Welcome
Welcome

Robert Marcus D.M.D.

• UConn Dental 1993
• Poway (SD) office since 1997
• CEREC user since 2004
• CEREC Mentor and Trainer
• Founder of Kick Your Apps, Inc.
• Control Freak
Implant Abutments and Crowns on your CEREC

Welcome
Many thanks to our sponsor!
Welcome

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Cara Falco  Katie Kriste
Implant Abutments and Crowns on your CEREC

OmniCam or BlueCam? Yes.
Before We Start

Terminology:
Abutment (split)
~versus~
Hybrid (Big Mama)
Implant Abutments and Crowns on your CEREC

Before We Start

• Why Make Abutments In-House?
  • You already own a CEREC: strive to be ALL digital
  • Control - you’re the doctor
  • FUN!!
  • Great marketing tool - every CEREC design is a chance to increase your patient pool
• Cost Effective
• CAD/CAM margins
• Esthetics: no more ugly metal
Before We Start

Are e.max blocks strong enough?
Before We Start

Is subgingival e.max biocompatible?

glazed $\rightarrow$ preventing biofilm formation

polished $\rightarrow$ optimal for the gingival adhesion
Implant Abutments and Crowns on your CEREC

Before We Start

Is subgingival e.max biocompatible?

- glazed e.max favored cell migration
- polished and untreated e.max showed considerable cell density and higher cell adhesion
- no cytotoxicity


Contraindications to e.max abutments (per Ivoclar)

- Failure to observe the requirements stipulated by the implant manufacturer for using the selected implant type (diameter, length, position)
- Failure to observe the permissible maximum and minimum ceramic wall thicknesses
- Parafunctions (e.g. bruxism)
- Use of a luting composite other than Multilink® Hybrid Abutment to lute IPS e.max CAD to the Ti base
- Intraoral adhesion of the ceramic structures to the Ti base
- Temporary cementation of the crown on the hybrid abutment
- Non-stated uses: doorstop, dog leash, sex toy, etc.
Before We Start
Before We Start

OK! Here we go!
Implant Abutments and Crowns on your CEREC

Case Timing

The Plan:

- Part I: Consult appointment
- Part II: Parts in stock
- Part III: Imaging
- Part IV: Design and Mill
- Part V: Try in, Crystallize, Finishing & Delivery
Implant Abutments and Crowns on your CEREC

Case Timing

Can this be done in one appointment?

• Part I: Consult appointment- 15 minutes (?)
• Part II: Parts in stock
• Part III: Imaging- 15 minutes
• Part IV: Design and Mill- 30-45 minutes
• Part V: Try in, Crystallize, Finishing & Delivery - 60 minutes
Part I
Consult Appointment
Part I: Consult Appointment

Present the Case

- clear expectations about healing times, post-op pain, food entrapment, hygiene, options
Part I: Consult Appointment

Discuss Fees

• it’s not just an abutment and crown!
• possible additional fees:
  • OS/perio
  • bone graft
  • surgical guide
  • temporary
  • tissue adjustments
Part I: Consult Appointment

Make the Referral (if needed)

• **YOU CONTROL THIS!**
• convey to the surgeon:
  • implant brand desired
  • implant size desired
  • depth requested
  • angulation requested
  • guide if needed
• Meet with your surgeon and set general preferences for all cases.
Part I: Consult Appointment

Decide Temporary Style

- none
- flipper
- Essex
- One-Wing Maryland Bridge
- Immediate load (careful!)
Implant Abutments and Crowns on your CEREC

Part I: Consult Appointment

Select Shade
  • photos if needed
Part I: Consult Appointment

Schedule Patient for Imaging Appointment
• leave enough lead time to order/receive parts.
Implant Abutments and Crowns on your CEREC

Part I: Consult Appointment
Implant is placed and healed.
Now it’s ready to restore.
Part II: Parts
Part II: Parts

Parts to order/stock

• Scan Post (used many times)
• TiBase Kit (one per restoration)
• Screwdriver/Torque Wrench
• Scanbody
• Blocks
• Crystallization Pins
• Monobond Plus
• Monobond Etch and Prime (this is new!)
• Ivoclar Multilink Hybrid Abutment Cement.
Implant Abutments and Crowns on your CEREC

Part II: Parts
Part II: Parts

Scan Post
Part II: Parts

TiBase Kit:
Part II: Parts

Scanbody
## Ordering

TiBase, Abutment Screw AND ScanPost

### ORDER FORM

<table>
<thead>
<tr>
<th>IMPLANT MANUFACTURER/SYSTEM</th>
<th>Implant Diameter</th>
<th>TiBase</th>
<th>Abutment Screw</th>
<th>ScanPost</th>
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### Acknowledging

**Laboratory Customer ID**

- **Name First Name**
- **Street, number**
- **City, postal code**
- **Phone, Fax**
- **E-mail**

**AFTER COMPLETION JUST SEND IT TO YOUR DEALER.**
# Part II: Parts

## Ordering

### TiBase, Abutment Screw AND ScanPost

<table>
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<th>Implant Diameter</th>
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AFTER COMPLETION

JUST SEND IT TO YOUR DEALER.
Part II: Parts

Blocks

• 14 versus 16
• LT versus MO
• L versus S (important!)
Which e.max block should we choose?
(i.e. should we split?)

Your choice will mostly depend on these factors:
• Need to place a temporary crown over abutment?
• Screw access position
• Path of draw
• Esthetics
• Personal preference
Implant Abutments and Crowns on your CEREC

Part II: Parts

Hybrid Abutment Crown Blocks

- All are LT
- BL2, A1, A2, A3, A3.5
- B1, B2
- C1, C2
- D2
- 14 or 16 mm

- These can be custom stained in addition.
Implant Abutments and Crowns on your CEREC

Part II: Parts

Hybrid Abutment Crown Blocks
Abutment Blocks

- MO 0 – for shades BL1-4
- MO 1 – for shades A1, A2, B1, B2, C1, C2
- MO 2 – for shades A3, A3.5,
- MO 3 – for shades A4, D3, D4
- MO 4 – for shades C3, C4, D2

- These can be custom stained in addition.
Part II: Parts

Crystallization Pins
Part II: Parts

Costs

• Scan Post ($98.50, used up to 100 times)
• TiBase Kit ($87.50, one kit per restoration)
• Screwdriver Kit (you have this already)
• Scanbody ($35.50 for a box of 36 - Omnicam only)
• e.max Blocks (Abutment: $58.40; Hybrid $68.20)
• Crystallization Pins ($39.95 for 3, used many times)
• Ivoclar Monobond Plus (you have this already)
• Ivoclar Monobond Etch and Prime (you have this already)
• Ivoclar Multilink Hybrid Abutment Cement ($180; many uses per tube; comes with Monobond Plus)
• FINAL COST PER TOOTH: $160-220.
Implant Abutments and Crowns on your CEREC

Part II: Parts
Part III:
Imaging Appointment
Part III: Imaging Appointment

But First…..
A Quick Parameters Review

Best practice is to set the defaults (in Configuration) versus each case separately.
Part III: Imaging Appointment

Parameters: Hybrid Abutment Crown
Part III: Imaging Appointment

Parameters: Abutment

- Gingival Depth
  -2000 µm - 0 µm
- Gingival Placement Pressure
  -1000 µm - 1000 µm
- Shoulder Width
  0 µm - 2000 µm
- Telescope Angle
  0° - 15°
- Minimal Thickness (Radial)
  0 µm - 2000 µm
- Minimal Thickness (Occlusal)
  0 µm - 5000 µm
Part III: Imaging Appointment

Parameters: Abutment Crown (Veneering)
Part III: Imaging Appointment

Administration: choose teeth (older software)

Work right to left

“Abutment” really means abutment and crown
Part III: Imaging Appointment

Administration: choose teeth (older software)

Select multilayer as needed before selecting the tooth.

-or-

Multilayer Abutment and Crown

Hybrid Abutment Crown
Implant Abutments and Crowns on your CEREC

Part III: Imaging Appointment

Administration: choose teeth (older software)

Choose which you will be scanning.

When/why is a TiBase used instead of a ScanPost?

Be careful here!!
Part III: Imaging Appointment

Administration: choose teeth (older software)

Choose which you will be scanning.

When/why is a TiBase used instead of a ScanPost?

Be careful here!!
Gingival Mask

- What is it?
- Why do we need it?
- Managing the tissue as part of a CEREC restoration is new to us. More on this later.
Part III: Imaging Appointment

Gingival Mask

Remember…. You **MUST** add this catalog manually.

Click “Add Catalog” and choose the correct gingival mask catalog.
Part III: Imaging Appointment

Administration: choose teeth (newest software)

demo on CEREC
Part III: Imaging Appointment

Scanning: always follow a set sequence so you don’t forget anything… remember: the patient is going to leave!

1. Buccal Bite
2. Opposing Arch
   - Remove the Cover Screw -
3. Gingival Mask
   - Place the ScanPost -
4. Treatment Arch
Part III: Imaging Appointment

Scanning Notes

• Omnicam users may copy the gingival mask catalog over to the treatment arch catalog. Use caution. If your Scanbody “floats” over the model the machine will consider it an artifact! Using the cut tool is **highly** recommended prior to scan. “Slice of bread”.
  • “Understand” the tissue architecture and quality and your plan for it (i.e. blanch, laser, cut, etc.)
  • Move forward to process the models until the design phase **while the patient is still there**!
Scanpost notch will affect sprue position.

- Sprue position cannot be adjusted in the mill preview. This is because the notch is already built into the block and that will determine orientation.
Part III: Imaging Appointment

Scanpost notch will affect sprue position.

- Hybrid abutment/crown: place the notch away from the direct buccal or lingual to keep the sprue off the contact!
Part III: Imaging Appointment

Scanpost notch will affect sprue position.

- **Abutment**: place the notch at the direct buccal or lingual to force the sprue to the mesial or distal where there’s more room and it won’t be on you margin. (By the way this doesn’t always work.)
Part III: Imaging Appointment

Schedule Patient for Delivery Appointment

• 1-3 days MAX! Show off the technology!
Implant Abutments and Crowns on your CEREC

Part III: Imaging Appointment
Part III: Imaging Appointment

demo

and

hands-on
break
Part IV:
Design and Mill
Part IV: Design and Mill

But first: a quick review of “prep” guidelines, which we will need to remember later for abutment design.
Implant Abutments and Crowns on your CEREC

Part IV: Design and Mill

Layer thicknesses: abutment with crown

- The wall thickness of the crown must be at least 0.5 mm.
- The hybrid abutment should be designed in a similar way as a prepared natural tooth, i.e. shoulder with rounded inner edges or a chamfer.
- In order for the crown to be cemented to the hybrid abutment using a conventional/self-adhesive cementation protocol, retentive surfaces and a sufficient "preparation height" must be observed.
- Create an emergence profile with a right angle at the transition to the crown (see picture… green checkmark).
- The crown width is limited to 6.0 mm from the axial height of contour to the screw channel of the hybrid abutment (which mean can use entire block).
- The notes of the implant manufacturer must be observed regarding the maximum height of the hybrid abutment and separate crown (i.e. crown to "root" ratio).
- The preparation guidelines for the implant crown being seated on top of the abutment should be observed (i.e. e.max CAD 1.5mm thickness on functioning cusp, etc.)
Layer thicknesses: hybrid abutment/crown

- The wall thickness of hybrid abutment crown must be larger than 1.5 mm for the entire circumference.
- The opening of the screw channel must not be located in the area of contact points. If this is not possible, a hybrid abutment with a separate crown would be preferred.
- The width of the hybrid abutment crown is limited to 6.0 mm from the axial height of contour to the screw channel.
- The notes of the implant manufacturer must be observed regarding the maximum height of the hybrid abutment crown.
Implant Abutments and Crowns on your CEREC

Part IV: Design and Mill

3 key differences from a standard crown

1. Trimming is REQUIRED: lasso method. Careful here… the software will let you go forward without!
2. Gingival Mask: two methods… choose based on goals
   -ON (for tissue we WANT to approximate)
   -OFF (proposal will not consider the tissue)
3. Split function
Implant Abutments and Crowns on your CEREC

Part IV: Design and Mill
Part IV: Design and Mill

demo and hands-on

1. the images you scanned as screw retained
2. the images you scanned as split
3. case #1 simple molar
4. case #2 canine
5. case #3 tissue training case (ext/immed.)
6. case #4 (low clearance)
7. case #5 (centrals tissue train; flipper Biocopy)
Part V:
Finishing and Delivery
Part V: Finishing and Delivery

Sequencing Note

- Some prefer to crystallize/glaze/polish and assemble prior to the delivery appointment, and some prefer to try everything in prior for adjustments. The TiBase fits snugly in the crown for try in.
- Once cemented together, you cannot place it in the oven again! Make sure your shade is correct.
Part V: Finishing and Delivery

Remove the attachment
Part V: Finishing and Delivery

Test the fit (it always fits)
Implant Abutments and Crowns on your CEREC

Part V: Finishing and Delivery

Remove the sprue (same as usual)
Implant Abutments and Crowns on your CEREC

Part V: Finishing and Delivery

Clinical Try-in

Optional
Part V: Finishing and Delivery

Stain and glaze as you wish.

- You may stain BUT NOT GLAZE the area of an abutment that will be bonded to a crown. Stain will not reduce your bond.
- Polish is recommended for areas that will contact tissue.
Part V: Finishing and Delivery

Crystallize
Part V: Finishing and Delivery

Crystallize

Hybrid Abutment/Crown: Cycle 1
MO Abutment: Cycle 7

(other ovens: ask your Ivoclar rep)
Implant Abutments and Crowns on your CEREC

Part V: Finishing and Delivery

Final Assembly

Materials Needed:
- Monobond Plus
- Monobond Etch and Prime
- Multilink Hybrid Abutment Cement
Part V: Finishing and Delivery

Assembly Step 1: Sandblast TiBase

**TIP:** You can use the back side of the TiBase kit foam as a quick sandblast tool!

Sandblast bonding surface only!
Part V: Finishing and Delivery

Assembly Step 2: Monobond Etch and Prime

Etch/prime bonding surface only.
Etch to very top on hybrid abutment/crown.
Part V: Finishing and Delivery

Assembly Step 3: Monobond Plus

- Both TiBase and e.max
- 60 seconds, air dry.
- No rinse.
Assembly Step 4: Apply cement and join.

- use sparingly
- twist to “find” the notch and press firmly together
- clean up excess with cotton roll
- self (not dual) cure: 6 minutes
- polish the juncture afterward
Implant Abutments and Crowns on your CEREC

Part V: Finishing and Delivery

Seating: Hybrid Abutment/Crown

- no sandblast!
- etch internal 20 seconds, rinse
- Monobond Plus, air dry
- seat, dry, place plumber’s tape to cover screw
- bond, composite of your choice
Part V: Finishing and Delivery

Seating: Abutment

- no sandblast!
- etch bonding area 20 seconds, rinse
- Monobond Plus, air dry
- seat, dry, place plumber’s tape to cover screw
- seat crown by your normal method
Part V: Finishing and Delivery

Tips

- Milling errors
- 12S not 12
- Milling times
- What about a screw-retained bridge
- What about tissue training?
- 3.3 S BL: too wide at base?
- TiBase too tall?
- Multiple Unit insertion path
- Manual correlation bug
Part V: Finishing and Delivery
Part V: Finishing and Delivery
Implant Abutments and Crowns on your CEREC

The End!

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