TOOTH COLOURED CROWN FOR KIDS

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ABSTRACT

Oral health is indeed reflection of a wholesome lifestyle. Dental caries affecting mankind still remained one of the most widespread, multifactorial disease. Carious destruction of tooth structure in a child leads to various abnormalities which affects esthetics, self-esteem, mastication, speech, maintenance of arch length and development of oral habits which in general causes disorientation of overall health.Hence the mutilated teeth need to be restored to preserve the integrity of dentition till the eruption of permanent teeth.

INTRODUCTION:

Oral health is indeed reflection of a wholesome lifestyle. Dental caries affecting mankind still remained one of the most widespread, multifactorial disease. Carious destruction of tooth structure in a child leads to various abnormalities which affects esthetics, self-esteem, mastication, speech, maintenance of arch length and development of oral habits which in general causes disorientation of overall health.[1] Hence the mutilated teeth need to be restored to preserve the integrity of dentition till the eruption of permanent teeth.

Although dental caries has been declining globally in general population among older children still, the caries prevelance with younger one has not shown a significant decline.[2] ECC and severe ECC are the most common cause of partial or complete loss of coronal tooth structure in primary dentition. Posterior teeth are always given importance as they are vital particularly in the mastication and development of occlusion.[3]

INDICATIONS FOR PEDIATRIC CROWNS INCLUDES:

1. Large/multi surface caries or lesion.
2. Interproximal caries extending beyond line angles.
3. Following pulpotomy or pulpectomy.
4. High caries risk children.
5. Intermediate restoration of factured tooth.
6. Patient of bruxisim
7. Cervical decalcification
8. Developmental defect.
9. Use as an abutment for space maintainer.

The approach of pediactric esthetic in dentistry must not be just achieving a beautiful smile and rather it must be achieving a healthy beautiful

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smile. This review throws light on various options available in the literature on posterior esthetic crown along with their clinical implications.

Full crown posterior restoration available-

Stainless steel crown

Polycarbonate crowns

Pre veneered stainless steel crown

- Nu smile
- Kinder krowns

Zirconia crowns

- Nu smile Zr
- Kinder krowns Zr
- EZ Pedo

Aluminium veneered with tooth coloured material

- Pedo pearls

STAINLESS STEEL CROWN –

In 1950 SSC were introduced by Dr William Humphrey. These were most reliable restoration in terms of full coverage as they were competent for mastication. Traditionally, in the post treatment pulpectomy or pulpotomy SSC are the treatment of choice as they show less leakage when compared to those restored with amalgam.[4,5] People from today's society are appearance conscious, which makes SSC a failure in the patient of esthetic.

To overcome this disadvantage of SSC attention was shifted to poly veneered stainless steel crowns

POLYCARBONATE CROWNS - It is tooth coloured heat cure acrylic resin . Its advantages include esthetic, can be easily trimmed and adjusted. Failure of polycarbonate crowns lies on the fact that they could not resist high abrasive force therefore, are contraindicated in case of bruxism and deep bite.[6]

Pedo natural crowns-are unique flexible polycarbonate crowns. Isolation is not a issue with pedo natural crowns as all materials are hydrophilic.

POLY VEENERED STAINLESS STEEL CROWN (PVSSC) -All PVSSCs provides strength and durability of conventional SSC with added advantage of conventional of esthetically pleasing appearance. PVSSCs show very high

parental satisfaction in terms of durability, size, shape and colour.[7]

Materials used for veneering are-

- Thermoplastic materials
- Composite and epoxy resins

Pattern of attachment are-

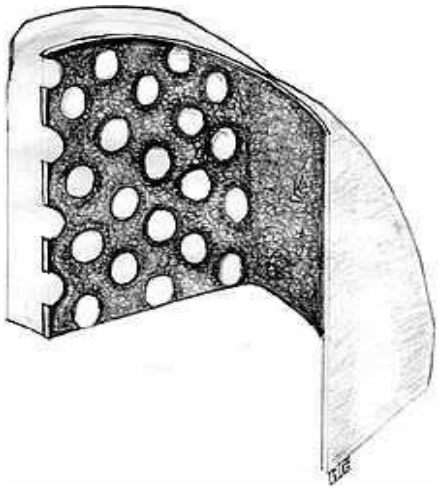
a) Buccal surface only
b) Buccal and occlusal surface

Available PVSSC are-

- **Nusmile crowns**
- **Kinder Krowns**

Nusmile Crown- Are nano composite veneer facing bonded directly to alumina blasted with SSC core. It is available in two shades extra light and light. It can withstand to high load. Are polished instead of glazed to reduce wear on opposite dentition. It is easy to place, fracture resistant, increased colour compatibility and stability and higher retention.[8] They are available as preveenered and precontoured crowns.[9]

Kinder Krowns-These are composite veneer facing bonded to fenestrated SSC base . Available in two shades pedo1 Comparision between nusmile and kinder krown shade offers bleached white shade whereas pedo 2 shade provides with most natural shade. Better mechanical retention is observed with kinder krown because it is designed with incisal lock. This incisal lock also increases surface area which turn increases bonding.[10]



	Nusmile crowns	Kinder Krowns
1.	Veneer have equal thickness.	Veneer have thinner facing occlusopalatally. This area was more prone to fracture. [11]
2.	Buccal cusp is less prominent.	Buccal cusp is more prominent. This area shows a typical pattern of metal exposure.[11]
3.	Proximally, rounder outline seen.	Proximally, sharper angulation is present. [11] Causing sometimes a small metal exposer at mesial contact area.

Advantages of PVSCCs-

- Esthetic
- Single appointment
- Easy placement
- Less technique sensitivity

Disadvantages of PVSCCS-

- Poor gingival health than SSCs.[12]
- Veneer facing fracture leading to reduced esthetics after few years.[13]

ZIRCONIA - This are polycrystalline ceramic without glass component. It is polymorph that occurs in three from-

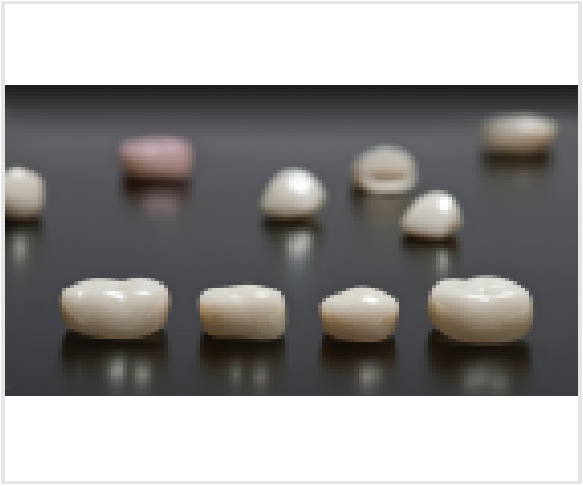
a) Monoclinic - pure zirconia stable at 1107 C
b) Tetraclonic – above 1107 C
c) Cubic face – 2370 C

The volume expansion caused by different forms of zirconia induce large stress which leads Zirconia to crack. By adding small amount of yttria these phase changes are eliminated and the resulting material has high compressive strength, high fracture resistance, corrosion resistance, durability and biocompatibility.[14] These are metal free crowns. The only disadvantage it carries is high cost.

These are available as-

- Nusmile Zr
- Kinder Zr
- EZ-Pedo

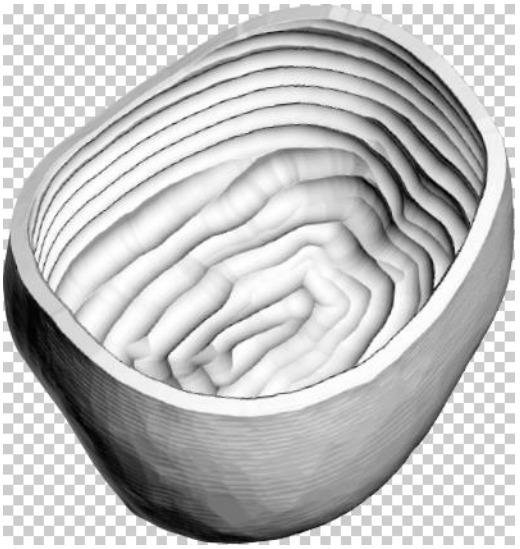
Nusmile Zr- it is made up of high grade monolith Zr ceramic. It has increased durability with strength more than enamel. Translucency of Zr ceramic provides excellent esthetics and prevent the problem of dark tooth show through pulpaly treated teeth.



It is also provided with nusmile try-in crown to check fitting prior to final cementation.this feature not only save clinician's chairside time but also eliminate extra steps.

Zirconia Kinder krowns –Using nano technologies, it produces most consistent, high quality zirconia. It has polished surface to reduce opposite enamel wear. It has internal retention system which locks the restoration after cementation. This retention bands also provide with additional surface are for bonding. Fine fethered margin of zirconia kinder krown makes the emergence profile for the crown as natural as possible. It is available in two sizes mid size and regular size. Mid-sizes are designed for first and second primary molars to alleviate seating issues in situations when you are placing crowns back to back or when your patients have experienced significant space loss. The mid-sized crowns retain their buccal-lingual width, while the mesial-distal has been reduced to allow for easier placement.

EZ pedo Crowns-It comes with the patented retention technology 'zir –lock ultra' retentive grooves which extent all the way to the crown margins, preventing cement washout. It also prevents entry of harmful bacteria from , moreover it provides two times more surface area for bonding. Additional retention is provided through blasting with aluminium oxide.



Adavtages of zirconia crowns:

- High strength and toughnes
- Can withstand wear and tear
- Translucent enough to be similar to natural teeth
- Less tooth removal
- No Metal fuse
- Modifiable size, shape and color
- Biocompatible

Disadvantages of zirconia:

- Abrasive effect on tooth
- High cost

ALUMINUM VEENERED WITH TOOTH COLOURED MATERIAL:

These crowns are thinner and light in weight than stainless steel crowns. Tooth preparation is similar to that of stainless steel. There is ease for trimming and crimping.

DISINFECTION OF CROWNS :

Autoclave sterilization is not recommended for PVSSCs as their lies the risk of discolouration of facing material. Therfore chemical sterilization is recommended for these crowns.[9,10]

Zirconium crowns are autoclavable . Also chemical disinfectant from various brands are available.

CEMENTATIONOF CROWNS :

SSCs, PVSCCs, polycarbonate crown are cemented with normal glass inomer luting cements.s

Zirconium crowns are cemented with resin luting cements.

CONCLUSION:

Esthetics has become a respectable concept in dentistry today.[16] In the past, the importance of esthetics was discounted in favor of concepts such as function, structure and biology. But impact of esthetics should always be considered in treatment plan as it has vital role in child's overall general health and pshycological well being. Current wide range of available esthetic crowsn helps us to meet the parental satisfaction and acceptance in terms of esthetics.

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