

Prolotherapy, new non-surgical treatment for tempromandibular joint painful clicking and dislocation

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الحقن الموضعي, علاج جديد بديل للتدخل الجراحي في علاج النقرة المؤلمة والخلع المتكرر للمفصل الصدغي

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المستخلص

الاهداف: الحقن الموضعي للمفصل الصدغي المصاب بالنقرة المؤلمة والخلع المتكرر بمحلول المائي السكري (دكستروز) بتركيز 5% الى الاجزاء الرخوة من المفصل الصدغي (الغضروف, الروابط, الاوتار والكبسول) كعلاج تحفظي بديل عن التدخل الجراحي

طرائق العمل: تمت الدراسة بجمع تسعة واربعون حالة , تسعة وعشرون مريض يعانون من النقرة المؤلمة وعشرون مريض يعانون من الخلع المتكرر للمفصل الفكي الصدغي. 9 من الذكور (15%) و 40 من الإناث (85%) تم اختيار العينة بهذه النسب لأن مشكلة المفصل الفكي الصدغي تحدث عشرة مرات في الإناث أكثر من الذكور 10: 1. هؤلاء المرضى قد زاروا (اطباء اسنان, اخصائي الانف الاذن الحنجرة, واخصائي مفاصل) ولكن لم يستجيبوا لاي علاج قبل زيارتهم الى شعبة جراحة الوجه والفكين..

طريقة العلاج: تكمن بحقن المفصل الصدغي من 3-5 حقن بمحلول دكستروز 5% والفترة بين حقنة واخرى 7-10 ايام النتائج: لقد تبين خلال الفحص النسيجي , حدوث التهاب بسيط مؤقت في موقع الحقن مما ادى الى تكاثر وزيادة اعداد الخلايا الليفية (الفايبروبلاست) الخلايا البانية للانسجة التي تقوم بانتاج الياف جديدة مما يؤدي الى تقوية جميع الانسجة الموجودة في المفصل (الاورتار, الروابط والغضروف) . كذلك يؤدي الى تحفيز الخلايا والانسجة الموجودة للنمو واعادة البناء في المناطق المتضررة من الانسجة الرخوة في المفصل

الاستنتاج: الالياف الجديدة والمتكونة بعد الحقن تكون مشابهة للالياف الاصلية ما عدا انها اسمك واقرى بنسبة 40% الفائدة من ذلك ان الانسجة التي فقدت قوتها واصبحت اكثر مرونة قبل العلاج تصبح اكثر قوة. هذه العملية تعتبر كعلاج تحفظي بديل للتدخل الجراحي للمرضى المصابين بالنقرة المؤلمة وخلع المفصل الصدغي المزمن.

Abstract

Purpose prolotherapy is local injection of the affected joint with 5% Dextrose water (suger based solution) to the peri and intra tempromandibular joint(Disc,Ligaments,tendons) to treat the TMJ painfull clicking and chronic dislocation as conservative treatment

Method:We have selected forty nine patient ,twenty nine of them suffering from painful clicking,and twenty suffering from chronic dislocation , So we started our treatment by giving them 3-5 local injection to the TMJ area, 7-10 days interval between each session with 8 months follow up.

Results:The Dextrose injection stimulate formation new collagen fiber , These fibers appear much the same as normal tissue, except that they are thicker and stronger than normal tissue up to 40% this lead to lax tissue (capsule and the ligament) that will become stronger and repair the damage that will occur in these structures also it stimulate present cells and tissues to

re growth and rehabilitation of an important structure such as ligament, cartilage & tendon of the weakened area, it's found that deposition of new collagen as it matures. The Dextrose injection 1- shrinkage the collagen fiber 2-tightens the ligament and tendons 3- strong it.

Conclusion: The Dextrose injection formation of new collagen and strengthen and repair of the presented structures in the joint(tendon,ligament, disc and capsule) lead to disappear of the clicking and limit movement of the TMJ more for ward and prevent dislocation.

Key words: Prolotherapy,TMJ dislocation,clicking

Introduction

Prolotherapy is derived from Latin word "proli" which means to regenerate or rebuild (1). Simply stated, prolotherapy is a technique to strengthen and rejuvenate injured or weak ligaments and tendons and resolve joint laxity (2), here we used this technique to treat clicking and TMJ dislocation.

The pathophysiology of dislocation: The Tempromandibular joint is the joint that allows you to open and close your mouth. This joint is formed where your jaw bone meets with the base of skull (3). It is similar to a ball and socket joint like your hip, but it can also slide. There is a disc made out of cartilage between the two bones, which allows the joint to slide smoothly while

opening and closing your mouth, (4) Muscles and ligaments help keep and stabilize the joint while opening and closing your mouth (5). The TMJ dislocation Simply it's the anterior displacement of the condyle anterior to articular eminence (figure 1). (6) The pathophysiology of TMJ clicking most commonly result from either anterior displacement of the articular disc from its normal position or disc irregularities in the articular surface (7) The untreated clicking in adolescence may lead to painful lock jaw in adulthood (8). The disc displacement is classified as either with reduction in which the patient present with clicking and better quality if it is compared with disc displacement without reduction (9).

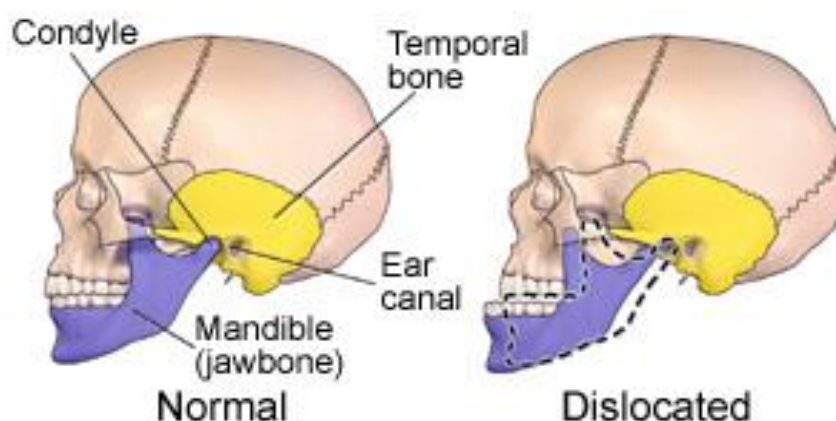


Figure (1): The normal and dislocation position of the tempromandibular joint

The TMJ is often predisposed to similar degenerative changes and pathologies seen in other synovial joints as a consequence of the frequent and repetitive stresses that the TMJ undergoes. As a consequence(4), a patient's problems with pain and loss of function are markedly diminished or resolved. This is done by identifying the

areas of weakness and stimulating the incomplete healing process with injections of natural occurring therapeutic agents that provoke the acute inflammatory response and healing cascade including the influx of stem cells to promote renewal of damaged tissues.(10)

Materials and methods

49 were patients selected from patients visit Maxillofacial department in AL-Kindey Teaching Hospital at the age between 17-30 years old, 29 patient with painful clicking and 20 with chronic dislocation. The primary modality of treatment is local block of the auriculotemporal nerve (the nerve supply of the TMJ) by 1cc(ml) 0.2% lidocaine solution followed by local injection 3-4 cc(ml) 5% dextrose water to the TMJ area (1-2 ml to the intra articular area and the remain in the pericapsular area (figure 2) After the completion of the injection, an elastic bandage was applied and left for 24 hours to constrain the joint movements. The dextrose water 5% is selected as the main ingredient in the

solution because it's the most common proliferant used, is readily available, is inexpensive when compared to other proliferants & has high safety profile the jaw joint together, and each patient receives 3-5 local injections, 7-10 days interval between each injection with 8 months follow up. The 5cc(ml) of dextrose solution injected to the tmj typically 1cc of solution is injected into the intra articular area and the remaining solution is injection to the periarticular area. The patient are asked to hold their mouth half open while the injection are given. Systemic antibiotic with analgesia given post each injection for 5 days to reduce the post-operative pain and infection.



Figure (2): The technique of local injection

Results

It's found during histological examination three local dextrose injection lead to temporary low grade inflammatory response at the site of injection draws in fibroblasts to synthesize collagen and strengthen local injection technique also stimulate the cells and tissues to re growth and rehabilitation of an important structure such as ligament, cartilage and tendon of the weakened are . It's found that deposition of new collagen (the material that ligament, tendon and capsule are made of the new collagen as it matures. The local injection lead to shrinkage the collagen fiber, tightens the

ligament and tendons that were injected make it stronger. The ligament and tendons produces after prolotherapy appear is much the same as normal tissue except that they are thicker stronger than normal tissue up to 40 %. The benefit is that the lax tissue (capsule and the ligament in addition to the meniscus tissue) will become stronger and repair the damage that will occur in these structures. In 29 painful clicking patient was found 24 (80%) improve there pain and clicking and only 6 patient (20%) had slightly clicking (which is the oldest patient) as in (figure-3).

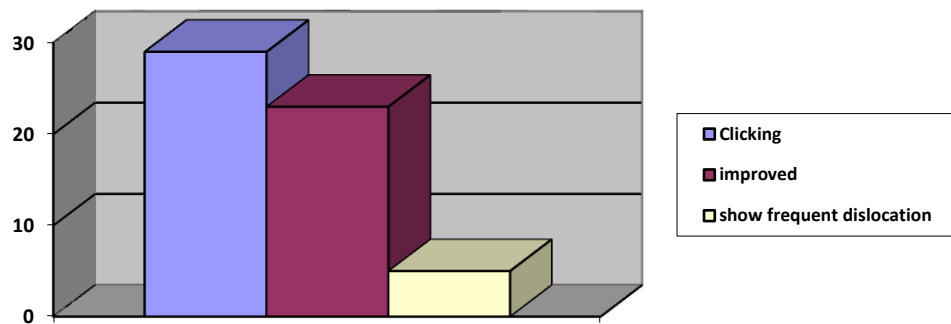


Figure (3): Clicking level

While in 20 chronic dislocation patient found 17patient (85%) have restricted jaw movement lead to stop dislocation, while the remain is 3 patients (15%) still have

frequent dislocation, because those have skeletal abnormalities (figure-4)

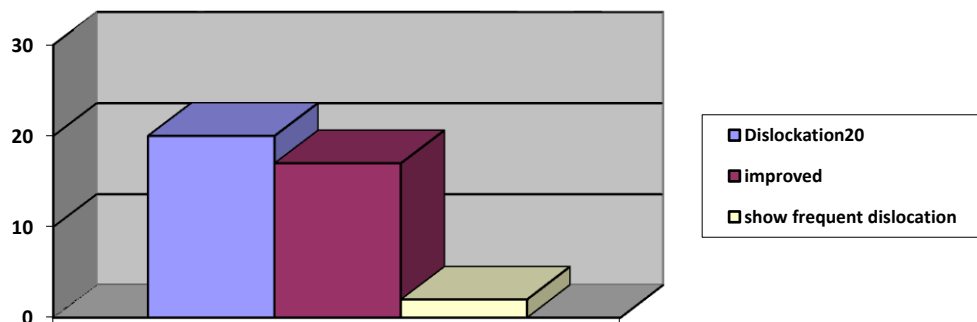


Figure (4): Dislocation level

Depression and anxiety: prior to prolotherapy 75% of patient reported feeling of depression and anxiety, while 25% they don't have depression and or anxiety with (psychiatric consultation). After treatment

only10% were reported anxiety and or depression feeling [figure-5] (those patient which are not complete all sessions of treatment and those which are not complete the follow up).

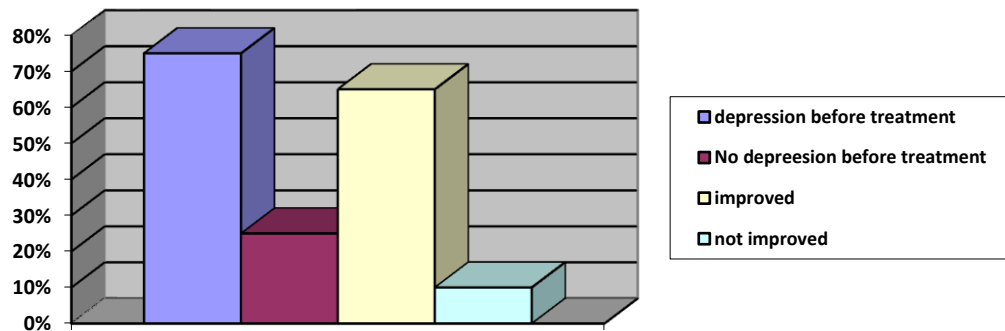


Figure (5): Depression level before and after treatment

The response of treatment varies from individual to individual and depend upon healing ability which depend on the weather the patient compromise, severity of the condition, age of the patient and the

psychological condition. Quality of life: to simple yes or no question, has prolotherapy changed your mode of life for the better? 95% of patient treated answer "yes"

Discussion

The Completion data was obtained from 49 ,the average of patient visit ENT,Rhaumatologist physion,ganeral surgeon and dentist) before receiving prolotherapy these 26% of the patients were told by the those doctors (disc prolapsed in your tmj) that surgery was their only option ,50% of patients were taking one or more pharmaceutical drugs to relieve the patient complain and 14% they told them they must be live with this problem and the analgesia is only the resolution.

After the extrinsic or intrinsic damage of the joint connective tissues (disc, ligament and capsule) the normal healing process may be in-complete, usually due to lack of proper treatment (11) ,this in complete healing process is revealed under the microscope be deficient of connective tissue cells called fibroblast the lack of fibroblast lead to

weakened ligaments and tissues (10),as areault of the normal supportive function of the ligament which was presented prior to injury is lost. Joint stability is therefore reduced .Patient after prolotherpy must stop chewing gum, talking minimize at the first two months and teeth clenching discouraged (6).

Tmj involvs injection into the joint as well as the fibro-osseous junction of the ligament ,capsular attachments on the zygomatic arch as well as the mandibular neck and condyle .Clearly, the structural goal dextrose prolotherapy to improve the stability of the Tmj by enhancing the capsular and ligament strength(11)

Congenital disorder that is characterized by over stretched ligament such as Ehler-Danlos syndrome are typically predisposing to TMJ problem (12)

Conclusion

We concluded from this study, that it is possible to induce proliferation of the joint soft tissue using prolotherapy. The tissue that proliferates is a dense collagen, and it is associated with a reduction in pain.

In histological point of view the lymphocytes infiltrate the area within 30 minutes and proliferation of tissue occur in 4-6 week post therapy(9). Obesity and diabetes slow the effect of prolotherapy which need more session of injection than normal patient. In addition it founds that dextrose therapy produce mild amount raise in blood sugar which need consultation with

the physician in case of diabetic patient. Weakening of the tmj capsule and ligament would explain a lot of the varied pathology in the tmj including subluxation disc displacement, clicking and dislocation. Prolotherapy is not only improving the clicking and Tmj dislocation but improve the quality of life measure by decrease the anxiety and depression. TMJ dislocation after the treatment change the mode of the patients 95%, because there condition become better

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