- Bleeding disorders
- Patient on anticoagulant medication
- Known allergy to prolotherapy agent
- Acute infections such as cellulitis
- Septic arthritis

Relative contraindications include:

- Acute gouty arthritis
- Acute fracture

D. Applications in Dentistry:

Use in dentistry is related to temporomandibular joint dysfunctions[7,8,9,10]

Technique of TMJ Prolotherapy

The face and TMJ are highly innervated and sensitive areas. Injections in this area must be as atraumatic as possible. To this end, we routinely use a 30-gauge, one inch needle. We also use a dextrose solution whenever possible, as it causes less post-injection soreness than fish oil or pumice, and pumice is difficult to express through a 30-gauge needle. Compounding pharmacies can provide pre-mixed solutions, but we mix our solutions directly in the syringe. This consists of drawing up 0.75mL of 50% dextrose, 0.75mL of bacteriostatic water, and 1.5mL of 2% lidocaine into a 3-mL syringe for each TMJ.

Using a 25-gauge needle to draw up the solutions speeds the process, then the needle is changed to 30-gauge and the syringe is shaken and the air expressed. The result is a dextrose concentration of approximately 12.5%. The precise concentration of dextrose is not critical so long as it is strongly hypertonic and causes adequate cell wall lysis to attract fibroblasts and begin the regenerative process. Since TMJ disc displacement usually is anterior, our priority is to accomplish repair of the extended or torn posterior disc attachment. We locate the posterior joint space by cleansing the skin immediately anterior to the ear with alcohol and palpating the lateral pole of the condyle as the patient opens and closes. The target is the depth of the depression that forms immediately anterior to the tragus of the ear as the condyle translates forward and down. This can be marked with a washable felt-tip pen, if desired. Then, a disposable bite block is placed between the patient's anterior teeth to keep the patient from closing the condyle back into the fossa and onto the needle. The injection needle penetrates the skin at the marked point and is directed medially and slightly anteriorly to avoid penetration into the ear. Surface skin and connective tissue is deceptively thick in this location and the needle usually penetrates to, or nearly to, its full one-inch length before encountering the medial wall of the fossa. Slight negative pressure is exerted on the plunger to confirm that the needle tip is not in a vessel, even though no vessels of any size are expected to be encountered within the fossa. One mL of Prolotherapy solution is deposited here.

The second target is the anterior disc attachment, where the disc connects to the superior portion of the lateral pterygoid muscle. This muscle often is foreshortened or in spasm in cases of chronic disc displacement. Injecting the Prolotherapy solution here can strengthen the tendinous attachment of this muscle to the disc at the same time the anesthetic component anesthetizes and elongates the muscle, which can allow the disc to reposition itself over the condyle and often produces an immediate reduction in TMJ clicking. We locate this target area at the same time we palpate the location of the posterior joint space, note the location of the slight depression just anterior to the condyle when the mouth is closed, and mark this point with washable ink. Marking this point before injecting the posterior aspect of the joint is advisable, as it becomes much more

difficult to palpate this depression after the posterior joint recess has been injected. For this injection, the bite block is removed and the patient is instructed to close gently, moving the condyle back into the fossa. We insert the needle at the marked point, again directing the tip medially and angulated slightly anteriorly to, or nearly to, its full one-inch length. Aspiration is performed and another 1mL of Prolotherapy solution is injected here.

Most TMD patients have some chronic masseter tension and pain with resultant strain on its attachment to the zygomatic arch. The third mL of Prolotherapy solution is used to address this problem. We palpate the masseter attachment along the inferior border of the zygomatic arch at the same time that we palpate and mark the posterior and anterior aspects of the condyle, and mark the area of the masseter that is most tender to palpation. Asking the patient to clench the teeth makes the masseter stand out, and the area that is most rigid to palpation is usually the most tender as well. The patient is told to relax the jaw, and the final mL is injected directly into this area, again at or near the full one-inch length of the needle.The injection sites are wiped with alcohol, which remove the washable ink as well, and a pulse is taken for the medical record and to confirm that the patient has relaxed and is ready for discharge.

The standard program is to repeat the injections three times, at two-week, four-week, and six-week intervals. This totals four injection appointments over twelve weeks. We palpate the joints for pain and noise, and palpate the affected muscles for pain, at each appointment. We also measure the range of jaw motion interincisally and record all these findings. Patients typically report some improvement after the first injection appointment but often have some increased discomfort shortly before the second appointment. The following appointments generally produce more benefit, quieter joints, and symptom relief without rebound. We expect the healing process to continue for at least twelve more weeks and schedule a final recall three months out.

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