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Maryland Bridge As A Minimally Invasive Treatment Modality For Missing Anterior - A Case Report

Case Report

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Abstract:

Introduction:

In young adult patients, a conventional fixed partial denture requires sufficient amount of tooth preparation of all surfaces of the abutment tooth, which might result in pulpal trauma and hypersensitivity.For such patients, a more conservative and less invasive treatment option is resin bonded prosthesis which preserves the remaining alveolar ridge and the soft tissue.This case report describes Maryland bridge as a treatment modality for an effective restoration of the missing anterior teeth.

Case Report

A 30 year old male patient reported to the Department of Prosthodontics with the chief complaint of missing lower anterior teeth and the unesthetic appearance due to the missing teeth.Treatment planning were explained to the patient and the patient opted for Maryland Bridge.Diagnostic impressions were made and cast were poured.Tooth Preparation was done on the lingual surfaces of 41 and 32 with chamfer finish line.Final impressions were made using putty lightbody.The nickel-chromium metal framework was fabricated and try-in was done.The prosthesis was finished, polished and glazed.The final prosthesis was luted using the self etch resin cement.

Discussion

Maryland Bridge is retained with the help of micromechanical retention.The Maryland bridges are alloy-specific, it is only utilised for non-precious alloys as precious alloys cannot be etched to give the micromechanical retention.

Conclusion

Maryland bridge is an effective treatment modality to restore single missing teeth in young patients.

Index Terms - Fixed Partial denture,Chamfer Finish line,Self-etch,Micromechanical.

I. INTRODUCTION

The loss of the anterior teeth not just leads to functional loss but also have a huge psychological impact on young patients. The restoration of the missing mandibular incisors can be done with various treatment options, including implants, removable partial dentures, and fixed partial dentures.[1]Implants are a better treatment option but its placement depends on various factors including amount of bone available, medical conditions, financial factor, and patient wishes.Long-term use of a removable partial denture can result in bone resorption and flattening of the interdental papillae, however, it can be utilised as an interim prosthesis for the initial aesthetics.This case report entails the restoration of the missing anterior central incisor using the maryland bridge as an effective and minimally invasive treatment option.[2]

II. CASE PRESENTATION

A 30 year old male patient reported to the Department of Prosthodontics with the chief complaint of missing lower anterior teeth and the unesthetic appearance due to the missing teeth. Patient gave history of extraction due to the trauma of the lower anterior teeth 6 months back. Intra oral examination revealed missing left central incisor.A concavity was present labially in the region of the missing central incisor. Intraoral periapical radiograph revealed healthy adjacent abutment teeth.All the treatment options including implant, conventional fixed dental prosthesis, removable partial denture, and resin bonded bridges were given to the patient. Patient was not willing for any invasive treatment option, so implants were opted out.He was willing for fixed prosthesis with minimal tooth reduction, so resin bonded bridges were chosen as the treatment option for the patient.

III. ADVANTAGES

1. Reduced Cost
2. No Anesthetic Needed
3. Supragingival Margins
4. Minimal Tooth Preparation
5. Rebonding possible

IV. PREPARATION STEPS

A.ARMAMENTARIUM

1. High speed hand piece
2. Articulating Ribbon
3. Small wheel and short needle diamond
4. Flat-end and round-end tapered diamond.

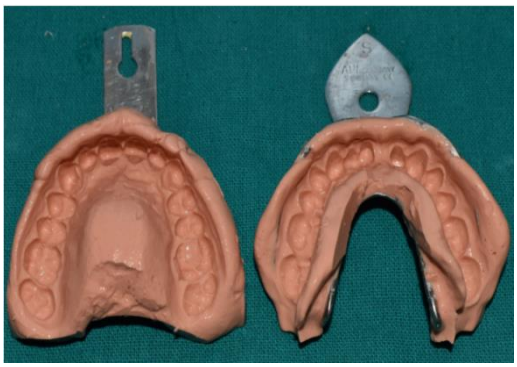

Figure : 1.DIAGNOSTIC IMPRESSIONS

1. Diagnostic impressions of the maxillary and the mandibular arch were made. Diagnostic casts were obtained and the wax up for the missing tooth was done.
2. Using a flat-end tapered diamond, flat notches or countersinks on the lingual surface of the tooth were prepared to provide resistance to gingival displacement.
3. Proximal reduction on the surface adjacent to the edentulous space was done with a round- end tapered diamond producing a small plane that extends slightly facially to the facioproximal line angle.
4. A second plane was produced lingual to the first with the same diamond.
5. The thickness of the axial walls of the retainer was kept greater than the amount of axial tooth structure removed, leading to overcontouring of the axial walls of the cast retainer.
6. To minimize any deleterious effect on periodontium, the very light chamfer finish line was placed approximately 1.0 mm supragingival throughout its length.

7. A short groove was placed at the facialmost extension of the reduction on the opposite side of the cingulum with a short needle diamond.
8. The groove served to enhance the retainer in addition to bolstering the rigidity of the retainer.

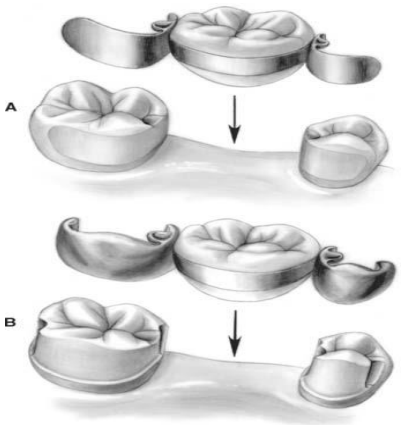

FIGURE : 2 MORE CONSERVATIVE PREPARATION

Gingiva was retracted using the retraction cord and the final impressions were made using two step putty light body impression technique using addition silicone impression material. Temporisation was not given to the

patient in this case as the patient was already a RPD wearer.The nickel-chromium metal framework was fabricated and try-in was done. The prosthesis was finished, polished and glazed.

FIGURE : 3 PRE - OP PHOTOGRAPHS

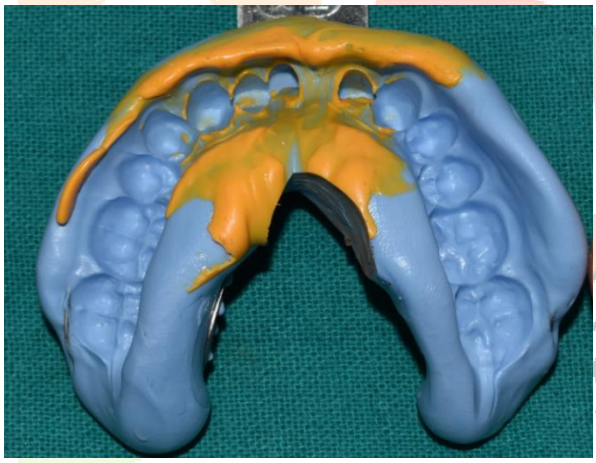

FIGURE : 4 FINAL IMPRESSIONS

FIGURE : 5 FRAMEWORK TRY - IN

V. DELIVERY SEQUENCE

1.The process began with the isolation of the abutment teeth with Cotton Rolls.

2.By Refreshing the tooth-facing surfaces of the retainers and air abrading them again just before inserting the restoration the tooth preparations were cleaned with unflavoured nonfluoridated pumice or a prophy cup.

3. On Washing off pumice, 40% to 50% phosphoric acid solution to the abutment preparations with a cotton pellet were applied.

4. The primer and the resin to bond the prosthesis in place were mixed.

5. One drop of ED primer liquids A and B were mixed into a well in the mixing dish and were mixed for 4 seconds.

6. Using a sponge pledget the mixture was applied to the preparations.

7. Allowed it to set for 60 seconds.

FIGURE : 6 BONDING COMPLETED USING RESIN CEMENT

VI. DISCUSSION

Maryland bridge have various advantages including minimal tooth preparation conserving the enamel, minimal pulpal trauma, decreased potential for gingival irritation,single path of insertion preventing displacement, enhanced esthetics, patient satisfaction, and precludes the use of local anaesthetic.[4]However, it also has certain disadvantages including its technique sensitive application and the tendency of the metal retainer to show through the thin anterior teeth.Certain precautions like adequate sealing of the prosthesis and tooth surface margin is necessary for the prevention of caries.[5]Gingival surface of the pontic should be highly glazed as well as should have passive tissue contact to ensure the maintenance of gingival health.Adequate thickness of enamel, no severe rotation or malpositioning of abutment teeth, periodontal conditions,adequate occlusal clearance, and parafunctional habits are few of the factors that should be considered for the case selection.

Careful case selection, meticulous design planning, precise tooth preparation, and judicious cementation can all lead to long term success of maryland bridges. Hence, maryland bridge is an effective treatment modality to restore single missing teeth in young patients.[4,5]

VII. CONCLUSION

Resin bonded bridges are an efficacious way of replacing missing teeth, restoring function, esthetics, and boosting the confidence of the patient.Maryland bridge should be considered more frequently as the restoration for small span given thorough patient assessment and judicious patient selection.

VIII. ACKNOWLEDGMENT

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