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Recementation protocol

Recementing a Zirconia (Zr) implant crown onto a Titanium Ti-Base

DT Kamal Jawabra explains the correction of faulty cementation of a Zirconia implant crown onto a Titanium base

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CASE PRESENTATION

The recementation process requires careful attention to detail to ensure proper correction of the fault without damaging the abutment and/or abutment screw.

Armamentarium

Zirconia Crown | Titanium Base | Ceramic furnace | Implant analogue | Wax | Cement (preferably a resin-based cement) | Bonding Agent (if applicable) | Etchant (for zirconia) | Cleaning Solutions (alcohol or acetone)

Introduction

IDENTIFY THE PROBLEM

Carefully examine the crown and identify the areas that need correction.
Remove the screw from the abutment crown assembly.

DETACHING CROWN FROM TI-BASE

The screw should not be heated in the furnace as it will weaken it and possibly distort the threads.

Place the crown inside the ceramic furnace and use a heat cycle that goes to a maximum of 400°C with a holding time of 4 minutes. Once out of the furnace after cooling, separate the crown from the Ti-Base with gentle pressure.

CLEAN THE CROWN

The fitting surface of the crown is cleaned of any residual cement using airborne particle abrasion followed by placing in an ultrasonic bath to remove any loose debris.

CLEAN THE TI-BASE

Use an implant analog to stabilize the Ti-Base and protect the connection.

Apply a layer of wax on the area below the platform of the Ti-Base.
This is done to protect the parts that will contact the soft tissues while cleaning the cementable portion.

Clean the cementable portion of the Ti base using airborne particle abrasion and ensure that this segment is devoid of any remnants of cement and gets micro-abraded.

Detach the Ti base from the implant analog and place it in an ultrasonic bath to remove any loose debris. The screw can be separate for this step.

CHECK FIT AND SEATING POSITION

Align the crown and Ti-Base and check to ensure any wobbling.

Mark the final seating position by using an indelible marker across from the crown to the Ti-Base.

TREAT THE FITTING SURFACES

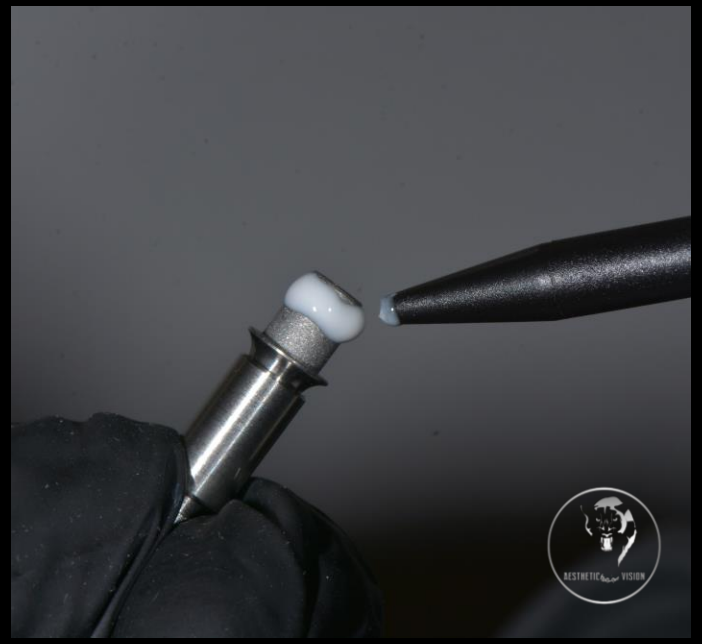
Apply Zirconia Primer and/or Bonding agent to the fitting surface of the crown

If the Ti-Base fitting surface isn't pre-sandblasted (DESS Interfaces are always sandblasted with SelectGrip Technology), airborne-particle abrasion should be done to increase the surface area for bonding.

While doing this, ensure that the parts of the abutment that will contact the tissues or the implant are protected.

CEMENTATION

Follow the manufacturer's instructions for mixing the resin cement. Ensure that the correct proportions are used for optimal adhesion.



Apply the cement evenly to the treated surface of the Titanium base.

This is done to avoid cement flowing into the screw channel. You can use an applicator tip for precision.

Alternatively, you can apply the cement to the internal surface of the zirconia crown, however, the screw channel should be blocked with a medium like Teflon or wax.

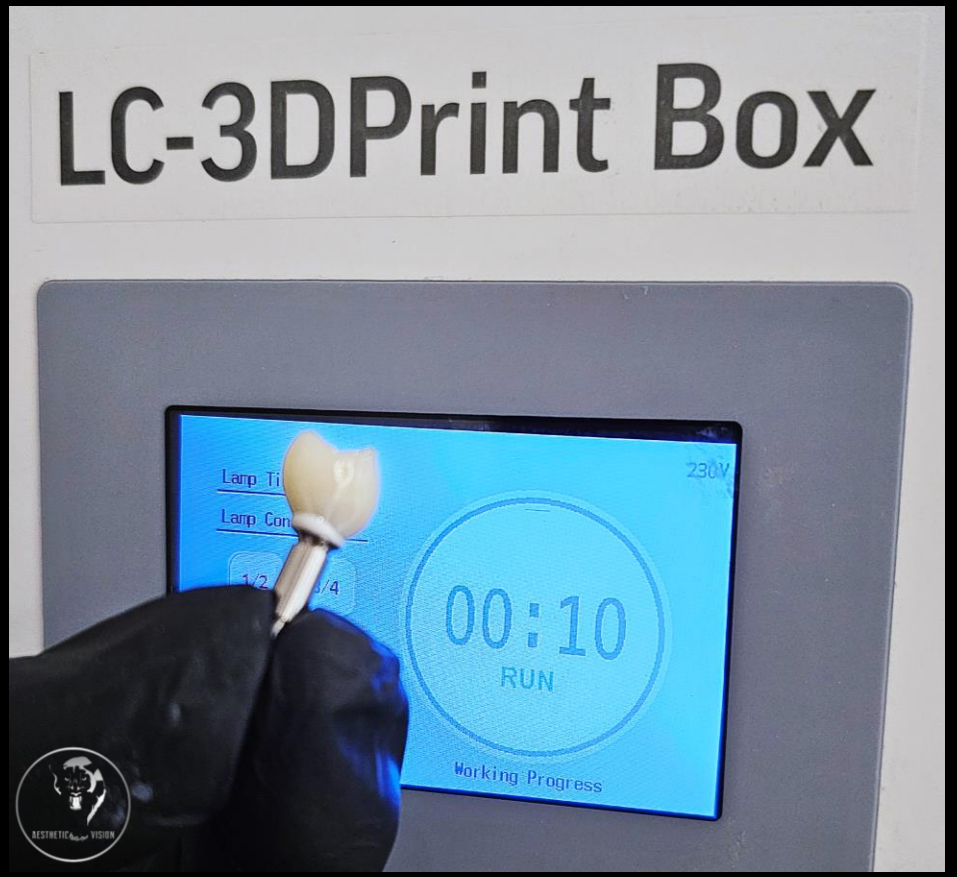
CEMENTATION

Carefully position and seat the Zirconia crown onto the Titanium base.

Ensure proper alignment and avoid any rocking of the crown.

Apply gentle pressure to allow the excess cement to express out.

Depending on the cement used, either allow it to cure at ambient temperature or use a light-curing unit as specified by the cement manufacturer.

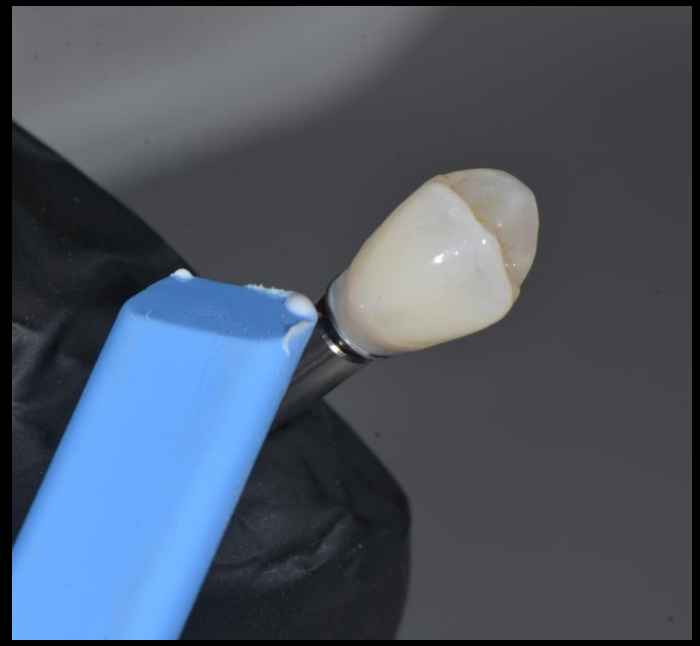


CLEAN-UP

Remove any excess cement that may have extruded at the margins.

This is crucial for avoiding plaque accumulation and ensuring smooth margins.

Ensure that the crown is fully seated andin proper occlusion.



FINAL VERIFICATION AND NOTES

- Check the occlusion, inter-proximal contacts, and overall aesthetics. Make any necessary adjustments before finalizing.
- Always refer to the specific instructions provided by material manufacturers, as protocols may vary based on products used.
- It is essential to ensure that all surfaces are dry before applying cement for optimal bonding.
- Following these protocols will help achieve a successful cementation process for Zirconia crowns on Titanium bases.

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