Dentin substitute - biocompatible restorative for chamber obturation?

- Pulpally Compatible BioActive Base Materials:
  - IRM
  - ZOE
  - Glass Ionomer
  - Tempit
  - BioDentine
  - Theracal
  - MTA
Bargain Lasers!

Official Retail- 57,900$ !!

• E Bay. Great prices!
Affordable New Diode Lasers

Diodes- silicon chips coated with Gallium/Aluminum/Arsenic Emits at 810 or 980 nanometers
The 980nm wavelength provides the best combination of clean cutting and excellent hemostasis in a wide range of soft tissue indications.
Diode laser Therapy

Tight Upper lip
Diode laser Therapy

Apply for two minutes
Diode laser Therapy

Activated Tip - use AccuFilm
Diode laser Therapy

Release pattern
Diode laser Therapy

Tissue Re-Contouring

Common problem with orthodontic appliances
Diode laser Therapy

Laser Biopsy

Must inform pathologist
Diode laser Therapy

2.0 watts continuous initiated tip
Diode laser Therapy

No Sutures, No Bleeding
Diode laser Therapy

Vitamin E
Diode laser Therapy

Frenectomy Ankyloglossia
Prior to surgery - unable to lift tongue

Post Op
Diode laser Therapy

Gingival Recession

Tight frenum

Muco-gingival defect
Diode laser Therapy

- **Frenotomy**: Incision of frenum, releases tension
- **Frenectomy**: Removal of frenum
- **Frenuloplasty**: Alteration of frenulum

1.0 to 2.0 watts
Diode laser Therapy

No Bleeding
Normal tissue
Diode laser Therapy

Immediate Post Surgery

Vitamin E applied
Diode Laser Therapy

Periodontal treatment of Downs Syndrome
Diode Laser Therapy

Aphthous Ulcers De-Sensitization

- 1.5 watts for 90 seconds
- Start at 5.0 mms away and move closer to 1.0 mms away
- Stop if gets warm
Diode laser Therapy

Post Laser Treatment

No Longer Painful
Short lateral Incisors with obvious vertical discrepancy
Pre-operative prior to Esthetic resin Based Composite
space closure and laser guided tissue re-contouring

Cosmetic Corrections
Diode laser Therapy

Post operative intra-oral photograph – one week later
“As government expands, liberty contracts.”

“Government's view of the economy could be summed up in a few short phrases: If it moves, tax it. If it keeps moving, regulate it. And if it stops moving, subsidize it. “
The state-of-the-art STA System from Milestone Scientific facilitates a wide variety of anesthetic injections, including palatals and the STA-Intraligamentary (PDL) — bypassing more difficult and painful traditional methods.

It will accommodate all standard 1.8 ml local anesthetic cartridges and a variety of luer lock needle sizes. The onboard computer can automatically purge air from the system as well as automatically aspirate. Coupled with the lightweight, ergonomically-designed convenience of the system handpiece, improved visibility and fingertip accuracy take hold.
STA- “Single Tooth Anesthesia”


significantly reduced disruptive behaviors
STA- “Single Tooth Anesthesia”


- The effectiveness of CDS-IS anesthesia is equivalent, and even superior, to that of the mandibular block or mandibular buccal infiltration.
STA- “Single Tooth Anesthesia”

- The “clutter” effect of technology
- Hard to hide all the gadgets
STA- “Single Tooth Anesthesia”

- Small size
- Auditory signals
- Visual signals
- Easy to load
- Does both modes- STA and infiltration
STA- “Single Tooth Anesthesia”

- Watch for proper pressure and position
- “PDL” and you are in the right spot
STA- “Single Tooth Anesthesia”

- Buccal line angles for Maxillary
- Lingual line angles for Mandible
- Premolars and Incisors distal line angle
- Primary molars - furcation

Then tried it – and it works for permanent teeth also!
STA- “Single Tooth Anesthesia”

Office Based Anesthesia

Why OBA?
- economical
- procedural convenient for surgeon
- control of scheduling
- less threatening environment
Outpatient surgery in pediatric dentistry

• Mobile Anesthesia
  – Anesthesia for the dental office
Outpatient surgery in pediatric dentistry

- Mobile Anesthesia
- BIS monitoring
- Provides objective evaluation of brain activity level

Bower et al, Gastrointestinal Endoscopy, Vol 52, No 2, 2000
Thank You!
Esthetic Pediatric Crowns

- Zirconium
- eMax
  - Durable
  - Learning curve
  - Bonding
  - Expense
  - Long term results?
“e.max LITHIUM DISILICATE is the most ROBUST CERAMIC SYSTEM TESTED TO DATE.”

Poor Design Example (unsupported porcelain)

Better Design (Lava system technique)
Bonding Indirect Esthetic Restorations

- Adhesives: TE or SE
- Luting Cements: L/C, S/C, D/C
- Materials: Porcelain, Al, Li2Si, Zr,
- Primers: Ceramic Primers
Esthetic Pediatric Crowns

Bonding to Zirconia

Porcelain

Zr

Luting Cement

Sandblast?
Primer?
Luting Cement?
Esthetic Pediatric Crowns

The Zirconia “Shift”

- Cad/Cam Technology
- Practice/Laboratory Economics
- High Clinical Strength
- Versatility in its Dental Application
Clinical Reliability of Zirconia
“High Strength”

- Flexural Strength 900-1100 mpa (5x > than current ceramics; 2x as strong as Alumina; 3x as Emax Lithium Disilicate
- Fracture Toughness 8-10 mpa; 2x > Alumina
  …Transformational Toughening

Esthetic Pediatric Crowns
Esthetic Pediatric Crowns

- Advantages
- Strength
- Esthetics compared to SSC
What are lithium disilicate restorations?

- Lithium disilicate is a strong, all-ceramic material available in ingots for pressing (e.g. **IPS e.max®** Press) and in blocks that can be milled with several different CAD/CAM milling machines (e.g. **IPS e.max® CAD**).
- Available in many shades, both chromatic (dentin) and bleach
- Wide variety of uses including limited-size bridges, anterior and posterior full contour crowns, inlays and onlays, and veneers.
- Ivoclar Vivadent’s patented lithium disilicate material is unique, combining high strength, high esthetics and ease of use into one product.
- **IPS e.max** is a lithium disilicate glass ceramic that has optimized translucency, durability and strength for full anatomical restorations.
- The opalescence, translucency and light diffusion properties of IPS e.max lithium disilicate were all designed to replicate natural tooth structure for beauty and undetectable restorations.
eCEMENT™ is an adhesive cementation system that is easy-to-use, efficient and highly effective for ALL lithium disilicate (e.g. IPS e.max®) restorations.

*eCEMENT™ is a trademark of BISCO, Inc. IPS e.max® is a registered trademark of Ivoclar Vivadent, Inc. There is no sponsorship, affiliation or connection between BISCO, Inc. and Ivoclar Vivadent, Inc.*
Lithium Disilicate Kids Crown
About Lithium Disilicate

Lithium Disilicate glass-ceramic offers accuracy of fit, shape and function as you expect from your E-max ceramic, as well as **outstandingly high strength of 400Mpa.**
Which one do you prefer, Metal or Ceramic?

Prism’s features:

- Excellent Light Transmittance
- Excellent Strength (1,200 MPa)
- Excellent Color Reproducibility
- Excellent fitness
- Exhaustive Quality Control
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No Size A < B < C < D < E < F
Esthetic Pediatric Crowns

- Great esthetics
- Bondable
- Durable

IPS e.max
all ceramic
all you need
Esthetic Pediatric Crowns

- Temporary crown in place
- Made with Super T
- Highly polished and great tissue response

Just ate Cheetos!
Esthetic Pediatric Crowns

- Post endodontics
- Alternative to SSC – in teens
- Should have bondable margins
- Accurate preparation and impressions
Esthetic Pediatric Crowns

- Apply ZPRIME plus for zirconium, PMMA crowns, metal, and a lot more
- Porcelain primer, hydrolyzed silane for eMax
- Before try-in
Esthetic Pediatric Crowns

- Clean tried in crown with phosphoric acid semi-gel and rinse extremely well
- Re-apply primer
Esthetic Pediatric Crowns

- Exposed margins and no bleeding
- Apply ALLBOND Universal and dry, light cure
- Cement crown with Duo Link Universal or use eCEMENT kit
Esthetic Pediatric Crowns

- Cemented restoration with complete marginal integrity
Esthetic Pediatric Crowns

- Premolar eMax crown
Esthetic Pediatric Crowns

- Deep margins
- Failed amalgam restoration with crown fracture
- First molar has SSC and opposing arch has super erupted
Porcelain primer premolar crown before try-in.
Esthetic Pediatric Crowns

- Temporary crown with Super T
- Food present in distal embrasure - oral hygiene issues
Esthetic Pediatric Crowns

- After achieving hemostasis the eMax crown is tried-in
Esthetic Pediatric Crowns

- Tried-in crown cleansed with etchant and re-primed
Esthetic Pediatric Crowns

• ALLBOND Universal applied in two coats, scrubbed for 10-15 seconds and after drying, light cured for 10 seconds.
Esthetic Pediatric Crowns

- DuoLink Universal or eCEMENT injected into crown
Esthetic Pediatric Crowns

- Crown cemented
- Held in place and excess removed with micro-brush
Esthetic Pediatric Crowns

- Micro brush removes gross excess and crown tacked cured with LED light
Esthetic Pediatric Crowns

- Crown held with instrument and crown cement tack cured with LED light for 3-5 seconds
Esthetic Pediatric Crowns

• Floss removes interproximal flash along with hand instruments before polymerization in completed
Esthetic Pediatric Crowns

- Endodontically treated molar
- Core build up
Esthetic Pediatric Crowns

- Crown preparation with distinct margins
Esthetic Pediatric Crowns

- Porcelain primer (Bisco) pre-hydrolyzed
Esthetic Pediatric Crowns

* Crown being tried in - after priming!
Esthetic Pediatric Crowns

- Crown cleansed with semi-gel etchant
- Re-primed (not necessary) and ALLBOND Universal
Esthetic Pediatric Crowns

- ALLBOND Universal applied to molar, two coats, scrubbed for 10-15 seconds, dried and light cured
Esthetic Pediatric Crowns

- Duo Link Universal injected into crown
- Excess removed and smoothed into a complete void-less layer
Esthetic Pediatric Crowns

• Crown cemented and excess removed while maintaining crown stable and motion less
Esthetic Pediatric Crowns

- Cemented crown
Zirconium Crowns for Pediatric Dentistry

Z Prime DouLink (Bisco) sample for micro-tensile testing
Zirconium Crowns for Pediatric Dentistry

Section of Z Prime, Dou Link, AllBOND SE sample
Section is further cut with Buehler Diamond saw into beams for micro-tensile testing
Wafer of sample consisting of zirconium crown and self adhesive cement but without Z Prime.
De-bonded before sectioning into beams for micro-tensile testing.
Would not be acceptable for long term restoration.
Rinse all debris and dried blood from the internal surface of the Crown. Air dry the internal surface of the crown prior to cementation. Also rinse and dry the prepared tooth surface for increased bond strength of the cement. Fill the Crown with either Fuji Cem (yellow) glass ionomer cement (by GC America) or Rely-X unicem cement (by 3M). Seat the crown with firm finger pressure and hold it still for 1 minute until the cement has set. Then and only then should you remove the excess cement from the crown margins.
Zirconium Crowns for Pediatric Dentistry

ALLBOND SE, Z Prime, Duo Link
AVE 31.9 MPa
SD 2.1 MPa
Zirconium Crowns for Pediatric Dentistry

Zirconium Crowned Primary Molars
Zirconium Crowns for Pediatric Dentistry

Buildup on pulpally treated first primary molar

Fuji II LC (GC) in chamber with Forendo (Pulpdent) and Tempit (Centrix) on radicular pulp.
Zirconium Crowns for Pediatric Dentistry

Zprime (Bisco) of crown before preparation
Needs to fully dry
Zirconium Crowns for Pediatric Dentistry

Significant preparation to allow for zirconium clearance
Try not to cause "hemorrhage"
May be difficult in tissue management
Second primary molar restored
ALLBOND SE, ALLBOND DC or ALLBOND Universal obtains hemostasis. Cured for 10 seconds after applying for 20 seconds with light scrubbing motion.
Zirconium Crowns for Pediatric Dentistry

Load crown with DUOLINK Universal and cement
Maintain position for curing with light (tack cure) initial cleanup and then power cure. Self cure component will complete set.
Zirconium Crowns for Pediatric Dentistry

Remove rubber dam and clean up flash.
Old zirconium crowns usually appeared bulbous.
Lithium Disilicate Kids Crown
About Lithium Disilicate

Lithium Disilicate glass-ceramic offers accuracy of fit, shape and function as you expect from your E-max ceramic, as well as **outstandingly high strength of 400Mpa.**

**Advantage**

- Using the best material
- Esthetic & translucent
- Over 400MPa Strength & durability
- East & Speedy setting
- Trouble shooting Chipping
Which one do you prefer, Metal or Ceramic?

Apple Kids features:
- Excellent Light Transmittance
- Excellent Strength (1,200 MPa)
- Excellent Color Reproducibility
- Excellent fitness
- Exhaustive Quality Control
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Esthetic Pediatric Crowns

• THANKS!!!
• Fixing the teeth doesn’t always change the behavior…
Thank You!