TIPS FOR ADHESIVE CEMENTATION OF ALL CERAMIC RESTORATIONS

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ВТОР СТУДЕНТСКИ

DENTAL SUMMER SCHOOL UGD 2019

НАСОКИ ЗА АДХЕЗИВНО ЦЕМЕНТИРАЊЕ НА ЦЕЛОСНО-КЕРАМИЧКИ РЕСТАВРАЦИИ

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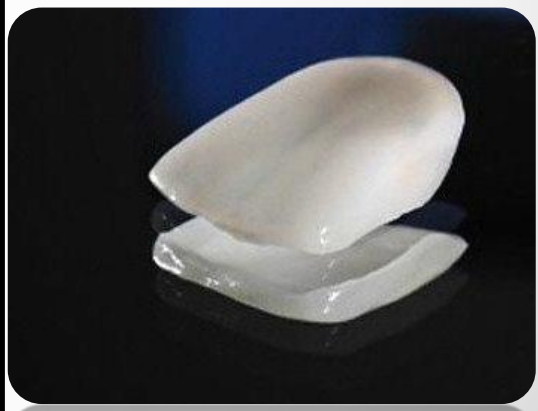
All ceramic restorations

- Esthetics
- Biocompatibility
- **Perfect optical characteristic**



THE MOST CONFUSING DECISION FOR CLINICIANS

CONVENTIONAL CEMENTATION (luting)

Zr restorations- good retention
- **traditionally glass ionomer**
- **resin-modified glass ionomer**
- **carboxylate cements,**

Lithium-disilicate ceramics
Opaque, thick, posterior

OR

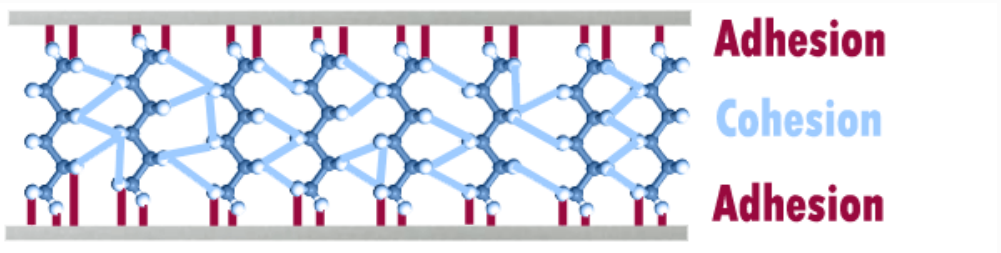
ADHESIVE BONDING

Low-strength silica-based ceramics (feldspathic porcelain and leucite-reinforced ceramic (flexural strength less than 140 MPa) and Lithium-disilicate ceramics (flexural strength, 375 MPa)
Zr restorations less than ideal retention-

Depends of the ceramic material and preparation design

What is adhesive bonding???

Bonding represents a special adhesive connection between the dental and ceramic pre-conditioned surfaces through the physical and chemical properties of the interposed resin.



Clinical studies show that adhesive cementation (eg, resin cements) yields better results than other types of cementation (eg, zinc phosphate cements, glass ionomer cements).

Resin cement classifications

ACCORDING ADHESION

- Total etch Rely X ARC , Variolink II ,Calibra ,C&B
- Self-etch Panavia F
- Self adhesive (Rely X Unicem)

ACCORDING POLYMERIZATION

- Light-cured
- Dual- cure
- Self -sure

Steps of adhesive cementation total etch

1. Preparation for cementation, removing of temporaries, try-In with paste, cement selection, conditioning of the dental and ceramic surfaces

2. Isolation and moisture control, seating, adaptation and polymerization

2. Clean up

1.Preparation for cementation

Removing the provisional

Removing the residual temporary cement and cleaning the abutment

When trying-in, a try-in paste should be used to verify the shade of cement

Start with a **CLEAR/NEUTRAL** try-in paste to see if the bonded restoration will have the desired value.

More than about 25% opaque white will tend to make the restoration look artificial.

TIPS FOR FITTING OF THE RESTORATION
(especially veneers, inlays and onlays)

- Don’t use too much pressure when fitting and occlusal force (small and fragile nature)
- Interproximal contact should be adjusted and marginal fit checked
- Some sort of special carrying device should be used for better handling.

  - A nylon primer adhesive brush can used as the handle with viscous unfilled resin which is polymerized.
  - Plastic handle with sticky wax on the end
  - Special professional sticks







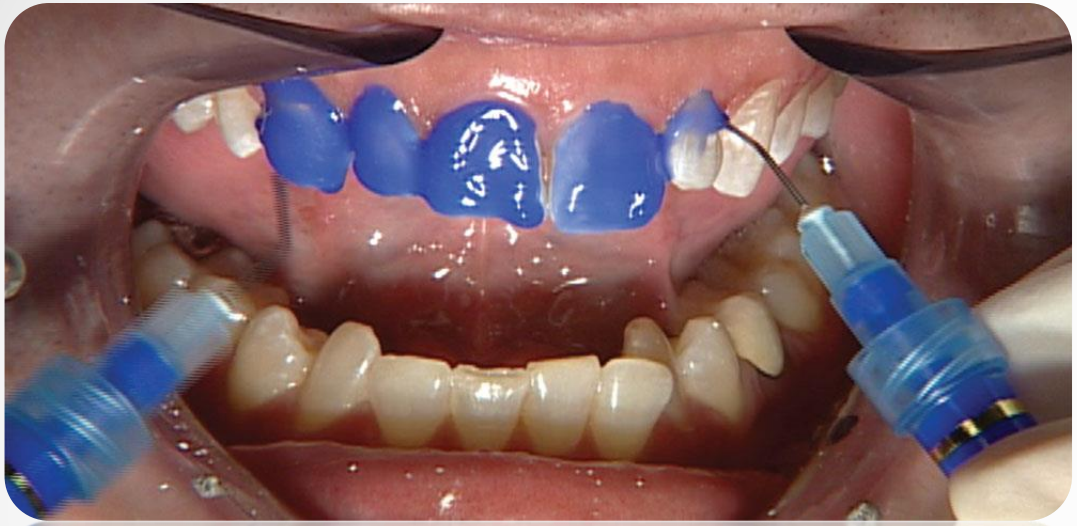
Conditioning of the ceramic

- The restoration should be totally cleaned in ultrasound bath with distillated water

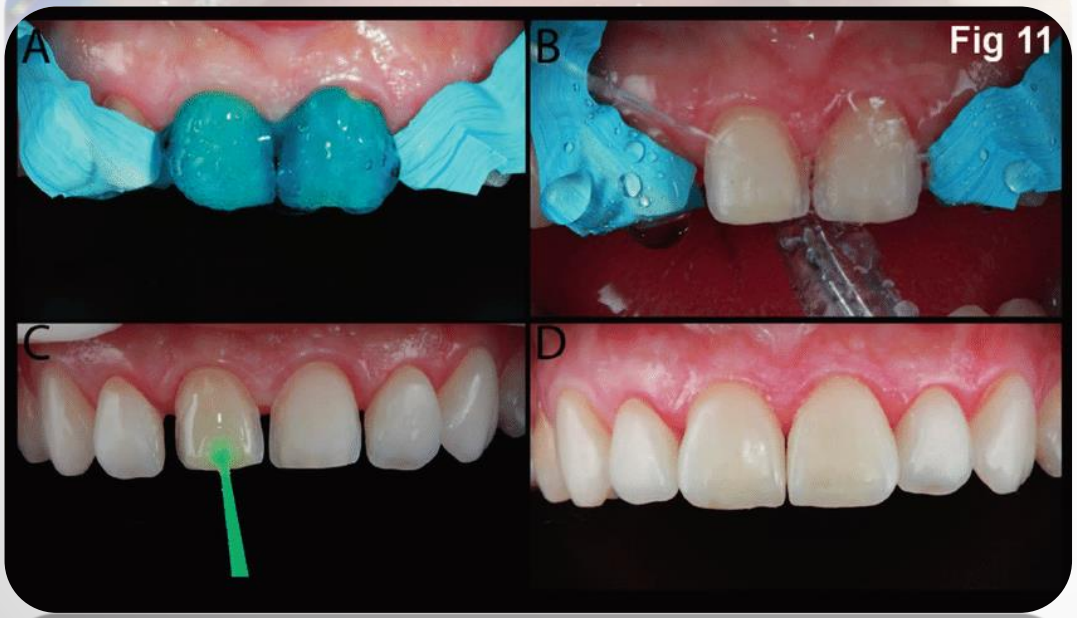
The bonding surface is etch wit h5% Hydrofluoric acid for 20 seconds for silica based ceramic) and than salinized with pre-hydrolyzed silane to ensure chemical bond

Zirconia based restorations are sandblasted, ie, air abraided, with 30-µm to 50-µm alumina for 10 seconds at 30 psi (2 bar)

Conditioning the dental surface (total-etch or etch and rinse technique)



a) 37% phosphoric acid for 20 s should be applied, followed by washing 10 s and drying (enamel preparation)



b) Adhesive application with brush

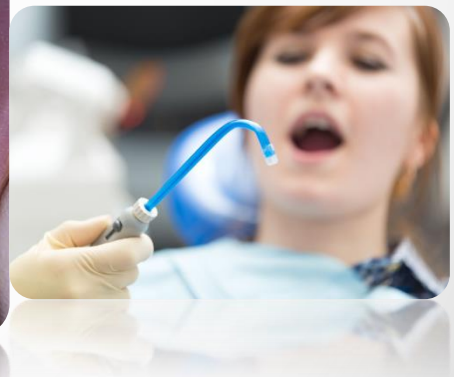
-two bottle system separate primer and bond

-one bottle systems together in one

2. Isolation and moisture control

- Modified rubber dam placement

- Cotton rolls and suction



THIN TEFLON® PLUMBERS TAPE

- tape is left in for the etching, priming, adhesive, and restoration placement steps
- The tape can be pulled so thin that it can be seen through.

Gingival retraction cored should be placed

Prevents cement stacking into gingival sulcus

Exposure of preparation border and controlling the marginal fit during cementation

If only minor retraction is necessary, an injectable retraction material called Expasyl™ 15 s before cementation

SEATING, ADAPTATION AND LIGHT CURING

Putting the cement into veneers

Removing of retraction cored

Light curing 40-60 s on each side

Gentle tacking 3-4 time for excess cement to get out

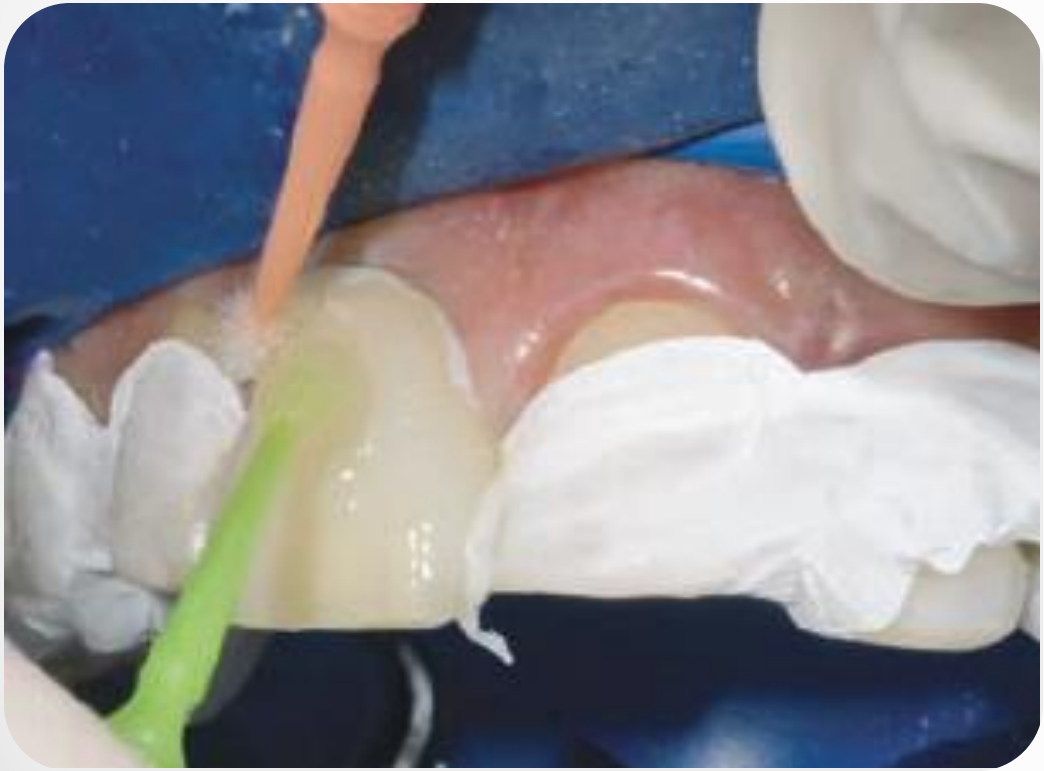
DON'T TOUCH EXCESS CEMENT WITH HANDS !!!

Cleaning-before polymerization

Tack and wave technique-for light cure cement

- **enables restorations to be spot-tacked into place for 1s second, followed by exposure from a larger light guide that is waved about one inch above the restorations for an additional 3 seconds**
- **Excess cement is removed with blade or curette**
- **Interproximal cement is removed with dental floss before curing**

Cleaning-after curing (dual cure and self cure)

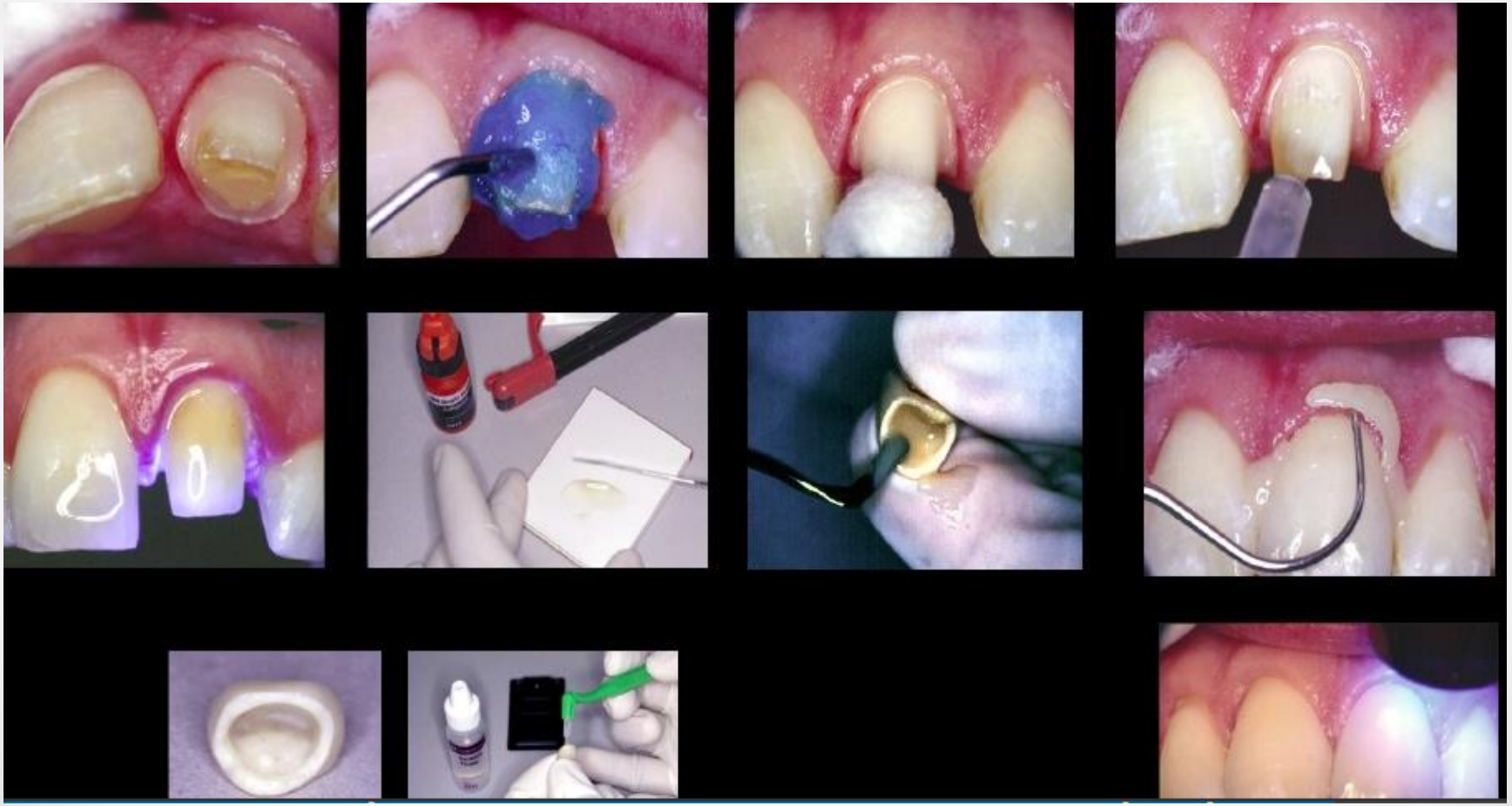


Before curing remove all excess un-polymerized cement with brushes for minimal clean up

Do not use finishing burs for removal of cement

Polishing with silicone rubbers

Summarized protocol for cementation



ADHESIVE CEMENTATION WITH SELF -ETCH CEMENT

After preparing the abutments
An anterior bridge made of crown and bridge resin has become dislodged. The abutments are vital teeth.

Prosthesis
A PFZ bridge with a frame fabricated using KATANA™ Zirconia HT12.

Application of Try-in Paste
Evaluate the shade of the cement before cementation.

Try-in
After checking the cement's shade, rinse the prosthesis and tooth surface with water to remove Try-in Paste.

Pretreatment of the prosthesis (A)
Sandblast the prosthesis (at 0.3 to 0.4 MPa), clean with an ultrasonic cleaner for 2 minutes, then dry.

Pretreatment of the prosthesis (B)
Apply CLEARFIL™ CERAMIC PRIMER PLUS and blow dry with air.

Pretreatment of the abutments (C)
Apply Tooth Primer, allow it to react for 20 seconds, then blow dry with air.

Application of Paste
Use Universal.

Placement of the prosthesis
After placement, remove excess cement using a piece of gauze, a small brush, etc.

Light-curing
Light-cure the entire surface of the prosthesis, including the margins.

Final polymerization
Make sure the prosthesis is left in place, unmoved, for 3 minutes.

Many factors are influencing cementation but careful monitoring of each individually can guarantee success of the therapy.

Thank you for your attention

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