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Management of a Patient with Temporomandibular Disorder and Trauma from Occlusion by using a Modified Hawley's Appliance and a Modified Essix Retainer

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INTRODUCTION

The occlusal disharmony has been proven to cause Temporomandibular Disorder (TMD) but not for every patient with occlusal interference. Elimination of occlusal interference and subsequent stabilizing of occlusion is the most important aspect of treating temporomandibular disorder¹. The concept of Temporomandibular Disorder (TMD) usually includes a wide variety of signs and symptoms such as pain from the jaw muscles or on mandibular movement, clicking sound, locking/luxation of joints as well as restricted mandibular movement. Often, TMD has been evaluated on the basis of variation in rather insignificant signs and symptoms, for instance, variation in muscle sites that are tender to palpation, without correlation to experienced problems. The etiology of TMD is usually considered multifactorial. Untreated malocclusion, unstable occlusion, stress, psychologic factors, trauma, individual predisposition and structural conditions have been suggested as possible etiologic factors.

CASE REPORT

DIAGNOSIS AND ETIOLOGY

A 20 year old female patient reported to the department of orthodontics with a chief complaint of clicking in right and left TMJ. On examination the patient had class I molar relation bilaterally, retroclined upper and lower anterior, overjet of 0mm, overbite of 4 mm, ceramic veneer in relation to 11, Trauma from occlusion(TFO)in relation to anterior teeth(figure no.2), clicking on right and left TMJ. The patient was having a habit of bruxism for 2 years.

TREATMENT OBJECTIVES

1. Correction of anterior TFO.
2. Correction of TMD.

TREATMENT ALTERNATIVES

1. Correction of anterior TFO
 - a) Fixed mechanotherapy.
 - b) Hawleys appliance with Z spring to create overjet.
 - c) Modified Hawleys appliance with an additional palatal bow.
2. Correction of TMD
 - a) Modified Essix retainer.
 - b) Acrylic occlusal cap splint.

TREATMENT PLAN

The patient was not willing for fixed mechanotherapy. Hence it was decided to start the treatment with a modified hawley's appliance for treatment of TFO (figure no.3). After adequate overjet was achieved, a modified Essix retainer which acted as retainer, as well as occlusal cap splint (Michigan splint) (figure no.7), was delivered.

APPLIANCE DESIGN

This appliance was a modification of conventional hawley's appliance. The appliance consists of 2 bows (labial and palatal) and retention clasps on molars. The labial bow was made of 0.8mm stainless steel wire and the Palatal bow was made of 0.7 mm stainless steel wire. The palatal bow bent in such a way that it rests on the middle third of lingual aspect of maxillary anterior teeth and a U loop was incorporated on each side so the palatal bow can be activated by opening the U loops. Self cure acrylic was added around the palatal bow for proper fit in the palatal aspect of anterior teeth. The labial bow was adjusted in such a way that it was 2mm away from the labial aspect of maxillary anteriors which prevented unwanted tooth movement. The labial bow can also be adjusted according to the amount of proclination needed by opening the U loop. Appliance was retained by using Adams clasp or C clasp. A mild posterior bite plane was given to prevent occlusal interference with a palatal bow (Fig.No.3).

TREATMENT PROGRESS

Modified Hawley's appliance with an activated palatal bow and a passive labial bow was delivered. The patient was asked to wear the appliance full time except while brushing and while having food. Post insertion instructions were given and the patient was recalled after 1 month for a checkup. The palatal bow was activated in every appointment.

TREATMENT RESULT

Overjet of 2mm was achieved in 2 months. There was no unwanted effect on adjacent teeth or opposite teeth except the mild opening of space distal to 22. An upper impression was taken in the same appointment and an Essix retainer with 1.4mm thickness was fabricated which was modified by adding self-cure acrylic on an occlusal aspect of posterior teeth and was trimmed to make it flat (Fig.No.6) to act as Michigan splint. The patient was asked to wear the splint full time for a minimum of 6 months. On recall after 6 months patient showed no symptoms of TMD and Bruxism.

CONCLUSION

The modified Hawley's appliance and modified Essix retainer were very effective and successful in correcting TFO and TMD. Thus this appliance can be an appliance of choice for treating a patient with TFO and TMD with bruxism habit if the patient is not willing for fixed mechanotherapy.

PRE TREATMENT PHOTOS



Figure No.1. Pre Treatment Photographs



Figure No.2 Clinical Examination Of Anterior Trauma From Occlusion

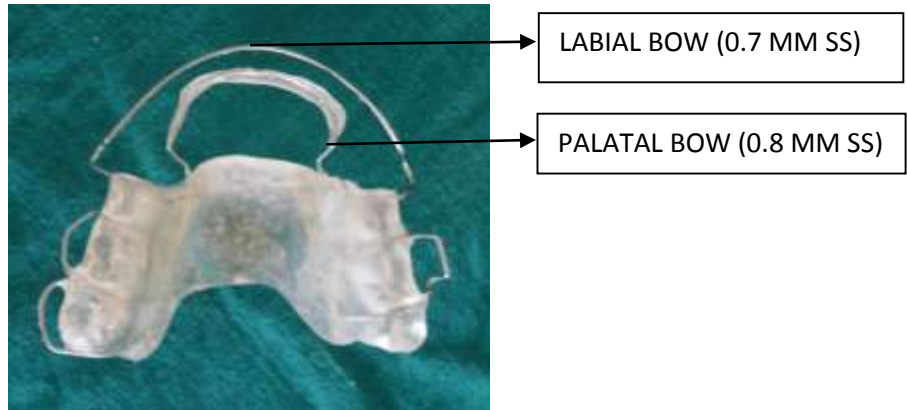


Figure No 3: Modified Hawley's Appliance



Figno 4.Post Appliance Insertion



Figure No.5. Post Treatment Photographs

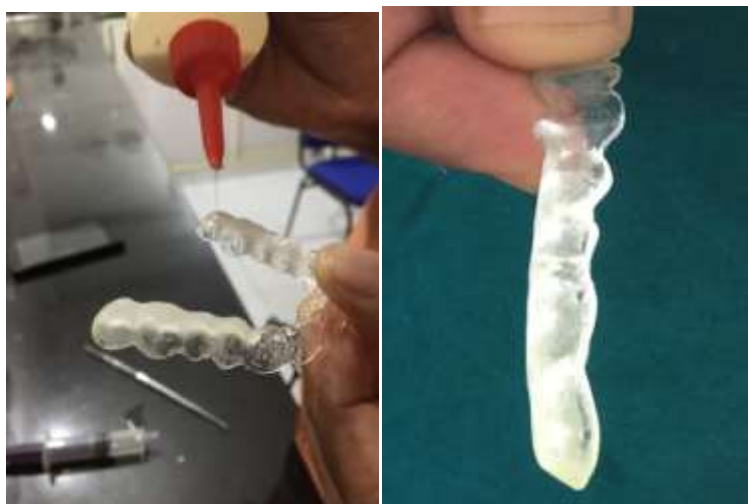


Figure No 7. Modification of Essix Retainer



Figure No 7. Modified Essix Retainer



Fig.No.8: Post Splint Delivery Photographs

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