

## Case Report

### VERSTALITY OF RIBBOND IN PEDIATRIC DENTISTRY- A SERIES OF CASE REPORTS

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#### ABSTRACT

Ribbon is a biocompatible, esthetic material made from high strength polyethylene fiber. Lenowoven polyethylene ribbon (Ribbon) has been used successfully for tooth splinting, replacement of missing teeth, reinforcement of provisional acrylic resin fixed partial dentures, and orthodontic retention. This article is an attempt to showcase the versatility and applicability of this wonderful material in day-to-day Pediatric dental practice.

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#### INTRODUCTION

The evolution of adhesive dentistry has remarkably modified the concepts of traditional dentistry toward the minimal intervention approach. In recent years, fiber-reinforced resin composites (FRCs) have gained popularity in dentistry. Polyethylene fiber (Ribbon) is a biocompatible, esthetic and bondable material with various clinical applications in dentistry. It offers different solutions to many complex problems in restorative dentistry because of its two most important mechanical properties; its strength and stiffness. By virtue of such wide spectrum of intended properties, it enjoys varied applications in day to day dentistry like: endodontic posts, periodontal splints, aesthetic space maintainers, bondable bridges and single bridges and orthodontic retainers <sup>[1-4,6]</sup>.

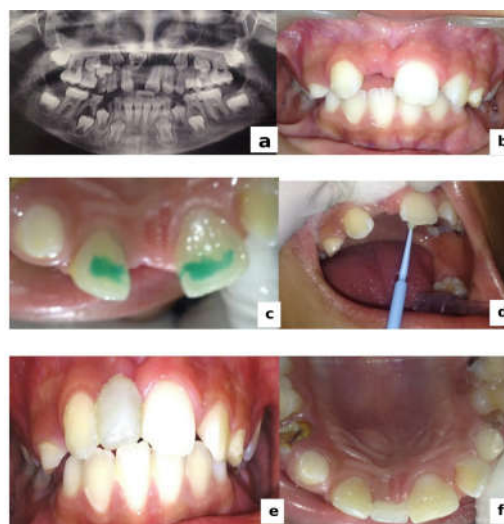
This article is an attempt to showcase the versatility and applicability of this wonderful material in day-to-day Pediatric dental practice.

#### Case Report

##### Case I – Ribbon as Esthetic Functional Space Maintainer

A 9 year old boy reported to the Department of Pedodontics & Preventive Dentistry with impacted maxillary right central incisor. Patient was advised to maintain the space till the beginning of orthodontic treatment. Following clinical and radiographic examination, the treatment was planned to create a functional esthetic space maintainer reinforced with

RIBBOND. Missing tooth was replaced by tooth fabricated using composite extraorally instead of acrylic teeth as it offers better bonding and esthetics.



**Figure 1**

- Orthopantomogram of patient having impacted 11
- Frontal view showing missing 11
- Acid etching on adjacent teeth
- Application of bonding agent on adjacent teeth
- Post operative frontal view, missing teeth replaced using Ribbon strip and composite build up
- Post operative maxillary arch showing ribbon attached on palatal aspect of teeth

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The proximal surfaces of two adjacent teeth were roughened with bur to improve bonding. The etchant & bonding agent was applied on the proximal surfaces. Strip of Ribbond approximately equal to the space between proximal teeth was cut and dipped into the dual cure resin cement. The strip was then placed between prepared proximal surfaces of adjacent teeth and final curing was done. Patient was recalled after every 3 weeks and 6 weeks (Figure 1).

### Case II – Ribbond as Interim Prosthesis

A 14 year old girl reported to the Department of Pedodontics & Preventive Dentistry with missing maxillary right central incisor. Patient wanted her missing teeth to be replaced. Following clinical and radiographic examinations, the decision was made to give interim prosthesis using Ribbond. Following completion of etching and bonding procedures, a thin layer of flowable composite resin was applied (without curing) to the lingual and proximal surfaces of the abutment teeth, Ribbond was placed on the lingual surface of the teeth and cured. After this, missing teeth was fabricated intraorally using composite over the Ribbond fibre. The patient's occlusion was checked for premature contacts, and the resin composite was polished using a polishing disc (Figure 2).



Figure 2

- a) Orthopantomogram of patient showing missing 11
- b) Frontal view
- c) Interim prosthesis fabricated using Ribbond to replace missing teeth
- d) Palatal aspect of interim prosthesis
- e) Final curing

### Case III – Fixed space maintainer

An 8 year old girl reported to the Department of Pedodontics & Preventive Dentistry with missing deciduous second molar in lower right region of mouth. After applying rubber dam, proximal surfaces of two adjacent teeth are roughened with bur to improve bonding. The Strip of Ribbond equal to the space between approximal teeth was cutted after etching and bonding & then placed between two teeth and final curing was done. Patient was recalled after every two months. Results at the end of six months showed it to be still going strong (Figure 3).

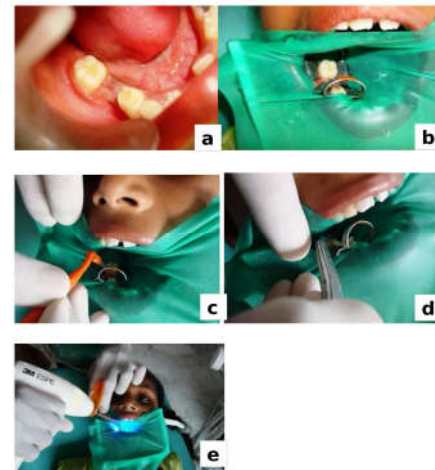


Figure 3

- a) Missing deciduous second molar in lower right region of mouth.
- b) Rubber Dam Application
- c) Etching Bonding
- d) Placement of Ribbond in between adjacent teeth
- e) Final curing

### Case IV – Ribbond as Post

A three and a half year old patient reported to the Department of Pedodontics & Preventive Dentistry with a chief complaint of black discoloration of anterior teeth. Patient was diagnosed with Early Childhood Caries. After history taking, Pulpectomy was performed w.r.t 51, 52, 61, 62. Post and core using Ribbond was planned wrt 52, 62 to restore the tooth. Removal of obturating material was done from two thirds of root canal for post placement using RIBBOND. After carrying out etching and bonding application to root canal, Ribbond measuring twice the depth of the canal prepared was cut. Ribbond was inserted into root canal followed by curing, and final buildup was done. Patient was recalled every month and it showed excellent results even after sixth months (Figure 4).



Figure 4

- a) Frontal view showing early childhood caries
- b) Intraoral view after insertion of ribbond in 62
- c) Frontal view after composite buildup

## DISCUSSION

The use of Ribbond has become a day to day practice in clinical pediatric dentistry which has made life easier for the Pediatric dentist at the same time helping them provide faster quality care to the patients. Ribbond is a biocompatible, esthetic material made from a high-strength polyethylene fiber with ultrahigh molecular weight. The key to Ribbond's success is its patented leno weave designed with a lock-stitch feature

that transfers forces throughout the weave without stress transfer back into the resin [5]. It can adapt easily to the tooth morphology and dental arch contours as it is highly pliable. It is a wonderful esthetic material due to its intrinsic translucent character and can be cured with light-cured composites. The Ribbond's weave also provides excellent manageability characteristics. It is relatively easy to use and technique is fast as no laboratory work is needed. This article presents different applications of the polyethylene fiber Ribbond in pediatric dentistry. The loss of anterior teeth in childhood has always been troublesome, requiring immediate attention to restore both esthetics and function. Polyethylene FRC space maintainer is better than the removable appliance, as it is nonirritating, and hygienic. It can be repaired, modified, or removed from teeth without any iatrogenic problem. It can be considered as a long-lasting provisional treatment if implant therapy is to be used at a later date [8]. In the above case, the noninvasive characteristic of the treatment renders it superior to all other options. For the child patients, this treatment could be considered as an interim treatment that could provide acceptable function and esthetics by replacing missing teeth and tissues until a definitive restoration can be performed. The patient's natural tooth, an acrylic tooth, or composite resin can be used as a pontic. Management of cases with prematurely lost teeth is a clinical challenge for pediatric dentists. The disadvantages with removable space maintainers, such as requiring cooperation by the patient and the possibility of being lost or broken, have led to a preference for fixed space maintainers. Foster reported that a well-designed fixed space maintainer could be more preferable than a removable appliance [7]. Polyethylene fiber-reinforced composite used as a fixed space maintainer offers many advantages. FRC has an esthetic appearance, is easily manipulated, can be quickly inserted in a single-visit procedure that requires no laboratory services, poses no risk of damage to abutment teeth and is easy to clean. It provides immediate esthetic and functional rehabilitation of the decayed tooth when used as a Post. Minimal patient cooperation is required, and the treatment takes less time, therefore readily accepted by the patient.

To conclude we suggest that this combined technique of polyethylene fibers and composite material could be very efficient alternative procedure to conventional techniques in pedodontic practice with excellent esthetics and functional results.

## References

1. Tuloglu N, Bayrak S, Tunc ES. Different clinical applications of bondable reinforcement ribbond in pediatric dentistry. *Eur J Dent*. 2009; 3 (4): 329–34.
2. Versatility of Ribbond in Contemporary Dental Practice, Trends Biomater. Artif. Organs 2006; 20(1): 53–8.
3. Vallittu PK, Sevelius C. Resin-bonded, glass fiber-reinforced composite fixed partial dentures: a clinical study. *J Prosthet Dent* 2000; 84: 413–18.
4. Different Clinical Applications of Bondable Reinforcement Ribbond in Pediatric Dentistry, Nuray Tuloglu, Sule Bayrak, Emine Sen Tunc. *Eur J Dent* 2009; 3: 329–34.
5. Jindal R, Brar GS. Treatment of nursing bottle caries with ribbond. *J Indian Soc Pedod Prev Dent* 2013; 31:48-51.
6. Zuhail Kırzioğlu, M. Semra Ozay Erturk. Success of Reinforced Fiber Material Space Maintainers. *J Dent Child* 2004; 71: 158–162.
7. Subramaniam P, Babu G, Sunny R. Glass fiber-reinforced composite resin as a space maintainer: A clinical study. *J Indian Soc Pedod Prev Dent* 2008; 26: 98-103
8. Chaudhary V, Shrivastava B, Bhatia HP, Aggarwal A, Singh AK, Gupta N. Multifunctional Ribbond – A Versatile Tool. *J Clin Pediatr Dent* 2012; 36(4), 325–328.

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