



Evaluation of three-Point Contact Splint Therapy for Temporo - Mandibular Joint Disorders

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Abstract: Diseases of the temporo - mandibular joint (TMJ) include internal disorders of the temporo - mandibular joint, abnormalities of the masticator muscles and adjacent structures of the TMJ, and TMJ-related headaches. For all manifestations of the temporo - mandibular joint, the main adverse effects experienced by patients include restriction of jaw movement and, of course, mild to severe head and neck pain.

Key words: Evaluation of three-point contact splint therapy temporo - mandibular joint.

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Introduction. Temporo - mandibular joint pain includes pain in the temporo - mandibular joint and face, including pain when touching the facial muscles (especially the chewing muscles and the temporo - mandibular joint), uncoordinated jaw movements, and the presence of joint noise. While many studies have evaluated dietary problems during postoperative follow-up of patients after surgery related to TMJ, some studies have also looked at dietary intake before and after treatment of both non-surgical and surgical patients with TMJ in the context of jaw movement and pain levels experienced by the patient. Despite the use of various types of occlusal splints made of different soft and hard materials, the most common splint used for the treatment of the temporo - mandibular joint the stabilizing splint, remains an acceptable option widely agreed upon by practitioners. According to a review of the literature, splints of varying thicknesses from 1 to 15 mm have been used to treat the temporo - mandibular joint, and a three-point contact is preferred along with convenient alternatives.

Stabilizing splints usually reduce the pain symptoms of the temporo - mandibular joint caused by an internal disorder or myofascial origin, improving jaw mobility and overall health. They also improve dietary performance and improve disc displacement without reduction with splint therapy (e.g., people who previously could only eat liquid foods can switch to a regular diet, including solid foods, after splint therapy).

This study aimed to determine whether three-point stabilizing splint contact had a positive or negative effect on disc displacement with or without repositioning, as well as on the symptoms of the temporo - mandibular joint (pain, muscle soreness or, jaw movement, low diet score and complete healing)

according to the range of follow-up periods (3, 6 and 12 months), splint use time per day (hours) and patient demographic characteristics.

Purpose of the study: Evaluation of three-titch contact shield therapy for independent terminal liabilitary joint devices

Materials and Methods: This study was conducted using files of patients who received a three-point stabilizing splint as a conservative or initial treatment of the temporo - mandibular joint at the Tashkent State Dental Institute, Uzbekistan. Patient charts are from 2018 to 2021. The temporo - mandibular joint -Lower Jaw Joint was diagnosed in the same clinic based on clinical and radiological findings. Magnetic resonance imaging, the most accurate radiologic tool, was used for diagnosis prior to initial treatment, and examinations were based on the diagnostic criteria for temporo - mandibular joint disorders , Axis I (updated by Schiffman in 2014), which is the primary patient assessment guide to determine the final diagnosis and treatment progress of the temporo - mandibular joint. In the same clinic, informed consent was obtained from patients prior to treatment, in which they consented to the use of their diagnosis and treatment as scientific evidence.

Patient data variables

Twenty patients with the temporo - mandibular joint (16 women, 4 men; 18-45 years old, mean age 31.5 years) received stabilizing splint therapy with three-point contact splints and were evaluated during follow-up of treatment after 0, 3, 6, and 12 . months for the following variables: disc displacement with or without repositioning, pain at the temporo - mandibular joint, muscle pain, jaw movement, dietary assessment, splint use time per day, treatment outcomes, and demographic data. Exclusion criteria for the study included the following: Calibration error during splint fabrication found in patient files. No regular follow-up visits or use of different splints or arthrocentesis for treatment of the temporo - mandibular joint before starting splint therapy with three-point contact splints. Presence of systemic disease or anatomical conditions contributing to the development of the temporo - mandibular joint, in patients (presence of polyarthritis or other rheumatic diseases), as well as radiological signs of organic disease, including a detected temporo - mandibular joint.

Assessment of Variables

Temporo - mandibular joint pain: pain was assessed using a verbal analogue scale (VAS), where 0 indicates no pain, 1 for mild pain, 2 for severe pain, and 3 for the highest level of pain. Muscle pain: the masseter muscles, including the temporalis, masseter, medial, and lateral wing muscles were evaluated. If pain was present for 5 seconds, 1 kg palpation of at least one muscle (as measured by DC/TMD), 1 meant yes (pain present) and 0 meant no (no pain). Disc displacement with or without repositioning assessment: MRI and clinical examinations were performed before treatment; only clinical examinations were performed during the follow-up period. In addition, disc displacement parameters were assessed by the magnitude of opening by the end of the treatment period. Magnitude of mouth opening: the degree of jaw movement was measured using an interdental caliper (mm). Dietary assessment: assessed with the VAS, where 0 indicated a liquid-only diet, 1 for a soft diet, 2 for a soft solid diet. diet and 3 for a standard unrestricted diet. Splint time per day (measured by hours): this was determined by the number of hours the splints were used overnight or plus overnight during the day (24 hours). Treatment outcome: decreased pain at the LACS, mouth opening, and dietary assessment were considered to determine if "complete healing" was achieved. A score of 1 indicates complete healing; 0 indicates no complete healing. If a score of "0" was determined, extended treatment of the Temporo - mandibular joint was recommended for the patient. Follow-up period: 9 patients were followed up after 3 and 6 months and treated simultaneously; 11 patients followed up after 3, 6, and 12 months had complete recovery, except for 2 patients who did not make a complete recovery during this period, who were recommended for extended treatments. temporo - mandibular

joint pain: Patient measures of temporo - mandibular joint pain were obtained before treatment, and data were collected during the treatment period. By the end of 12 months, 87% of patients had no pain. The remaining 13% of patients had only mild pain after 12 months. Muscle pain: before splint therapy, 11 patients (53%) had muscle pain. By the end of 12 months of splint therapy, all but 3 patients (27%) had been successfully treated for muscle pain. Disc displacement with or without repositioning assessment: prior to treatment, 9 patients had disc displacement without repositioning and 11 patients had disc displacement with repositioning. Degree of mouth opening: at the beginning of therapy, 10 patients (50%) had a limited ability to open the mouth (patients with disc displacement without repositioning had a mean of 32; mouth opening was 33 mm). By the end of the treatment period, the average mouth opening reached 41 mm. This shows that three-point contact therapy may be the best choice for correcting restricted mouth opening in patients with a displaced disc without repositioning. Dietary assessment: at the beginning of splint therapy, 3 patients (15%) were able to eat a normal diet. After twelve months of splint therapy, all but 1 patient (5%) who remained on a soft solid diet were able to eat a normal diet, which is 19 patients (95%). Time of daily splint use: there was no correlation or statistical significance with respect to the duration of daily splint use in relation to overall healing. Treatment outcomes: 9 patients completed splint therapy with complete healing after 6 months. The remaining 11 patients continued splint therapy for 12 months, of which 9 achieved complete healing. Extended surgical treatment was recommended for the remaining 2 patients.

Results of discussion: Despite the many challenges of treating patients with TMJD, to date 90% of patients who were treated for symptoms (such as pain, restriction of opening the mouth and eating, or low dietary scores) no longer experienced these symptoms after using conservative options such as splint therapy. Only 10% of patients with temporo - mandibular joint typically require advanced alternative therapies such as arthroscopic lysis and open surgery techniques. The use of occlusal splints as an early or conservative treatment option for patients with the temporo - mandibular joint is now a very common clinical practice. Of the many types of splints manufactured for these types of conservative treatment, occlusal stabilizing splints made of rigid acrylic and made in contact with all occlusal surfaces of the mandibular teeth are preferred. In this study, we focused our research on the efficacy of three-point contact splints for the treatment of the temporo - mandibular joint - Fincetabular Joint. The most important finding of our study is that the duration of daily splint use had no correlation or statistical significance with overall healing (defined by improvement or healing of all symptoms of the temporo - mandibular joint, including pain, restriction of mouth opening and dietary assessment; at 3 months, 6 months and 12 months) the three-point contact process for patients with temporo - mandibular joint. We only suggested that patients use splints for at least 12 hours a day without any other counseling, which resulted in patients using splints for 8 to 20 hours a day.

Previous studies suggest that stabilizing splints should be used at night to match the required daily use time of Russia others caution against constant use of splints that can cause permanent damage to occlusal relationships, and suggest using splints at night except in cases of teeth clenching while driving or exercising, which can be corrected by increasing the use of splints at that time. The results of our study are consistent with Davis and Gray's reports that there is no statistically significant benefit to using tires for 24 hours a day or only during the day or at night. Similar to our study, in which we suggested that our patient use a splint for at least 12 hours at night or plus daytime, Badeletal. and Conti et al. instructed their patients to use splints at night, and their patients had successful treatment results with a high degree of satisfaction. In contrast to our study, they instructed their patients to use splints 24 hours a day, and they concluded that splint therapy yielded 60-70% success rate in treating symptoms such as TMJ pain, maximal mouth opening, and chewing muscle pain, with poor success rates for TMJ noises and disc disorder symptoms. They made no conclusions about irreversible damage to the temporo - mandibular joint due to 24-hour continuous use of the splint. Alencar and Becker instructed their patients to use the splints for 24 hours a day for the first week and only use

them during the day for the following weeks to prevent irreversible damage to the temporo - mandibular joint. Furthermore, Kuzmanovic Pficeretal. reported that their patients were instructed to use their splints continuously (24 hours a day) and claimed that the jaw position resulted in occlusal stability. In contrast, Kuzmanovic Pficer, Klasser and Greene reported that treatment of the temporo - mandibular joint is conservative and reversible if patients avoid constant wear, which can lead to irreversible bite changes; at worst, the treatment outcome should be no worse than no symptom relief. Similar to the Klasser and Green approach, in our study we instructed patients to use splints for at least 12 hours a day to avoid irreversible damage to the structures of the temporo - mandibular joint.

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There are some limitations of our study, as other studies have participated in the literature. One limitation of this study is that the work was done retrospectively, analyzing patient records and files. We evaluated three-point contact splint therapy and its effect on signs and symptoms of the temporo - mandibular joint at a distance with control over the types of splints used (different thickness or softness of materials) or use of other conservative treatment options such as lasers, percutaneous electrical nerve stimulation (TENS) and self-care counseling.

Conclusions: Thus, our retrospective study of the effect of three-point stabilizing splints on the signs and symptoms of the temporo - mandibular joint is as follows: only 50%. There was also no significant difference between 3 months and 6 months (11 patients). (2) No correlation was found between the duration of daily splint use and complete healing of the signs and symptoms of the temporo - mandibular joint. (3) The examination of dietary assessment parameters distinguishes our study from other studies of the temporo - mandibular joint. In addition, high dietary scores were achieved with three-point contact splint therapy. (4) Despite low success rates in the early (3 months) and mid-term (6 months) treatment periods, by the end of splint therapy (12 months) a success rate of 88% was achieved for three-point contact splint therapy in all cases. symptoms of the temporo - mandibular joint -Femoral Joint, which we consider a successful outcome for a conservative and reversible treatment option. Finally, signs and symptoms of the temporo - mandibular joint should include pain in the temporo - mandibular joint, number of mouth openings, and dietary assessment, which encompass our definition of "complete healing" of the temporo - mandibular joint in our study.

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