Fixed Space Maintainers

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Abstract

Ideally, extraction of deciduous teeth should be avoided as far as possible. If, at all extraction is undertaken then after considering dental age of the patient, we should decide about space maintainence. The use of space maintainers after the premature loss of deciduous molars is important for maintaining integrity of the arch. In this case report we describe a procedure which should help Dental Surgeons to prepare fixed maintainers in their Dental office.

Introduction

Today entire focus of all treatment modalities has shifted from being corrective to preventive. Case in point is Pit & fissure sealants, and minimally invasive aesthetic dentistry. In this regards it is making immense sense from the parents' and patient's view point to save eciduous teeth. It is generally observed that early loss of deciduous teeth results in lack of space for permanent teeth. Deciduous teeth should be saved so that they naturally maintain space for permanent teeth when they are due to erupt. In the unfortunate event of their loss due to caries or any other reason some treatment should be initiated. If there is time gap of more than six months between fall of milk teeth and eruption of permanent teeth we should consider placing space maintainer[1].

Different Types of Space Maintainers

A. Band & Loop Space Maintainer: Indicated for maintaining space in posterior segment. Most applicable when primary 1st or 2nd molar is lost due to caries. The loop portion should be broad faciolingually so that premolar can erupt within without any obstruction.

B. Partial Denture Space Maintainer: Most useful for bilateral space maintenance, when more than one tooth per quadrant is missing. They have the advantage of restoring occlusal function. Acrylic portion may have to be modified to allow eruption of permanent teeth.

C. Distal Shoe Space Maintainer: This is ideal choice when primary 2nd molar is lost before eruption of 1st permanent molar. It consists of metal or plastic guide along which permanent molar erupts. The guide has to extend into the alveolar process so that it contacts 1st molar.

D. Lingual Arch Space Maintainer: Indicated when multiple posterior teeth are missing bilaterally, and permanent incisors have erupted. Lingual arch is soldered to molar bands. The arch should be kept 1- 1.5 mm away from lingual mucosa. Similarly in upper arch one can prepare space maintainer with palatal button soldered to molar bands.

Fabrication of Fixed Space Maintainer

OPG is taken to ascertain development of permanent teeth: The OPG, Fig. 5 clearly shows the need to maintain the space for premolars bilaterally. It is obvious that in a case like this if space maintainer is not given it will lead to mesial tipping of 1st permanent molars, leading to impaction of first premolars. Normally tooth erupts when ¾ of the root if formed.[2] If we look at the OPG it shows bilaterally both premolars have yet to show root formation.

Intra Oral View

Step 1 Appropriate size of molar bands are selected and they are placed on lower permanent molars **Fig. 7.** It will be advisable if we place molar bands with prewelded tubes. It can help in future if patient requires further Orthodontic treatment. However, this is optional.

Step 2 Alginate impression is taken with bands on molars in the mouth. Once impression is taken respective molar bands are placed in the impression.

When bands are placed in the impression, care should be taken to make sure bands do not get dislodged during pouring the impression. We can use .016" Australian (A.J.Wilcock) wires which are placed across bands inserted in alginate on both sides. Once model is ready bands will get transferred to the model.

Step 3 Poured model with molar bands in place is sent to lab. for fabrication of soldered fixed space maintainer Fixed space maintainer is cemented in place after fluoride treatment of teeth

Discussion

The x-ray post insertion of space maintainer clearly shows usefulness of space maintainer. It has helped in preventing mesialisation of the mandibular first molars. Fig. 14, shows X-ray almost 18 months after space maintainer. We can see emergence of left first premolar in the mouth and advanced root formation of all lower premolars.

Conclusions

This case report clearly will help General Dental surgeons in including this protocol in their treatmant delivery systems for their young patients. This hardly requires any additional investment

References

1. William R Profitt, Henry W. Fields: Contemporary Orthodontics,2nd ed.pg.203
2. Sridhar Premkumar: Orthodontics,2nd ed, pg 519-522.

Legends

Fig. 1- Band & loop space maintainer
Fig. 2- Missing bilateral teeth
Fig. 3- Denture type space maintainer
Fig. 4- Lingual arch space maintainer
Fig. 5- Pretreatment OPG.
Fig. 6- Pretreatment Intra oral view
Fig. 7- Molar bands in place
Fig. 8- Alginate impression
Fig. 9- Molar bands placed in the impression
Fig. 10- Soldered lingual arch on model
Fig. 11- lingual arch intraorally
Fig. 12- Diag. representation
Fig. 13- Pre treatment X-ray.
Fig.14 Post space maintainer x-ray
Fig.15 X- ray after 18 months.


Fig. 1

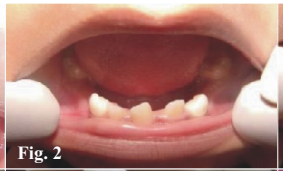
Fig. 2

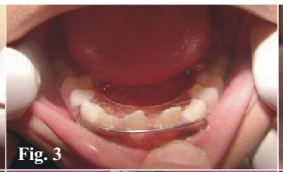
Fig. 3


Fig. 4


Fig. 5


Fig. 6


Fig.7


Fig. 8


Fig. 9


Fig. 10


Fig. 11

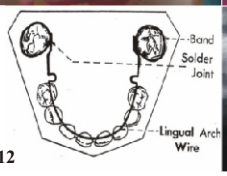

Fig. 12


Fig. 13


Fig. 14


Fig. 15