

A CASE REPORT ON THE APPLICATION OF SELECTED METHODS OF MUSCLE DEPROGRAMMING TO ACHIEVE REPETITIVE POSITIONING OF THE MANDIBULAR JOINT HEADS IN THE TREATMENT OF DISORDERS OF THE STOMATOGNATHIC SYSTEM USING PHARMACOLOGICAL AGENTS

WILISOWSKI Dariusz^{1*} SMOK-WILISOWSKA Agnieszka²

¹*Luxdentica Dental Center, Lubostroń 22G LU7 street, 30-383 Kraków*

²*Pharmacy Agafarmax Poniatowskiego 14 street, 40-959 Katowice*

Article submitted: 14.07.2022; accepted: 18.08.2022

Abstract

A case report of a young patient with disorders of the stomatognathic system treated with interdisciplinary bite splint therapy and drug therapy. The patient with intractable cranial muscle pain presented for treatment due to difficulty in biting. Clinical examination diagnosed dysfunction of the stomatognathic system muscle with concomitant lack of repetition of reciprocal positions. Implementation of bite splint therapy did not bring the assumed results. Only the use of combined splint therapy and pharmacological myorelaxation made it possible to achieve the intended clinical result.

Keywords: temporo-mandibular disorders, centric relation, splint therapy

*Corresponding author: wilis001@interia.pl

Introduction

The stomatognathic system is a complex of interacting tissues and organs of the oral cavity and facial cranium that form a functional whole controlled by the central nervous system(1). Coexisting elements of the system that interact with each other in an abnormal manner lead to dysfunction of the system itself and can cause abnormal functioning of other systems of our body. A thorough history along with a diagnosis of medical case and a thorough physical examination performed should be a prelude to the analysis of each case. As a rule, the rehabilitation of dysfunctional patients begins with the determination of the repetitive initial position of the mandibular heads at the temporomandibular joint, the so-called central relation. Often, the inconsistency of maximum occlusion and the location of the mandibular articular heads is a cause of discomfort and the reason the patient comes to the dental surgery. Patients with a comorbid psychogenic component, complaining of increased muscle tension in the face often report the occurrence of so-called "nighttime grinding" and "clenching" of the teeth. This process can lead to excessive abrasion and disruption of the correct dental guidance pattern. Minimally invasive management should be considered in the choice of treatment methods. Treatment planning with the imperative of avoiding invasive methods of irreversible occlusal remodeling in favor of rehabilitative psychotherapeutic and relaxation methods and special cases (acute pain conditions) with the use of analgesics and non-steroidal anti-inflammatory drugs and those that reduce masseter muscle tension(2). In the first stage, we provide reversible short-circuit therapy. This is a treatment involving a temporary change in the patient's occlusal conditions, carried out with occlusal splints(3). For a diagnostically favorable and rapid finding of a stable joint position,

we often use manual deprogramming methods in dental practice. These are the methods of : "gothic arch", "ambidextrous manipulation", "leaf gauge", "Lucia Jig"(4). In practice, the most favorable methods turn out to be those in which the doctor has the most experience.

Case description

The following is a clinical case of a 32-year-old female patient who came to the office complaining of severe bilateral temporalis muscle pain and tenderness in the right and left masseter muscles. The subject examination noted the stressful nature of the patient's work (a professional athlete who trains combat sports) and the increased activity of stress-generating factors occurring recently. The subject's palpation examination revealed pressure soreness locally at points in the muscles examined. The pain in the muscle subsided immediately after the cessation of pressure. Intraoral image of pathological extrusion within the cusps of premolar teeth, canines and wisdom teeth. Clash of the nature of attrition with an erosive component. A stress test of the right and left temporomandibular joints was performed with negative results. On palpation, the preauricular region without pain. Deprogramming was performed using the " Lucia Jig" technique and as a control trial using the " Leaf Gauge" technique and the "Dawson's Hand". Deprogramming resulted in non-uniform results. In the axial movement of opening and closing the mouth after each test deprogramming the muscles of the masticatory organ, a repetition point was obtained at a different location on the own teeth. For this reason, a muscle deprogrammer was made for the patient with a flat platform in the anterior segment with support on the palatal parts of the teeth of the upper arch "Kois type". They were instructed to use the deprogrammer always while sleeping and as many hours a day as possible. The patient was also informed that despite the cessation of pain, the recommended

therapy should not be discontinued. After 2 weeks, an appointment was made to check the deprogramming status of the muscles of the masticatory organ. The study still found a disparity in the repetition of control points in the mandibular hinge movement. The patient was again instructed to follow the instructions for using the deprogrammer.

Given the patient's inability to stop working and therefore reduce the stressor, the patient was referred to a psychological counseling center for screening and the implementation of drug therapy. The patient was ordered to take the muscle tension relaxant Mydocalm 50mg every 8 hours and sedative drugs from the selective serotonin reuptake inhibitor (SSRI) group Fluoxetine 10mg once a day. The drugs were provided by a specialist pharmacist from Agafaramx pharmacy in Katowice. After 4 weeks, a follow-up appointment was scheduled again. During the examination, reproducibility was obtained in the contacts of the lower teeth with the prosthetic platform of the deprogrammer in mandibular inversion and adduction movements. Verification was carried out three times to confirm the compatibility of the results obtained. From the data obtained, it is clear that the patient has a disproportion between the position of the mandible in central relation and the position in maximal dentition of the teeth. In addition, there is an occlusal obstruction on the eighth tooth of the right side in the jaw. In the next stage of treatment, the patient underwent equilibration by removing the traumatic knot on tooth 18. The centripetal slip from the CR position to the MIP was measured. Centric slip was measured on the tooth where the first interdental contact to the MIP position occurred. Further observation with discontinuation of further use of the deprogrammer was recommended. After 4 weeks, the patient came for a control visit. The temporal muscle pain had subsided significantly. The tenderness of

the masseter muscle decreased but still caused the patient discomfort. Deprogramming was performed again using the ambidextrous hand technique along with control deprogmentation using the "Lucia Jig" anterior splint. Measurements showed repeatability in mandibular inversion and adduction movements in the hinge axis with clear determination of the first point of contact. After the point of early contact of the opposing teeth was reached, the centric slip was shortened by performing corrective re-equilibration within the cusp slopes of the unicuspid teeth. After correcting the occlusion, the patient achieved single-point contact on the teeth with no centric slippage and no traumatic nodes. They also recommended discontinuing medications previously taken and instructed that further observation is required. At the next follow-up visit, the patient reported further binding of her facial and temporalis muscle tension status. The symptoms no longer had any appreciable impact on the patient's well-being. The next follow-up appointment was scheduled after a period of 6 months while instructing the patient to come to the dental office sooner if the complaints reoccurred.

Discussion

Successful treatment in patients with musculoskeletal disorders is very often a challenge and requires patience. No two patients are identical, and in each we encounter a unique combination of signs and symptoms. The doctor's role is to properly examine and diagnose. In cases beyond his skills, the doctor should, based on the welfare of the patient, refer him to an appropriate specialist. Also, pharmacotherapy should not be a taboo subject. If the drugs are properly selected, and the benefits of their use are measurably conducive to rapid correct diagnosis, do not shy away from their use. Reconstructive treatment in patients who show no signs of instability can be carried out in their maximal concavity. Care should be taken not to cause instability in the stomatog-

nathic system with the planned restorations. Occlusion should be always protected with proper guidance of teeth in forward and balancing movements.

Resumo

Kaza raporto pri juna paciento kun malordoj de la stomatognata sistemo traktita interfako kun la uzo de mordo-splintterapio kaj farmakologia terapio. Paciento kun malkomfortaj doloroj en la kraniaj muskoloj venis por kuracado pro mordaj malfacilaĵoj. En klinika studo, malfunkcio de la stomatognata sistema muskolo estis diagnozita kun kunekzistanta manko de ripetatebleco de la pozicio de reciprokaj rilatoj. La efektiveco de la morda splintterapio ne alportis la supozitajn rezultojn. Nur la uzo de kombinita splintterapio kaj farmakologia muskulorelakso ebligis akiri la celitan klinikan rezulton.

References

1. Stanisław Majewski: Gnatofizjologia Stomatologiczna Normy Okluzji i Funkcje Układu Stomatognatycznego, PZWL, wyd. 1, 2007, 23-25
2. Stanisław Majewski: Współczesna Protetyka Stomatologiczna Podstawy Teoretyczne i Praktyka Kliniczna, PZWL, wyd. 1, 15-16
3. Jeffrey P. Okeson: Leczenie dysfunkcji Skroniowo-Żuchwowych i Zaburzeń Zwarcia, Czelej, 2018, 34-35
4. Lobbezoo F., Naeije M.: Etiology of bruxism: morphological, pathophysiological and psychological factors. „Ned Tijdschr Tandheelkd”. 2000; 107(7): 275-280.