

INTEGRATING HYPERTONIA REHABILITATION, INTRAORAL REHABILITATION, AND ANXIETY MANAGEMENT FOR COMPREHENSIVE PATIENT CARE- PART.3 –DIAGNOSIS AND TREATMENT PLAN COMPLEX ORAL REHABILITATION

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ABSTRACT

The masticatory apparatus, which includes the jaw and related muscles, can suffer from dysfunctions like muscle rigidity. This condition is often treated with muscle relaxants, medications that ease muscle tension, with Botulinum toxin (Botox) being one of the most effective options. Clinical cases have demonstrated that Botox can significantly alleviate symptoms of temporomandibular joint disorders, characterized by pain and restricted jaw movement.

Keywords : Treatment plan, Management Of Anxiety, Stomatognathic Dysfunctions, Botox, Hypertonia, Complex Oral Rehabilitation

Introduction

Traditional management strategies include physical therapy, oral appliances, and medications [1-12]. Recently, botulinum toxin type A (Botox) has gained attention as a potential therapeutic option for managing TMD symptoms by relaxing the jaw muscles and reducing pain [13-22].

Aim of the Study

This study aims to assess the efficacy of Botox in alleviating pain and enhancing functional outcomes in TMD patients. Additionally, it evaluates the impact of combining Botox treatment with rehabilitation strategies involving

prosthetic implants and skeletal prostheses. Pain relief is quantified using the Visual Analog Scale (VAS).

Methodology

1. Patient Selection:

o A total of 34 urban patients diagnosed with TMD participated.

o Inclusion criteria: Patients aged 40 and above, with no neurological disorders but allowing for rheumatological conditions.

o Exclusion criteria: Individuals with active infections or prior Botox treatments for TMD.

2. Multidisciplinary Approach:

o The treatment was administered by a team consisting of a neurologist and a rheumatologist.

The neurologist managed Botox injections, while the rheumatologist addressed underlying conditions affecting treatment outcomes.

3. Treatment Protocol:

Botox Injections: Targeted doses (30–40 units per muscle) were administered to the masseter, temporalis, and lateral pterygoid muscles.

Rehabilitation Treatments: Patients received prosthetic implants and skeletal prostheses as part of their recovery.

4. Outcome Measurement:

Pain levels were evaluated using VAS at baseline, 1 month, and 3 months post-treatment.

5. Statistical Analysis:

Changes in VAS scores over time were analyzed to determine the effectiveness of the intervention.

All participants provided informed consent, and the study followed ethical guidelines for clinical research. Data confidentiality was maintained according to institutional and international standards (WHO, 2021) Ethics of research Nr 176/17.04.2022. UMF Gr. T. Popa Iasi.

Diagnostic and treatment plan presentation

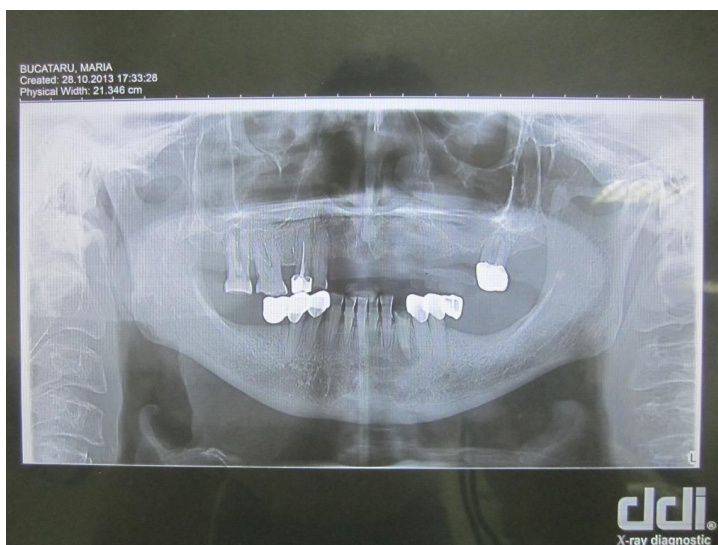
After an extraoral intraoral clinical examination and an anamnesis of the patient

we may be able to establish the diagnostic and therapeutic results.

In order to detect the diagnosis of the general and local condition in the form of endodontic carious patoplogia of intergritaity of the arch and of the crtaniomanfdibulare instability, we will investigate orthopantomographic and tomographic and thermographic findings with the help of which we will make the clinical completion and linkage as follows: Diagnostic and treatment plan preaentation

Paraclinical outcomes
:Orthopantomography:

Fig.15. The orthopantomography of B.M, IASI. 74 years, sex F.



Study of the Model:STATIC AND DINAMIC DIAGRAMME DEMONSTRATION GHIDE VECTOR (Fig 16).

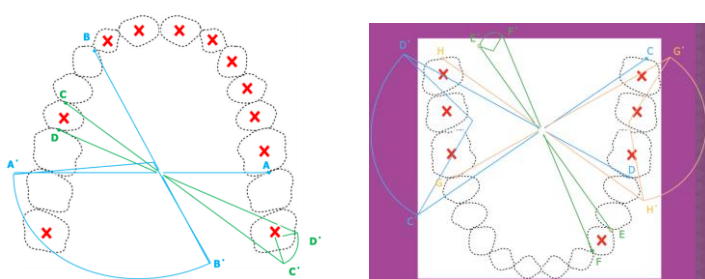


Fig.16. dynamic occlusion diagram of the upper and lower jaw

Paraclinical examination model:



Fig.17.The model of maxillary and mandibular

Diagnostic criteria

Positive & negative index

Maxilla		
	Positive	Negative
Dental & Periodontal Support	5 Teeth remaining	- Artificial teeth (1.7, 2.4) - Abrasion of all occlusal surfaces degree - No contact points between the teeth - Mesial migration of all teeth - Mesio-palatal rotation of 2.6 - Grouped teeth Periodontal recession of
Mucosa & Bone support	- Regular bone profile - Medium shaped palate	- Big resorption of bone and gingival support - Triangular bone shape in cross section - Incisive papilla on the alveolar ridge. - Frenulum and Plicae close to the alveolar ridge.

Treatment Plan:

The treatment includes the removal of the fixed prosthesis due to toxicity and incorrect design in the first, third, and fourth quadrants. Ultrasonic scaling, professional brushing, and root planning are performed, followed by the extraction of tooth 3.3 with curettage and suturing. Endodontic treatment is done on teeth 1.3, 1.6, 1.7, 3.5, 3.4, 4.4, and 4.5. The teeth to be covered with a fixed prosthesis (1.7, 1.6, 1.4, 1.3, 3.5, 3.4, 4.4, 4.5) are prepared, and the frontal mandibular teeth are restored with composite. Impressions for the fixed prosthesis are taken, along with the registration of

mandibular-cranial relations using occlusal rims. The metallic frame and final prosthesis are verified, and provisional cementation is performed. Preliminary and functional impressions are also made, followed by the registration of mandibular-cranial relations. The wax pattern of the removable prosthesis is verified, and the final prosthesis undergoes immediate adaptation.

The chosen treatment:

The chosen treatment solution involves applying a fixed prosthesis on the maxilla for teeth 1.3 to 1.7 and a flexible removable partial prosthesis with a major palatal connector in

dentomucosal contact with the remaining teeth, including two saddles with 8 artificial teeth and 3 clasps on 1.7, 1.3, and 2.7. Similarly, a fixed prosthesis is applied on the mandible for teeth 3.5 to 4.5, along with a flexible removable partial prosthesis with a major lingual connector in dentomucosal contact with the remaining teeth, including two saddles with 4 artificial teeth and 2 clasps on 3.5 and 4.5. The treatment is categorized as a medium solution, offering an

intermediate prognosis (not the best, but not the worst), with an overall score of Ab. The fixed prosthesis from 1.7 to 1.3 and 3.5 to 4.5 creates the conditions for correcting the occlusal plan, improving dental and periodontal support, restoring esthetics, and enhancing functionality. However, the prosthesis can be challenging to maintain due to the potential for surface scratching, which can trap food and dental plaque.

Fig.18. Taking the preliminary impression



Fig.19. Trimming the dental impressions

Fig.20. Fitting and adjusting the dental impression



Fig.21.Occlusal rims

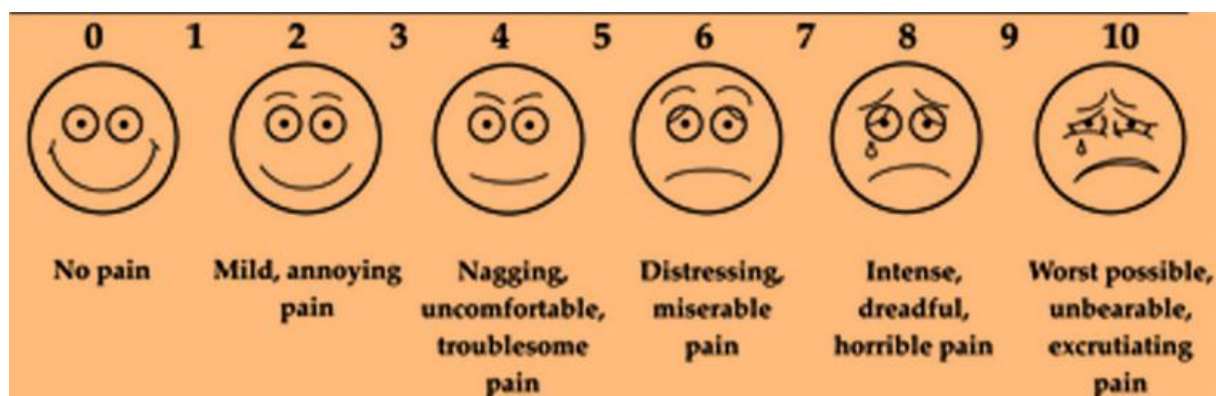


Fig.22.Final aspect of the prosthesis



Fig.23.Fitting the final prothese

1. **Outcome Measurement:** The efficacy of the treatment was evaluated using the VAS, where patients rated their pain levels before treatment and at intervals post-treatment (1 week, 1 month, and 3 months)[20-21].



Visual analogue scale (VAS) chart used to assess symptoms and signs (Bhat, Vikram & Ajur2019).

Source :Bhat, Vikram & Ajur, Shivashankar & Bongale, Kiran & Sachidananda, Roopa. (2019). Prevention of Craniofacial Pain Secondary to Harvesting of Temporalis Fascia - A Novel Technique. The journal of international advanced otology. 15. 405-408. 10.5152/iao.2019.6978.)

2. **Statistical Analysis:** Statistical methods were employed to analyze changes in VAS scores over time.

Results

Treatment plan followed by the prosthetic rehabilitation treatment followed by each patient gave satisfactory results certified with the help of analog visual scales but also objectified by the patient's satisfaction to improve the masticatory and fisionomic function and the stability and geometry of the impacted area at the stomatognathic system level followed by adjuvant completion with myorelaxants anxiolotics and repositioning relaxing guides.

The results demonstrated significant improvements in pain levels following Botox treatment combined with rehabilitation strategies:

- **VAS Score Reduction:**
 - Initial mean VAS scores of 7.5 (± 1.2) decreased to 3.0 (± 1.5) at one month post-treatment.
 - By three months, the mean VAS score further declined to 2.5 (± 1.0), indicating sustained pain relief.
- **Patient Satisfaction:**
Approximately 85% of patients

reported a notable reduction in symptoms and improved jaw function.

Discussion

The findings suggest that Botox is an effective adjunctive treatment for TMD when used alongside rehabilitative procedures like prosthetic implants and skeletal prostheses. The significant reduction in VAS scores highlights its potential to alleviate muscle-related pain associated with TMD effectively. The multidisciplinary approach involving both a neurologist and a rheumatologist may have contributed to improved outcomes by addressing both muscular and systemic factors influencing TMD[22-26].

Recent studies have shown mixed results regarding the effectiveness of Botox for TMD treatment. For instance, some research indicates that while Botox can lead to significant pain reduction compared to placebo, other studies suggest that its efficacy may not be superior to traditional treatments such as occlusal devices. Additionally, concerns have been raised about potential risks associated with repeated Botox injections into masticatory muscles, particularly regarding bone density changes[27-29].

In conclusion, integrating Botox into the management plan for TMD patients undergoing rehabilitation with prosthetic interventions demonstrates promising efficacy in pain reduction and functional improvement. The involvement of a multidisciplinary team enhances treatment effectiveness by addressing various aspects of patient care. Future research should focus on larger sample sizes and longer follow-up periods to establish comprehensive guidelines for its clinical application.

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