



Figure 8: Treatment progress of the patient. Before the beginning of the treatment – (a), (b), (c), after the end of the orthodontic treatment – (d), (e), (f) and after the prosthodontic restorations were made – (g), (h), (i)

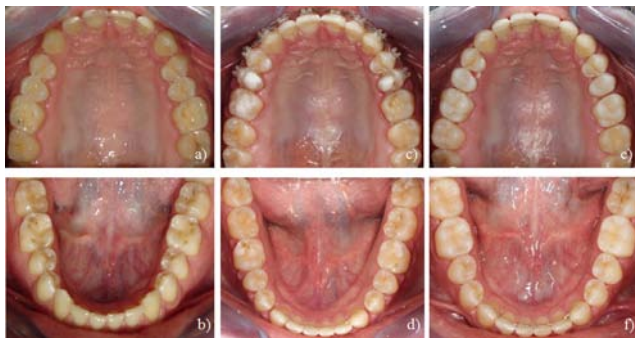


Figure 9: Treatment progress. Intraoral view of the patient. Photos before the beginning of the treatment – (a), (b), after the end of the orthodontic treatment – (c), (d) and after the prosthodontic restorations were made – (e), (f)



Figure 10: Occlusion of the patient before ((a), (b), (c)) and after ((d), (e), (f)) the interdisciplinary treatment



Figure 11: Patient after 3 years of retention

4. Discussion

Both problems – bruxism and deep bite are associated with parafunctional activity. The larger the occlusal contact area become, the stronger the association between occlusion and teeth fractures [19] have been observed.

Patients can be managed with oral appliances of various designs. The fixed appliances which use aggressive biomechanics and intrusive arches (utility arch) have a moment of rotation which can lead to unwanted proclination of the frontal teeth [4], [20]. By using only fixed appliances and intrusive mechanics the OcP and curve of Spee can be leveled and intrusion can be achieved but the correction of muscle activity is impossible. Furthermore the masticatory hyperfunction increases the risk of relapse. If a restoration of the occlusal surfaces is made only, patients often fracture them, because of the excessive muscle activity. If only a myofunctional appliance is used, the teeth could not be aligned. Also activator appliances are inappropriate for applying in adult patients, because they need continuously wearing, which disturb the social life of the patients. Not least the treatment time with activators is extended.

Taking into account these facts, an interdisciplinary treatment for managing these problems was used [21]. Combination of fixed and myofunctional appliances makes the leveling and opening the bite by intrusion of anterior teeth and eruption of posterior teeth possible simultaneously. This is a contemporary approach which includes not only better teeth alignment and leveling with non-invasive composite build-ups, but also a myofunctional appliances – Trainers (T4B™ and TMJ™) which eliminate the excessive muscle activity. This is a key-part in this management and a guarantee for long-term stability of the occlusion. Also short period of treatment time and less chances of relapse are reported in the literature, because the correction of a malocclusion is done by elimination of soft tissue dysfunction [22].

The Trainer for Braces™ (T4B™) is highly flexible, retrains the oral musculature (the Myofunctional Effect™) and treats the temporomandibular joint (TMJ) disorder (fig. 12). Braces Channels accommodate brackets and orthodontic archwire, and protect cheeks and gums, while lip bumpers discourage overactive lip muscle activity [23], [24].



Figure 12: Trainer for Braces (T4B™)

The TMJ Appliance™ relaxes the cranio-mandibular muscles – for extracapsular relief (Fig. 13). It treats symptoms by decompressing the joint through its aerofoil shaped base and eliminates the bruxism with its double-mouthguard effect. Further relief is provided by the change in the resting length of the muscles when the appliance is in place. This treatment assists in relieving TMJ and cranio-mandibular symptoms, limiting bruxing and grinding, and improves patient comfort [23], [24].



Figure 13: Trainer for TMJ (TMJ™)

5. Conclusion

It is critical for successful dental therapy to understand the relationship between the parafunctional activity and subsequent formation of orthodontic malocclusions. The complexity of such cases needs comprehensive treatment plan and proper interdisciplinary management. The combination of different fields of dentistry makes the long-term stability of patients' occlusion possible.

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