COMPARISON OF STAIN STEEL AND ZIRCONIA FOR PAEDIATRIC CROWNS : A REVIEW

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Abstract:

Aim:

The aim of this review is to know comparison of pediatric primary crown to enable dentists to make the better based decisions , The ability to understand Advantgesand and Disadvantages and provide primary prefabricated crowns for Patient

Objective :

Understand types of primary crowns and effects in clinic

Keywords: Zirconia , Pediatric, Crown, Esthetic

INTRODUCTION

Oral health is reflection of child's lifestyle. Still remained One of the most widespread, multifactorial diseases is dental caries affecting children. Carious pulverization of tooth structure in a child prompts different abnormalities which affect ,aesthetic self-esteem , mastication , speech, maintenance of arch length and development of oral habits which in general causes of disorientation of overall health. therefore ,hence the mutilated teeth need to be restored to preserve the integrity of dentition till the eruption of permanent teeth .

The approach of pediatric esthetic appearance in dentistry must not be just achieving a aesthetic smile .However, it must be making a healthy aesthetic smile.(1)

Early dental decay is a serious issue influencing 60-90% of school kids in industrialized nations. Early childhood decay mostly affect primary the mandibular cuspids followed by mandibular and maxillary and first molars and maxillary incisors. Early childhood decay

prompt serious tooth destruction which is happened as a result of delayed relationship with carious substances in nursing bottle and absence of upkeep of oral cleanliness .

These careis can lead to overall destruction of crowns.

This type of dental caries destruction can develop the parafunctional propensities like, psychological problems, tongue thrusting, reduced masticatory efficacy, and loss of vertical dimension occlusion (2)

In the earlier, extraction was the primary course of treatment for widely caries primary teeth, nevertheless, with the capability to protect

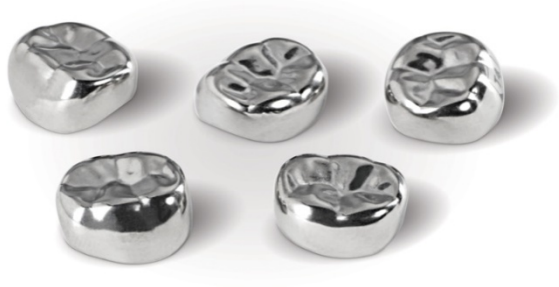
Primary teeth with extensive caries,the pulpotomy, and restoration were methods used . Also , Crowans were considered a applicable alternative to extraction, and very important . they were recognized as the best idler in preventation of restorative fail when compared to direct restoration.

Primary teeth have been effectively treated with crowns for enhancement defects, after pulp therapy for restoring multisurface caries; for fractured teeth, for high caries risk, in the teeth where a direct restoration (i.e. , amalgam , glass ionomar , composite) is possible to fail; for teeth with wide wear ; and as abutments for space maintaineeras between others.(5)

Indications for pediatric crowns include :

multi surface decay
caries extending beyond line angles in Interproximal sarface
Following pulp therapy procedures
Extensive caries of primary teeth
Intermediate restoration of fractured tooth
Patient of severe bruxisim
Developmental anomalies
Developmental defect
Use as an abutment for space maintainer

Numerous alternatives are accessible for giving full coverage restoration for the primary teeth. Dentists now use main kinds of pediatric crowns , with each way of crowns have advantages and disadvantages , normally utilized full coverage include crowns stainless steel crowns and zirconia .



Stainless Steel Crown :

Early childhood caries (ECC) is a protracted multifactorial disorder which continues to be dominant in children, especially in the families with low socioeconomic class .

ECC is construed as "the existence of one or more tooth caries, or restoration tooth surfaces in any primary dentition of childern under the age of 6 years .
Usage of Stainless steel crown should also be the accounted in children with the heightened danger of caries whose participation is distressed by age, medical history or behavior . Most often, getting treatment under general anesthetic or sedative.
Stainless steel crown has in children under the age of 4 years a success rate higher than that of amalgams. along the years , the longitudinal studies in many clinical studies by Levering and Messer , 1988[11]and Einwag and Dünninger 1996[12] have demonstrated the superiority of Stainless steel crown in restoring primary molars with multi-surface involvement (3)
Stainless steel crown are the must durable restoration for first molar with extensive caries and those where pulp Rx has been performed.
Stainless steel crowns do contain small traces of nickel and are therefore not suitable for patients with known nickel allergy.
SSC nearly 50 years. has been applied to restore primary and permanent posterior dentition . They are suitable to individual dentition and cemented with a biocompatible luting agent.(4)(3)
In fact, the stainless steel crowns initial choice for the repair of defects in primary dentition caused by caries(stainless steel crowns and it is actually have been one of the most efficient and effective techniques of dentition restoration in pediatric dentistry since Humphrey first used them in pediatric patients in 1950.
. stainless steel crowns position is economical and easy with a high achievement rate for protecting remaining teeth weakened by extreme preparation.(7)
Stainless steel crowns (SSCs) can restore anterior teeth with widely caries but still provide a stable restoration. This type of crown resistant to fracture as well as crimped on all surfaces and can be simply fitted , even when remaining tooth present is less. the open-face stainless steel crown technique can be enhanced the dissatisfying silver color. the metal on the facial surface of the crown is removed by a330 bur, after the recommended glass ionomer cement is set .tooth –colored resin is placed after etching and bonding . this open-face technique can provide a better esthetic appearance compared to the original silver metal color and inexpensive.
Although, the esthetics are compromised by the metal margin and it is time consuming. Sometime after the SSC tooth preparations difficult to control bleeding and when placing the resin hemorrhage control is very important. SSCs are more used in primary posterior teeth while in primary anterior teeth are less frequently used .but due to the extensive caries or occlusion, they are sometimes used in anterior teeth
Where esthetics is less notable, SSCs are more commonly applied to the mandibular incisors. after 27 months the retention rate of SSCs is reported as 93% and SSCs appear to retained longer than preveneered SSCs(6)

ADVANTAGES :

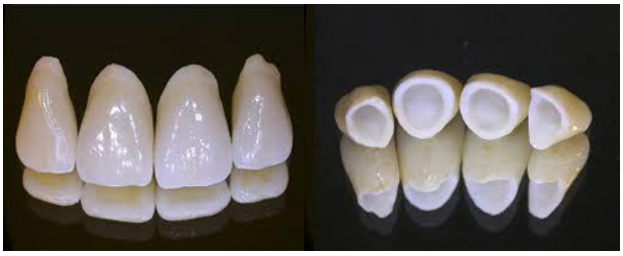
1. Their lifespan is the same as that of an intact primary tooth.
2. They provide protection to the residual tooth structure that may have been weakened after excessive caries removal.
3. They have low risk of making errors during their application and is technigue sensitivity.
4. low cost.
5 low failure rate

DISADVANTAGES:

1. Ugly metallic appearance.
2. potential allergrnicity and other oral / extra oral signs and symptoms
2. when the tooth is only partially erupted Cannot be used

ZIRCONIA PAEPAEDIATRIC CROWN:

Since the late 1960s zirconium oxide has been used. NO metal contain in crowns made of zirconia for the primary teeth. Zirconia restoration are one of the dominant type of ceramics and are not new to the dental. They used for a variety of computer aided manufacturing design/computer restoration, in including frame work/ milled veneer, framework/hand veneer, implant abutment, full-contour fixed prosthodontics, and large substructures. Zirconia is esthetically pleasing and is also currently the strongest dental ceramic available. In primary dentition the zirconia is a relatively new restorative material , but in permanent dentition zirconia is widely accepted as a restorative material. passive fit prefabricated zirconia crowns for primary anterior teeth is limited in current research. After 6 months the retention rate of the zirconia is useful and also very strong because the fracture resistance is greater. One study (Waggoner, W. F. (2002)) recently done stated that the zirconia crowns showed less opposing tooth wear and parents were highly satisfied with colure, shape ,size of crown. they are tooth colored and clinical good restoration, because they improved appearance and oral hygiene of patient. (2)4)



These are available pediatric zirconia crowns are discussed:

Nusmile Zr
Kinder Zr
EZ-Pedo
Cheng Zr

IMPORTANT CONSIDERATIONS FOR PROPER SEATING OF THE CERAMIC CROWN :

(a) Adequate subgingival facial reduction
(b) the cingulum area is Complete removal
(c) Labial and lingual surface should meet at the thin incisal edge corresponding to the planned incisal edge of the final restoration. The thin incisal edge helps to reduce the internal interferences between the tooth and the internal surfaces of the crown

Advantage of zirconia crowns:

1 - High toughness sand strength
2- Can withstand tea and wear
3- Translucent sufficient to be comparable to natural
4- No metal fuse

Disadvantage of zirconia crowns:

1-Hight cost
2- Hemorrge and saliva must be controlled
3- NO crimping-tooth must be prepared to fit crown
4- Learning curve at outset

Conclusion:

Zirconia crowns now more popular over the last years for the Parents and Patient and behavioral , for good reasons . They're offer high-end esthetics, superior durability, and the apprence of natural teeth well. Knowing the stain steel and zircoina crown used for posterior teeth
The stain steel less time and wear on enamel than Zirconia crowns , the zircoina It is expensive at the same time
In the Zirconia need experienced practitioners to hemorrhage control after subgingival preparation , that exposing the zirconia to saliva and blood during the try-in stage can impair the strength of the bond between the crown and the cement.

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