

RE- ESTABLISHING THE LOST MASTICATORY AND OCCLUSAL FUNCTION: A CONTEMPORARY APPROACH

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Abstract

Permanent first molar (PFM) is considered as the most caries prone teeth, since it erupts early in the oral cavity. Majority of children experience caries in PFM in their early phase of life. Long standing carious lesions may have poor long term prognosis thus leading to extraction of PFM at a very early age. The space created after the loss of PFM can result in space loss thus creating arch length discrepancy, supra eruption of opposing teeth, loss of masticatory function, impaired aesthetics. Adequate management is required to overcome the future consequences of loss PFM. Hence this case report presents 2 cases where space was managed with fixed functional prosthesis in lower arch using a contemporary approach.

Key Words: Interim restorations, space maintainers, Permanent first molar (PFM)

INTRODUCTION

Dental caries is worldwide well known disease of tooth prevalent in children, adolescent and adults characterized by causing pain, discomfort and functional limitations. Permanent first molar (PFM) is one of the most common tooth involved in dental caries due to its early eruption. In treating PFM with questionable prognosis extraction is the only choice left with the pediatric dentist in managing PFM that are grossly decayed. Space created after extraction in long run may lead to space loss thus creating arch length discrepancy, drifting, tilting, and rotation of the adjacent tooth. Supraeruption of opposing teeth, localised loss of masticatory function and impaired aesthetics. There are different techniques in managing such cases but have certain indications and contraindications which are to be seen at a growing age. Thus, space management after loss of PFM is one of the central concern. Hence this case report highlights 2 cases of space management, simulating lost masticatory and occlusal function using conventional, functionally efficient and economically feasible bridge as interim restoration.

Case 1

A 12-year-old male patient with no relevant medical history reported to the Department of Paediatric and Preventive Dentistry with the chief complaint of missing teeth in the lower left back teeth region since 8 months. On taking detailed history patient told he got his teeth extracted by local dentist in the lower left back teeth region due to caries with severe loss of tooth structure.

On diagnosis, clinical hard tissue examination revealed partially edentulous space i.r.t 36 (Figure 1). Since permanent second molar was not fully erupted and the

crown height was not appropriate, P.F.M bridge was not advised to the patient. Furthermore patient was not willing for the removable appliance. Patient parent's was explained about the treatment plan, type of bridge, time till when it will remain in the oral cavity and its maintenance. After the parents agreement

consent was signed. In corrective phase Prosthetic rehabilitation was advised using fixed functional bridge i.r.t 36.



Figure 1: Pre-operative intraoral view

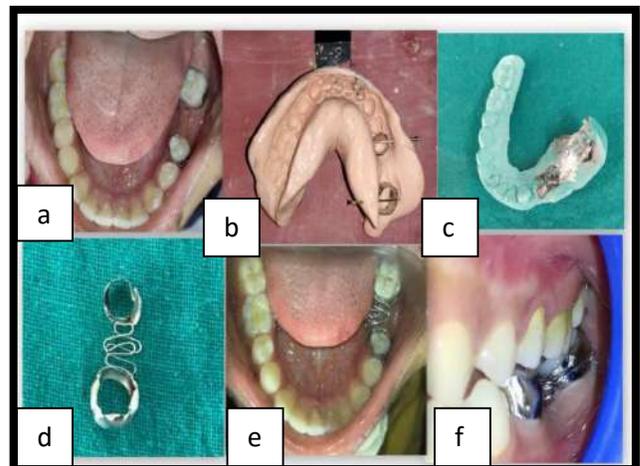


Figure 2: Finished bridge and Final cementation

was found to be excellent with soft tissue acceptance and restored function.

Case 2:

A 13 year old male patient with no relevant medical history reported to the Department of Paediatric and Preventive Dentistry with the chief complaint of pain in lower left back region of jaw since 1 month. Pain was persistent elevates on chewing food and relieves after taking medication. On diagnosis, clinical hard tissue examination and radiographic investigation revealed caries involving pulp i.r.t 37 which was tender on percussion and partially edentulous space i.r.t 36 (Figure 4a, b). In treatment plan 37 was planned for root canal followed by stainless steel crown and in corrective phase fixed functional bridge was advised in rt 36. After explaining Patient parent's about the type of bridge, time till it will remain in the oral cavity and cost of entire treatment a consent was signed.

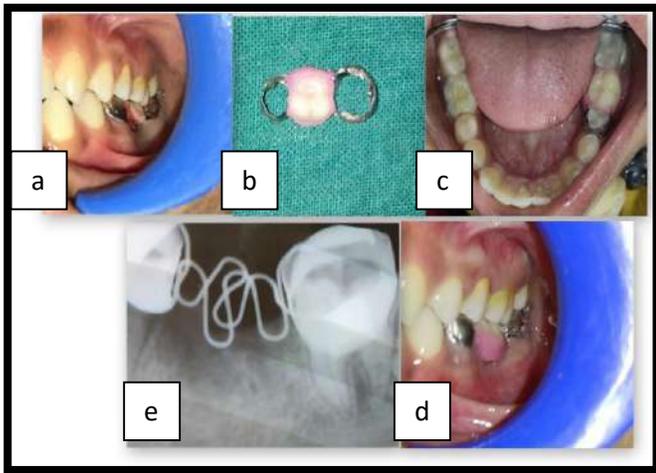


Figure 3: Final Occlusion and radiograph

Corrective procedures performed are as follows:

- Banding was done on both abutment teeth i.e 35 and 37(fig 2a)
- Alginate Impression was made, band stabilization was done and cast was poured in order to obtain a model. (Fig 2b)
- Meshwork was made from 26 gauge stainless steel wire from buccal and lingual side of both abutment teeth and 1-1.5mm above the alveolar ridge in order to make the area self cleansable.
- Meshwork was then soldered such that it holds units of bridge together.(figure 2c)
- Finishing and polishing of bridge was done and was checked in patient's mouth (figure 2d,e,f)
- Acrylic left mandibular first molar 36 of adequate mesiodistal width was selected as pontic.
- Then using modeling wax try in was done in the patients mouth and required adjustments were made and occlusion was re-established and eccentric was assessed. (Figure 3a)
- Once after final adjustments and achieving desirable occlusion acrylic tooth pontic was attached to the interim bridge using auto polymer acrylic resin and patient was instructed and guided to bite in occlusion. (Figure 3b)
- Then for final adjustments the bridge was evaluated for gingival extension, blanching and after finishing and polishing finally bridge was cemented using glass ionomer luting cement. (figure 3c)
- Final occlusion was checked and Post operative radiograph was taken. (figure 3d,e)

Postoperative Instructions were given to the patient to maintain oral hygiene and follow up was scheduled after every three months. At recalled visit, treatment outcome

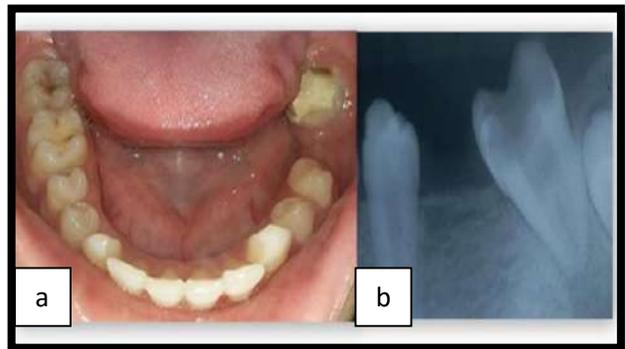


Figure 4: Post operative photograph and radiograph

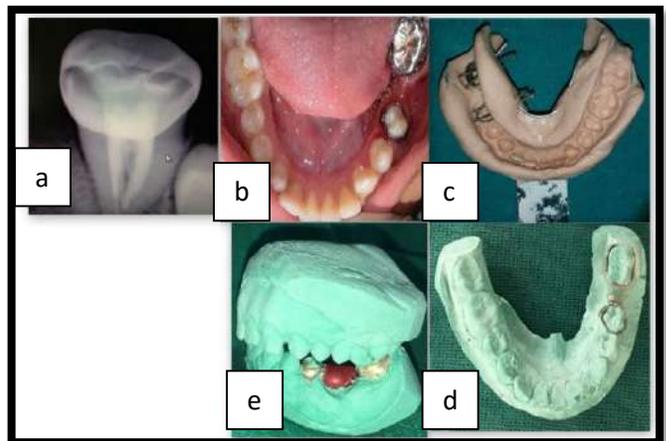


Figure 5: occlusion on cast

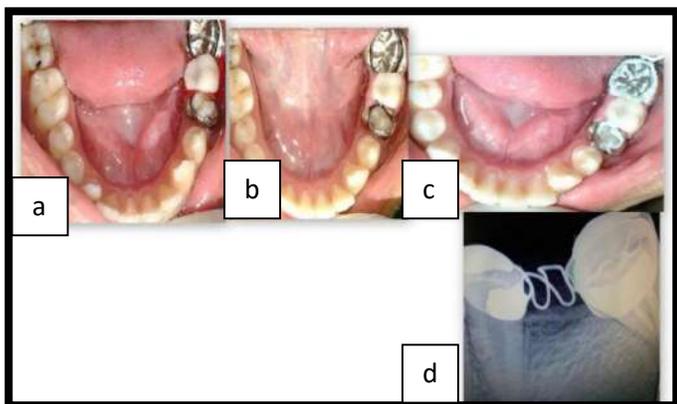


Figure 6: Final cementation

Corrective procedures performed are as follows:

- After doing access opening and taking working length R.C.T was done i.r.t 37.
- Stainless steel crown was given irt 37. (figure 5a)
- Banding was done on stainless steel crown i.e 37 and on 35. (Figure 5b)
- Alginate Impression was made, band stabilization was done and cast was poured in order to obtain a model. (figure 5c)
- Meshwork was made from 26 gauge stainless steel wire from buccal and lingual side of both abutment teeth and 1-1.5mm above the alveolar ridge in order to make the area self cleansable
- Meshwork was then soldered such that it holds units of bridge together.
- Finishing and polishing of bridge was done. (figure 5d)
- Acrylic left mandibular first molar 36 of adequate mesiodistal width was selected as pontic.
- Then using modeling wax occlusion was checked on model and try was done in the patients mouth. (Figure 5e and 6a)
- Then for final adjustments the bridge was evaluated for gingival extension, blanching and after finishing and polishing finally bridge was cemented using glass inomer luting cement. (figure 6b,c)
- Post operative radiograph was taken. (figure 6d)

Postoperative Instructions were given to the patient to maintain oral hygiene and follow up was scheduled after every three months. At recalled visit, treatment outcome was found to be excellent with soft tissue acceptance and restored function as that of case 1.

DISCUSSION

The first permanent molar is not often preferably advised for extraction. Extraction of PFM is indicated in situations with unpredictable outcome like grossly decayed PFM, hypoplastic

PFM, apical pathology and furcal radiolucency or in endodontically failure.

It is pivotal to restore any missing tooth in order to restore its function and aesthetics, preserve the alveolar ridge, maintenance of space and arch integrity, supra eruption of opposite tooth. A fixed functional space maintainer can not only serve the purpose of restoring function but it also simulates patient's own dentition. It also prevents malocclusion by maintaining adequate space in arch, preserving alveolar ridge integrity for future prosthetic rehabilitation whenever indicated.

A fixed space maintainer is better accepted by a child patient as it does not require any manipulation, seats in the oral cavity for the required time period and is psychologically more acceptable and comfortable for the patient when compared to removable appliance.

It is easy to fabricate, and within no time chair side fabrication can be done easily. Since the laboratory technique is simple, fabrication and delivery of the bridge can be done in a single appointment thus adding to the advantage.

This appliance has been shown to have an excellent patient acquiescence and is easy to clean and maintain oral sanitation. As the appliance is fabricated 1-1.5mm above the alveolar ridge to make the area self-cleansable, hygiene is easily maintained by the patient with no food entrapment beneath the bridge. Since it is fixed appliance it has decrease probability of breaking or getting lost. This fixed bridge can be easily removed and recemented in case of loosening and whenever fluoride application is required, if the need arises. This bridge is functionally, acceptable as it maintains the mesiodistal dimensions of missing tooth, prevents supra eruption of opposing teeth and does not impair growth and development, and it serves same purpose as is required by an ideal space maintainer, also aids in simulating and restoring lost function.

CONCLUSION

The permanent first molars are of utmost importance and all the measures should be tried to preserve them in the oral cavity. When planning extraction of PFMs with poor prognosis one should consider when future active appliance will be indicated. This Fixed functional bridge proves to be a valuable treatment to preserve arch integrity for future permanent teeth and also aesthetic maintenance shows a significant effect to re-establish positive attitude toward dental treatment.

REFERENCES

1. McDonald RE, Avery DR. Dentistry for the child and adolescent .Missoui Elsevier 2004. P644-646.
2. Dimri M, Jain A. Stainlees Steel Crown Bridge Replacing Permanent Molar In The Adolescent Patient: A Case Report. J Indian Soc Pedo Prev Dent 2001;2:74-6.
3. Berckally T, Smales R. A Retrospective clinical evaluation of resin bonded bridges inserted at Adelaide Dental Hospital. Aust Dent J 1993;38:85-96.

4. Horax H. Management of premature loss of primary first molar case with simple fixed space maintainer. Dentofacial. 2009; 8(1): 23- 26.

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How to cite this article: Haque S A, Neha M, Kaur H, Yeluri R. Re- establishing the lost masticatory and occlusal function: a contemporary approach. TMU J Dent 2020;7(1):12-15.