A novel patented readymade space maintainer – Bibin appliance: A case report

Bibin Jacob Emmanuel¹, Jacob Raja², M. Senthil³, Rakshundha Manzoor¹

¹Department of Pediatric and Preventive Dentistry, Jaipur Dental College, Jaipur, Rajasthan, India, ²Department of Periodontics, Rajas Dental College, Tirunelveli, Tamil Nadu, India, ³Department of Public Health Dentistry, Team Public Health Dentistry, Indira Gandhi Institute of Dental Sciences, Sri Balaji Vidyapeeth, Pillaiyarkuppam, Pondicherry, India

Abstract

Space maintainers are used when there is premature loss of primary tooth to preserve the space. Conventional band and loop is still the preferred space maintainer for a unilateral space loss. The present education is still supporting this space maintainer even though it comes with a lot of disadvantages. In this case report, a 7-year-old child who had a grossly decayed lower right primary second molar was extracted, and the Bibin appliance (B-Appliance) was delivered to maintain the space. The present invention B-appliance is a novel space maintainer and prevents supra-eruption and it also overcomes all the disadvantages of conventional band and loop and along with that provides additional advantages. It can be placed on the same day after extraction.

Keywords: Bibin appliance, Patented space maintainer, Space maintainer

Correspondence:
Dr. Bibin Jacob Emmanuel, Department of Pediatric and Preventive Dentistry, Jaipur Dental College, Jaipur, Rajasthan, India.
E-mail: boscobibin@gmail.com

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Introduction

Space maintainers are used when there is premature loss of primary tooth to preserve the space.[1] Conventional band and loop is still the preferred space maintainer for a unilateral space loss.[2] The present education is still supporting this space maintainer even though it comes with a lot of disadvantages.[3] The present invention Bibin appliance (B-appliance) [Figure 1] is a novel patented space maintainer and prevents supra-eruption and it also overcomes all the disadvantages of conventional band and loop and along with that provides additional advantages. It can be placed on the same day after extraction.

Bibin appliance

Description of the appliance

The present invention discloses a process of fabricating a space maintainer with an adjustable arm capable of fixing it immediately after extraction of deciduous tooth. The device has two parts, active arm and passive arm.

Passive arm

The passive arm is made up of stainless steel or any ridged material like composite or plastic. The passive arm has two components: (1) Base and (2) cylindrical tube. The base of the passive arm is rectangular shape of 5 mm in length and 3 mm in height, the size of the base can be increased or decreased based on the size of the tooth, the base is contoured in such a manner it can be fixed or bonded to the tooth surface using any adhesive material. The cylindrical hollow tube of 3 mm or more is rigidly connected to the base by soldering or welding to facilitate insertion of active arm.

Active arm

The active arm is also made of same materials as of passive arm. The passive arm is fabricated using a 21 gauge wire; the one end of the wire is inserted in the buccal or cylindrical tube of the passive arm and cemented with glass ionomer cement (GIC) for a ridged fixation. From the ridged fixed end in 0.5 mm from the distal tooth, a palatal or lingual bend is given in the insertion arm that is the 1st bend. Buccal to the middle of the socket/missing tooth space the main arm is carried forward and 0.5 mm before mesial tooth a bend is given toward the palatal/lingual side which is the 2nd bend and a free arm is made. Retentive arm has a upper long retentive tag (free arm) which follows back the entire retentive arm and a bend is made at the main arm and soldered with main arm creating a soldered end.

Method

• Immediately after the extraction, we have to etch the buccal surface of the distal tooth and also etch the surface of the bondable buccal tube
After 15 s, we have to thoroughly wash the etchant and dry and isolate the region and have to apply dentin bonding agent over the surface of the tooth and cure it for 20 s. Etchant is washed away from the surface of bondable buccal tube and dried. Place composite over the surface of the buccal tube and the surface of the tooth onto which the buccal tube is placed and cured for 60 s. Retentive arm with the retentive tag is 0.5 mm away from the mesial tooth so can be adjusted according to the desired length and force needed in the patient.

Case Report

A 7-year-old male patient came to the department of pediatric and preventive dentistry with the chief complaint of grossly decayed right lower back teeth. Figure 2 shows radiovisiography and pre-operative photograph of the patient. Hence, it was planned to extract the root stump (tooth number 85) and B appliance was fabricated and delivered on the same day to preserve the space. Figure 3 shows Bibin appliance placed in patients mouth. A regular follow-up of 4 weeks was done for a period of 1 year. Figure 4 showing Radiovisiography of B-appliance placed in patient mouth. It was found that the patient compliance was also good.

Discussion

Space created by the premature loss of primary tooth could lead to the migration of adjacent tooth and also would result in supra-eruption. Timely placement of space maintainer could prevent this problems. Conventional band and loop comes with lot of problems.

The present invention B-appliance discloses a process of fabricating a space maintainer with an adjustable arm capable of fixing it immediately after extraction of deciduous tooth. The appliance is a prefabricated device with adjustable arm which can be placed immediately after extraction and has the duo property of space maintaining and prevents supra-eruption. Highlights of B-appliance are:

- Easy to fabricate
- Less technique sensitive
- It’s up to the practitioner to opt for banding or bonding technique to be followed
- Less costly
- Can be placed immediately after extraction
- Certain times the loop length is increased or decreased in band and loop leading to prefabrication of the band and loop but in B-appliance, we can adjust the adaptive arm thereby helps to adjust the length without going for refabrication
- Prevents supra-eruption
- Oral hygiene can be maintained
- Single appointment procedure
- Fixed space maintainer
- Good patient compliance.
Conclusion

- The present invention B-appliance is ready made space maintainer which will replace the need of custom made space maintainer. The B-appliance has duo property of space maintaining and prevents supra-eruption. The said appliance is capable of fixing immediately after extraction of any deciduous or milk tooth. Hence, it has a better patient compliance.

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