

# ***Pinos Intra-radicales***



Prof. Carlos Francci

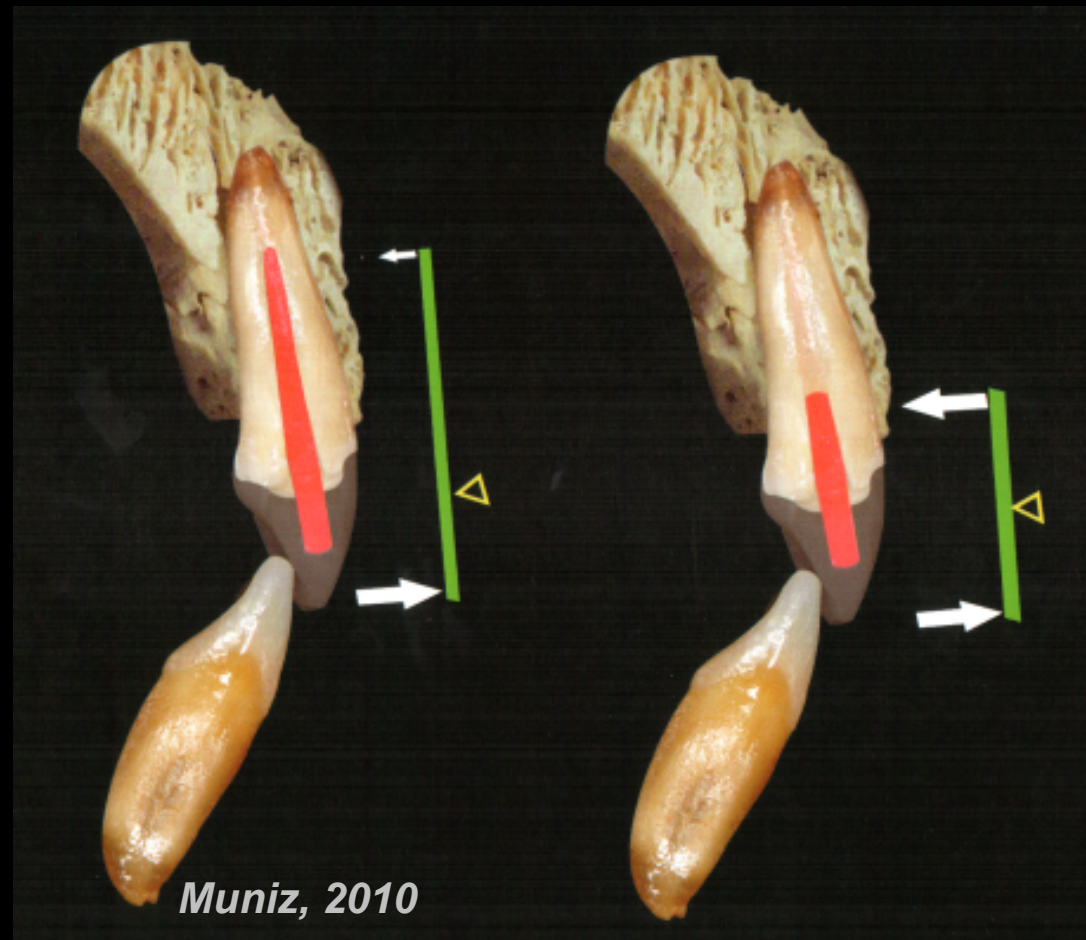
# Porque utilizar pinos intra- radiculares?



**Retenção de  
materiais  
restauradores**

# Porque utilizar pinos intra- radiculares?

Recuperação  
biomecânica do  
dente



**Quando utilizar  
pinos intra-  
radiculares e  
quais fatores  
devem ser  
analisados?**

- **Perda de estrutura coronária significativa (>50%)**
- **Perda de cristas marginais**
- **Localização do dente**
- **Carga mastigatória elevada**
- **Presença de hábitos parafuncionais**

***Qual pino utilizar ?***

*Qual pino utilizar ?*

**Rígidos**

**Flexíveis**

**Qual pino utilizar ?**  
*Qual pino utilizar ?*

# Rígidos



**Metálicos**

**Cerâmicos**

**Alto Módulo de Elasticidade  
210 GPa**

**Qual pino utilizar ?**  
*Qual pino utilizar ?*

**Flexíveis**

**Fibras**

**Qual pino utilizar ?**  
*Qual pino utilizar ?*

# Fibras

**Vidro**

**Carbono**

**Quartzo**

**Módulo de Elasticidade  
+/- 20 GPa**



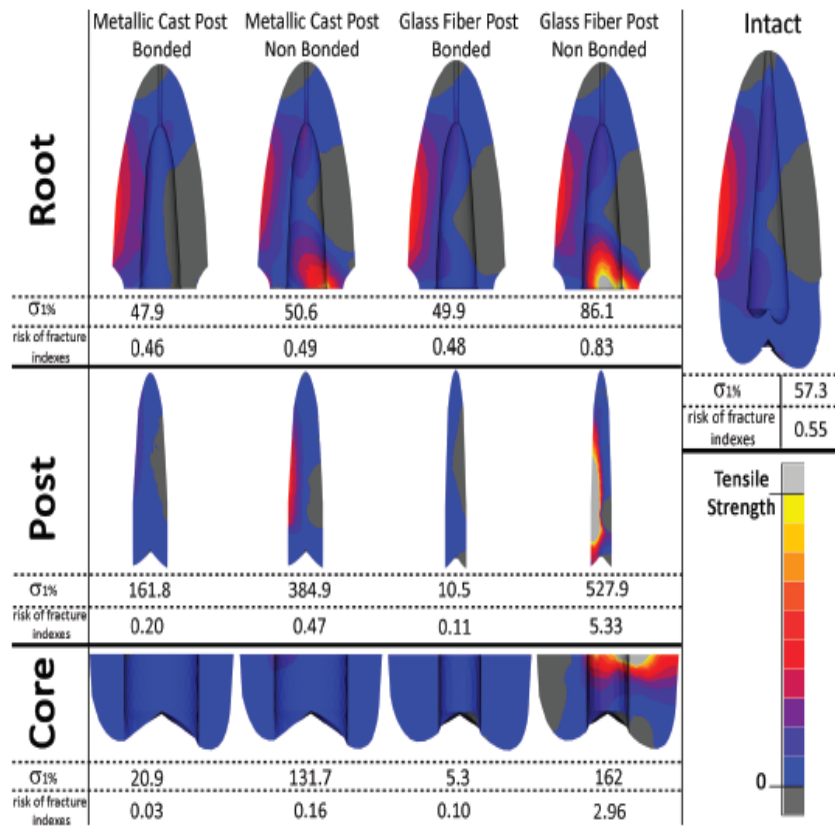
# RESEARCH REPORTS

## Biomaterials & Bioengineering

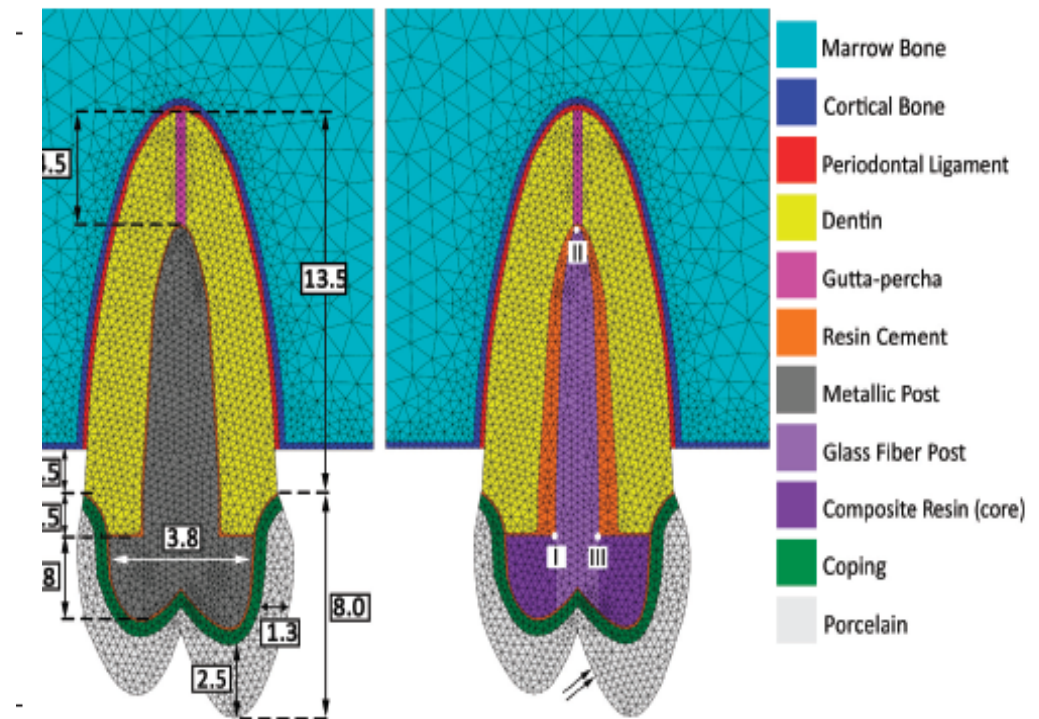
A.F.V. Santos<sup>1</sup>, J.B.C. Meira<sup>1\*</sup>,  
C.B. Tanaka<sup>1</sup>, T.A. Xavier<sup>1</sup>,  
R.Y. Ballester<sup>1</sup>, R.G. Lima<sup>2</sup>,  
C.S. Pfeifer<sup>3</sup>, and A. Versluis<sup>4</sup>

# Can Fiber Posts Increase Root Stresses and Reduce Fracture?

<sup>1</sup>Department of Dental Materials, School of Dentistry,  
University of São Paulo, Av. Prof. Lineu Prestes 2277 São



**Figure 2.** Distribution of the first principal stresses in the intact tooth and root, core, and post of the metallic cast post and glass fiber post models, bonded and non-bonded conditions. Maximum values of the first principal stresses ( $\sigma_{1\%}$ , in MPa) and the risk-of-fracture indexes for each material.



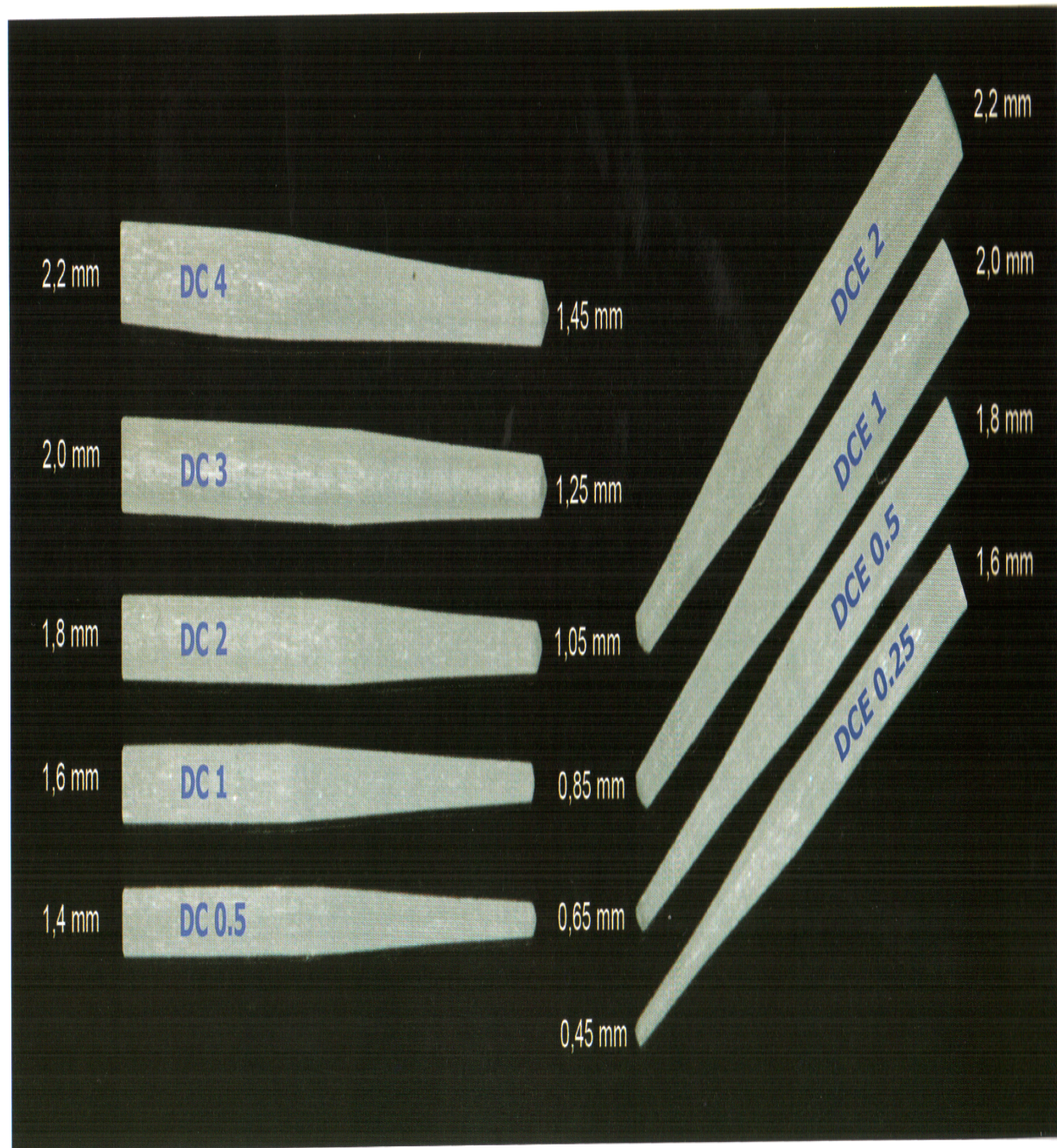
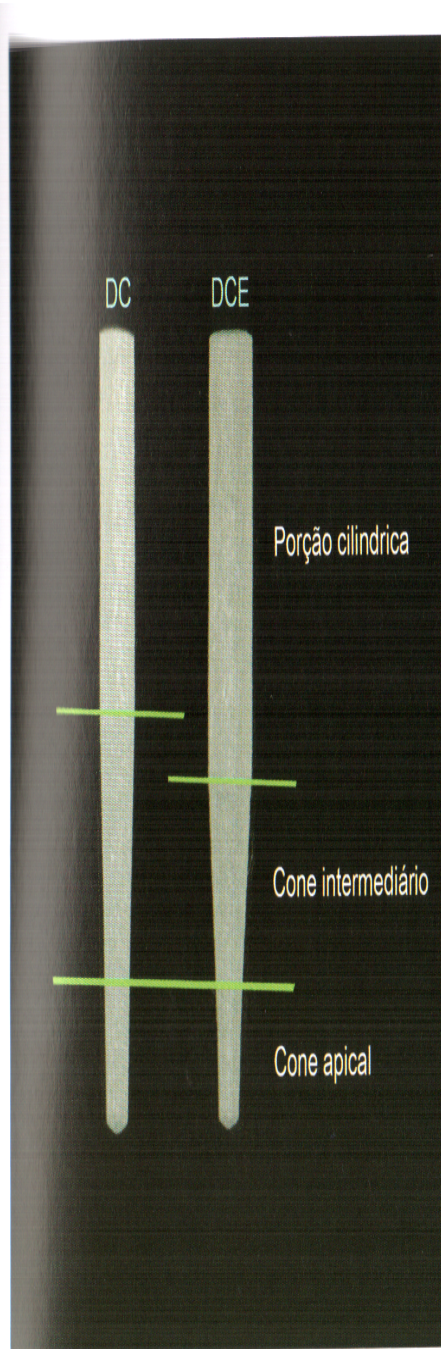
# Rigidez excessivamente alta pode propiciar a fratura da raiz

Dentina	18,6 GPa
Esmalte	80 GPa
Pino de fibra	25 GPa
Cerâmico	180 GPa
Núcleo de NiCr	210 GPa



# Pinos de fibra de vidro



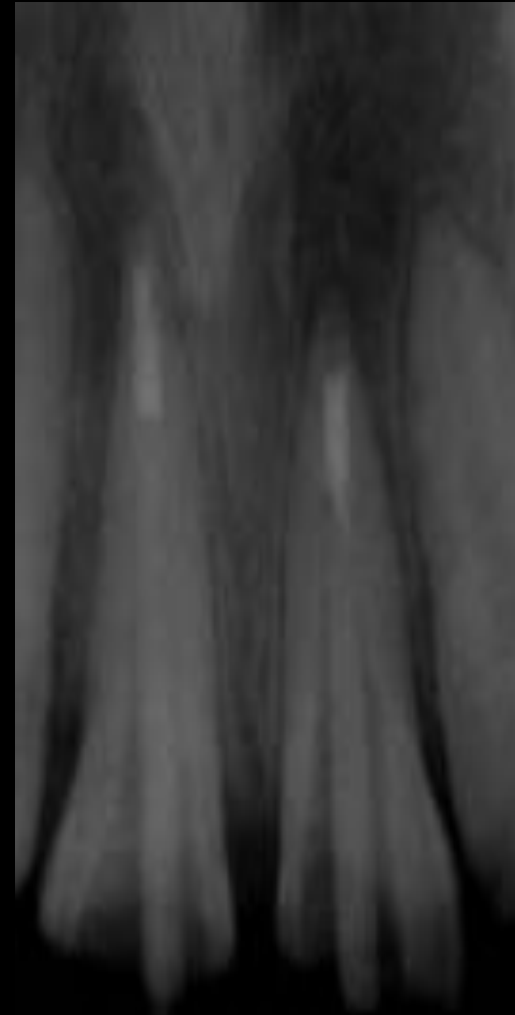


# whitepost DC & DC-E

CE  
0499

Guia de Seleção dos Pinos  
Guía de Selección de los Pernos  
Post Selection Guide





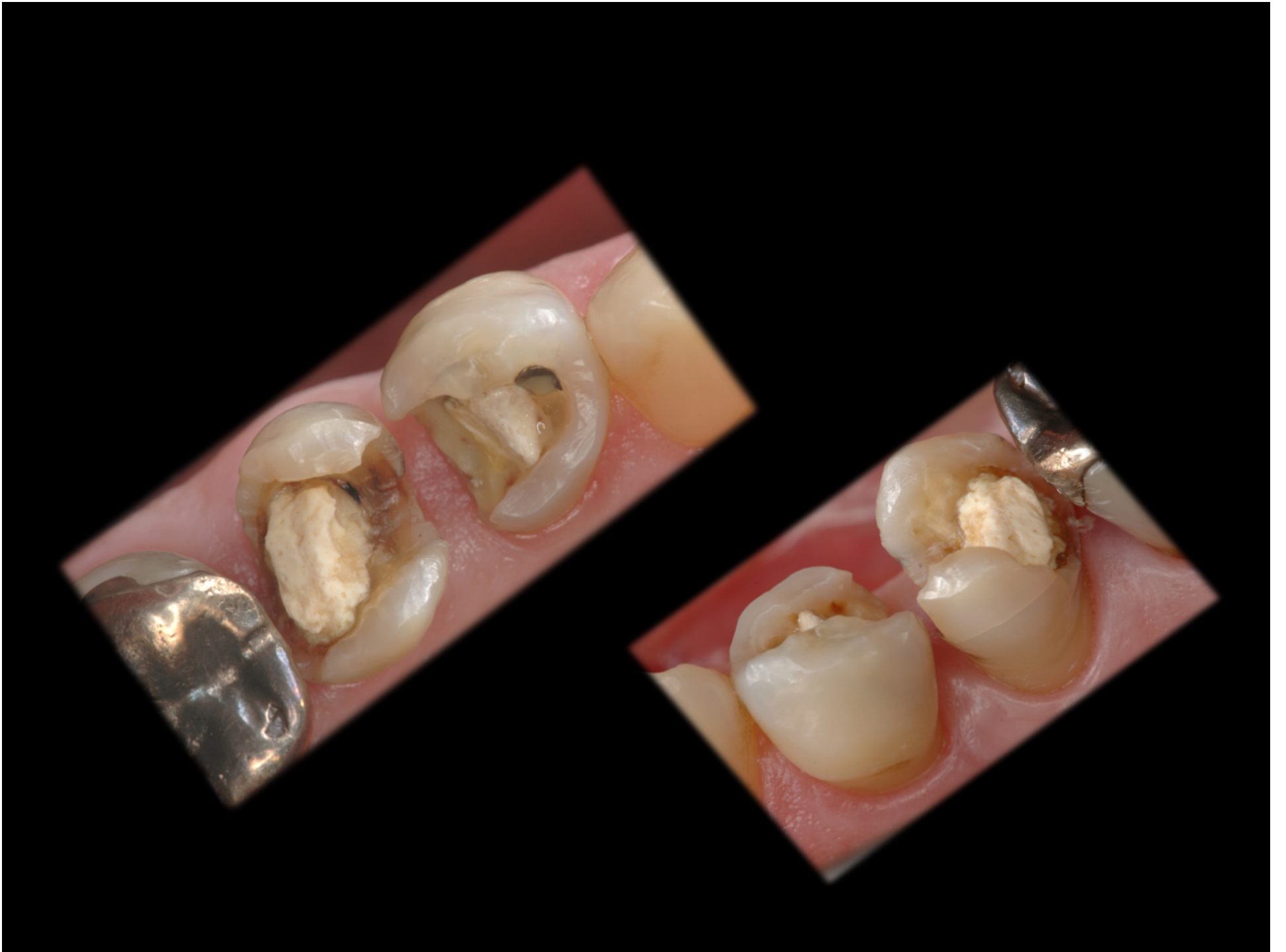


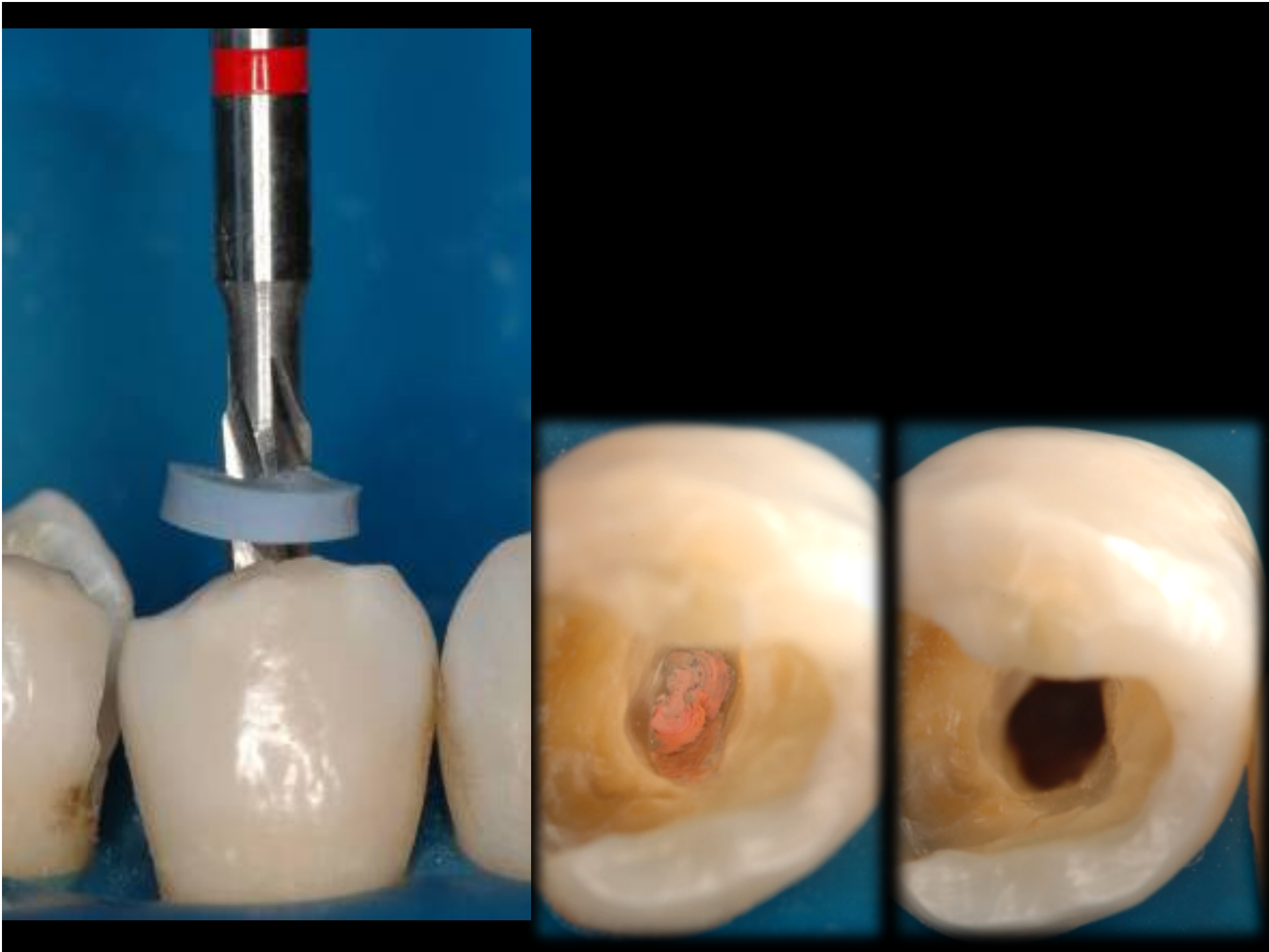




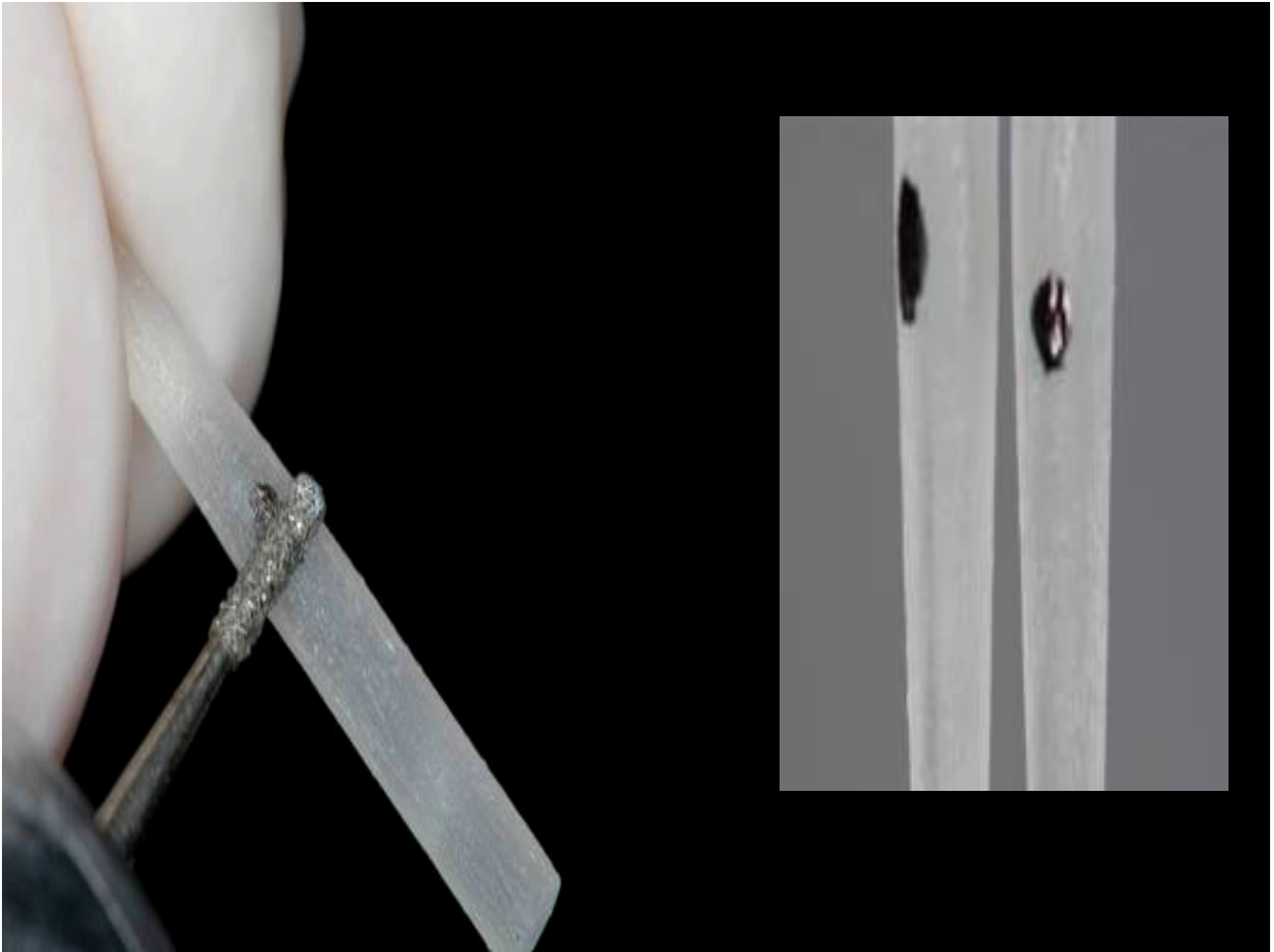


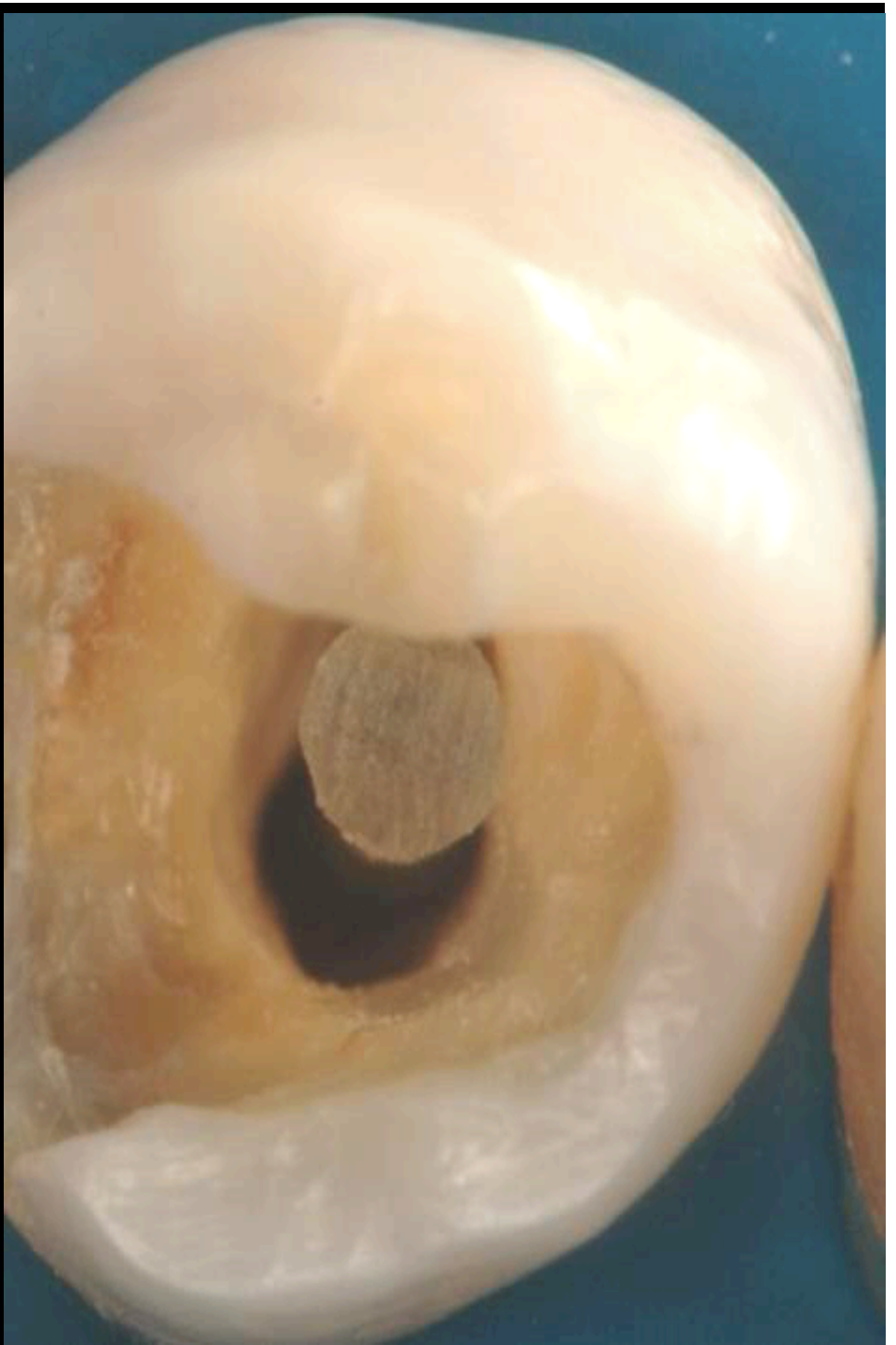
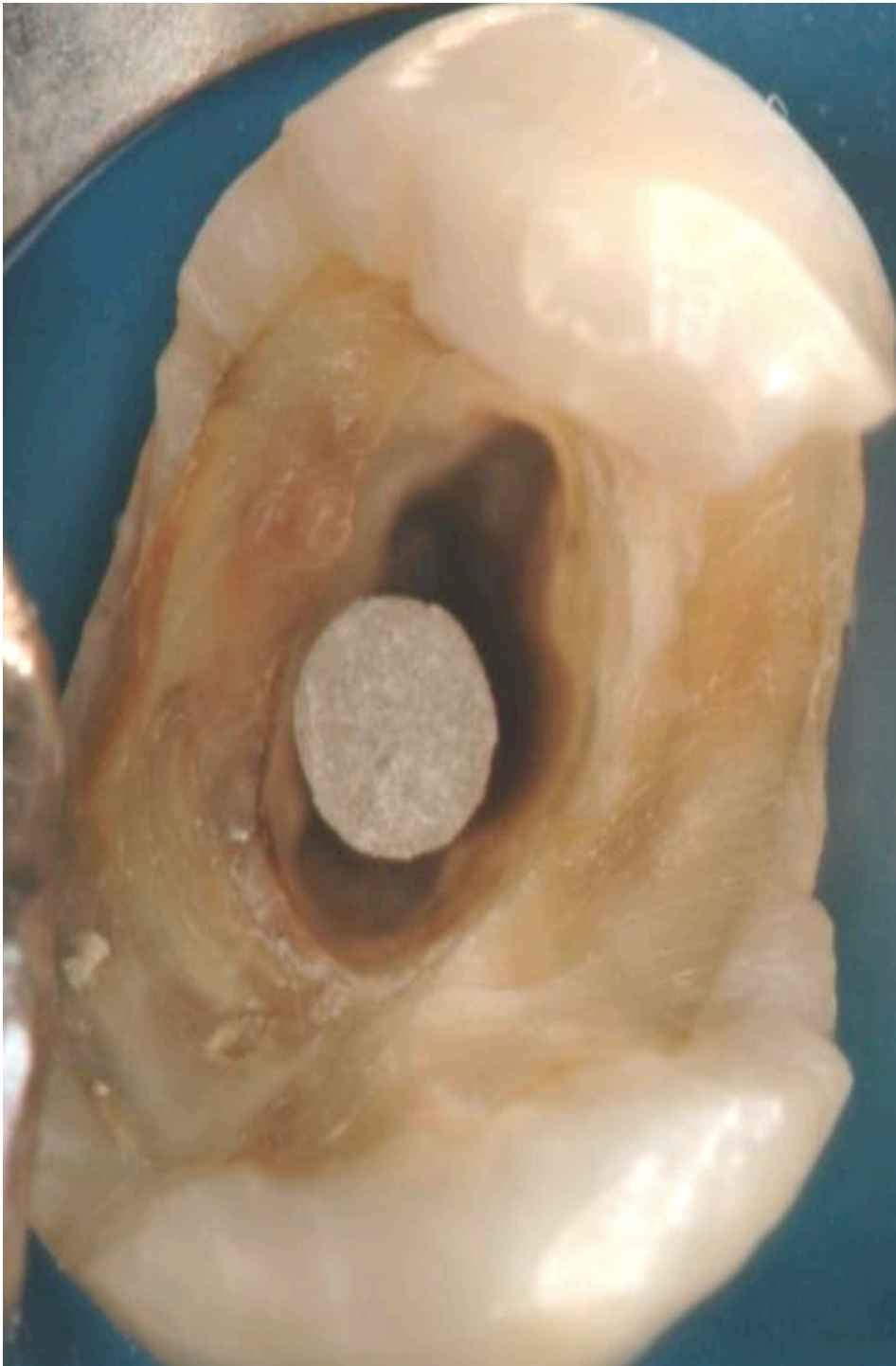
# Caso Clínico











Leonardo Muniz  
e Colaboradores

REABILITAÇÃO ESTÉTICA  
EM DENTES  
TRATADOS ENDODONTICAMENTE

*Pinos de Fibra e Possibilidades  
Clínicas Conservadoras*



## 6. Adesão Intrarradicular

*Carlos Francini*

*Edméa Lodovici*

*Marcelo Witzel*

*Soraia de Fátima Carvalho Souza*

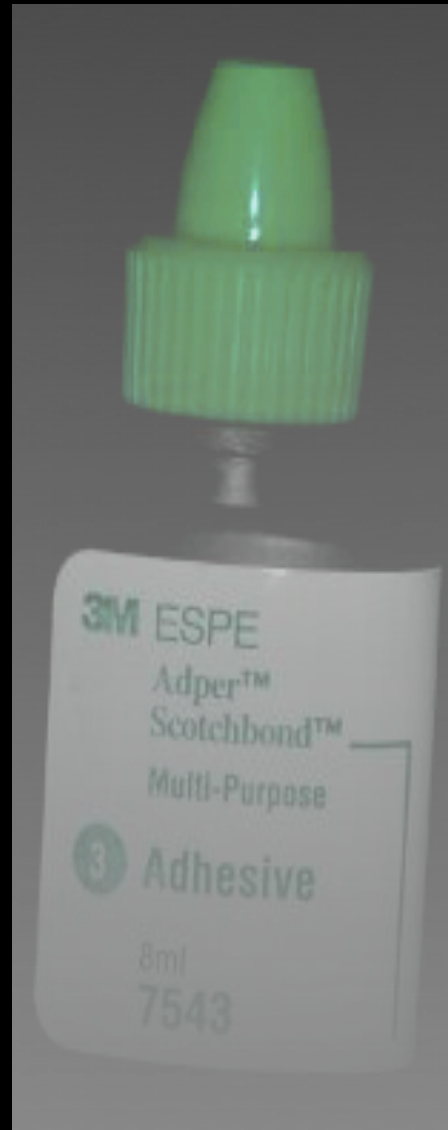
*Marcos Kirihata*

*Adriano da Silva Pereira Sapata*

*Leonardo Muniz*









1. J Prosthet Dent. 2010 Jun;103(6):362-8.

## The effect of surface treatment of fiber-reinforced posts on adhesion of a resin-based luting agent.

[Choi Y](#), [Pae A](#), [Park EJ](#), [Wright RF](#).

Department of Dental Prosthodontics, School of Medicine, Ewha Womans University, Seoul, Korea.

### Abstract

**RESULTS:** Shear bond strength of the luting agent to the post was significantly affected by surface treatment ( $P < .05$ ). Treating the surface of the post with airborne-particle abrasion resulted in a significantly higher bond strength compared with other treatments. There was no significant difference in bond strength between the silanization group and the no treatment group or the silanization plus airborne-particle abrasion group. **CONCLUSIONS:** Airborne-particle abrasion provided a significant increase in bond strength between the post and the luting agent evaluated, without additional treatments. Copyright 2010 The



dual-polymerizing resin-based luting material (Variolink II) and stored in water at 37 degrees C for 24 hours. Shear bond strength (MPa) was measured using a universal testing machine. Data were analyzed with 1-way ANOVA and the multiple comparisons Scheffé test with Bonferroni correction ( $\alpha = .05$ ).

**RESULTS:** Shear bond strength of the luting agent to the post was significantly affected by surface treatment ( $P < .05$ ). Treating the surface of the post with airborne-particle abrasion resulted in a significantly higher bond strength compared with other treatments. There was no significant difference in bond strength between the silanization group and the no treatment group or the silanization plus airborne-particle abrasion group. **CONCLUSIONS:** Airborne-particle abrasion provided a significant increase in bond strength between the post and the luting agent evaluated, without additional treatments. Copyright 2010 The

Editorial Council of the Journal of Prosthetic Dentistry. Published by Mosby, Inc. All rights reserved.





Opallis

CE  
0499

FGM

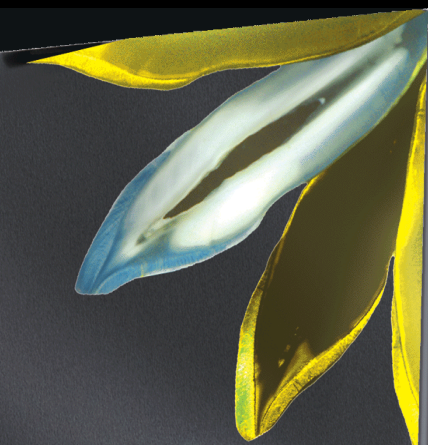
# Opallis

CE  
0499

Compósito para dentes anteriores e posteriores  
Composite for anterior and posterior teeth  
Komposit für den anterioren und posterioren Bereich  
Composite pour dents antérieures et postérieures  
Composito per denti anteriori e posteriori  
Composite para dentes anteriores y posteriores  
Универсальный реставрационный композит для всех групп зубов  
Μείγμα για πρόσθια και οπίσθια δόντια  
Compozit pentru dintii anteriori și posteriori  
Composiet voor voorste en achterste tanden  
Šviesioje kietėjantis kompozitas prekinčių ir krūminių dantų restauracijoms  
ön ve arka dişler için kompozit dolgu



kit professional 12 cores



FGM



Opallis

CE  
0499

FGM





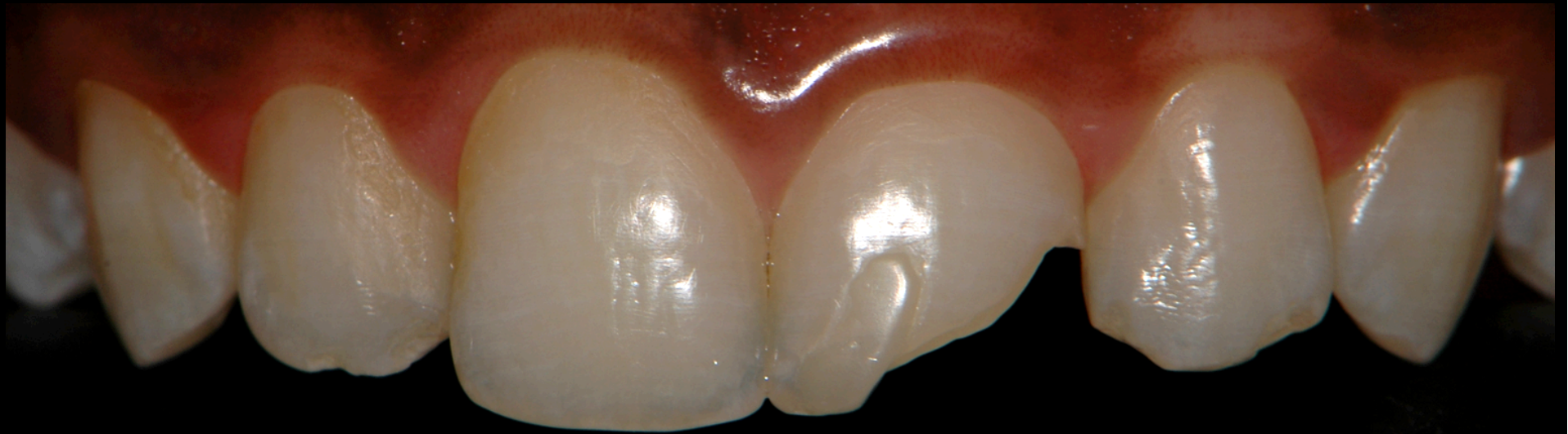








# ***Resistência à Fratura*** *Resistência a Fratura*



# ***Quando Indicar ?***

## ***Quando Indicar ?***

**Retenção do material restaurador**

**“Reforço da estrutura dental”**

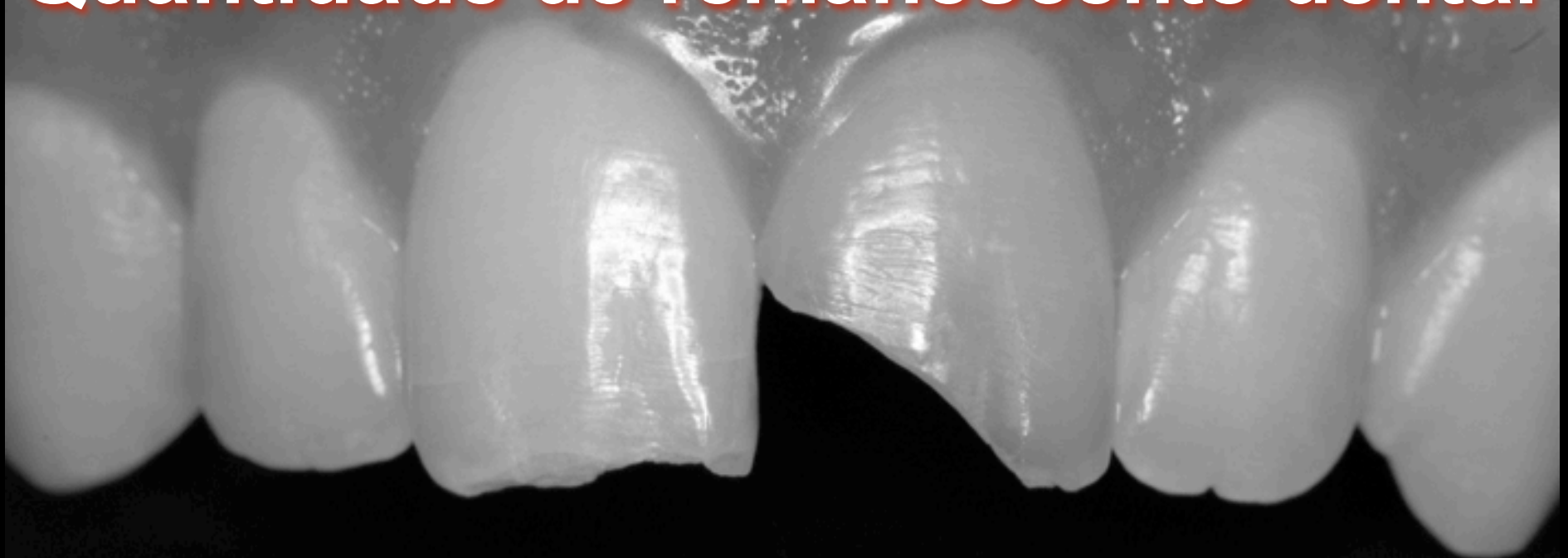
***Diagnóstico***  
*Diagnóstico*



**Caso Clínico**

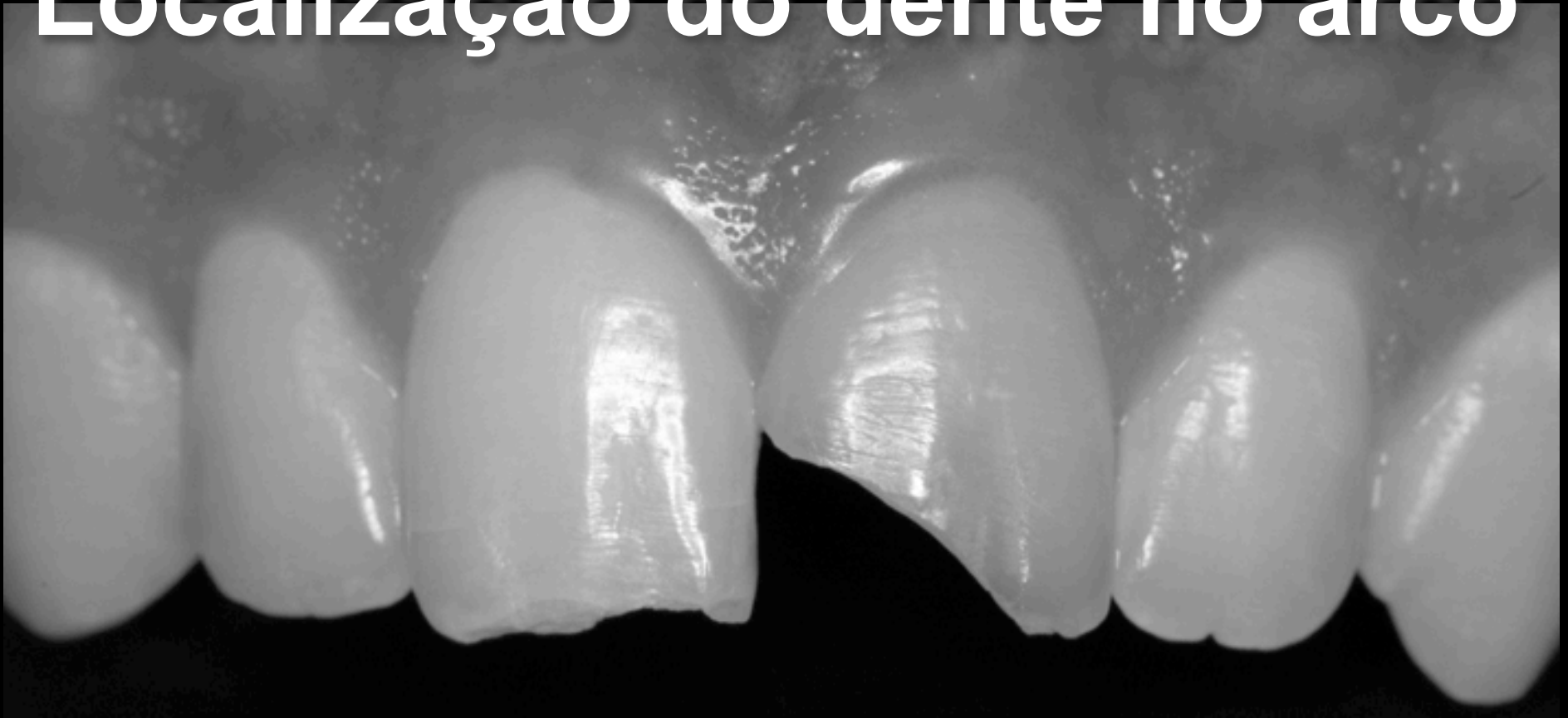


**Quantidade de remanescente dental**



**Diagnóstico**  
*Diagnostico*

# Localização do dente no arco



**Dentes Anteriores ≠ Dentes Posteriores**





# ***Fibra de Quartzo***

*Fibra de Quartzo*

**DT Light-Post**  
Bisco



# **Fibra de carbono**

*Fibra de carbono*



# ***Formato do pino***

*Formato do pino*

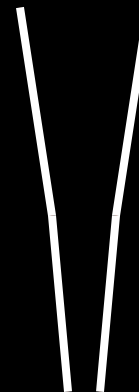
**Paralelo**



**Cônicos**



**Dupla conicidade**



# ***Superfície do pino***

*Superfície do pino*

**Liso**

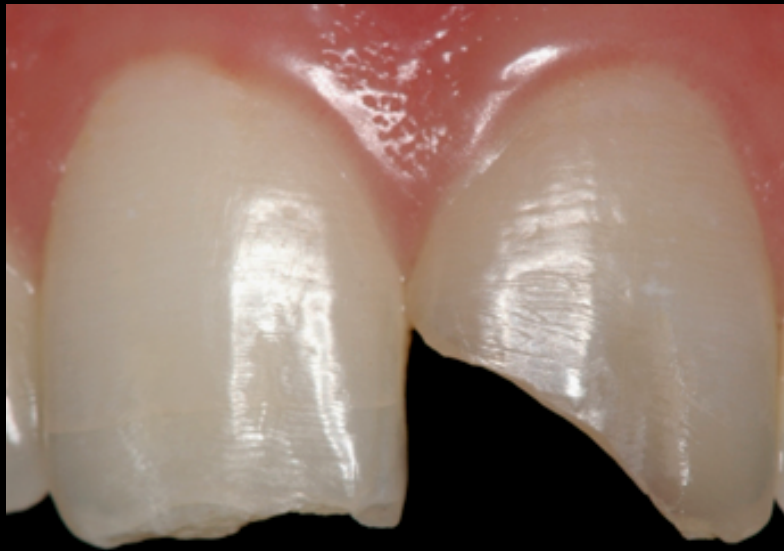


**Serrilhado**



# **Seleção do Pino**

*Seleção do pino*



# ***Escolha do Pino***

*Escolha do pino*



# **Desobturação** *Desobturação*

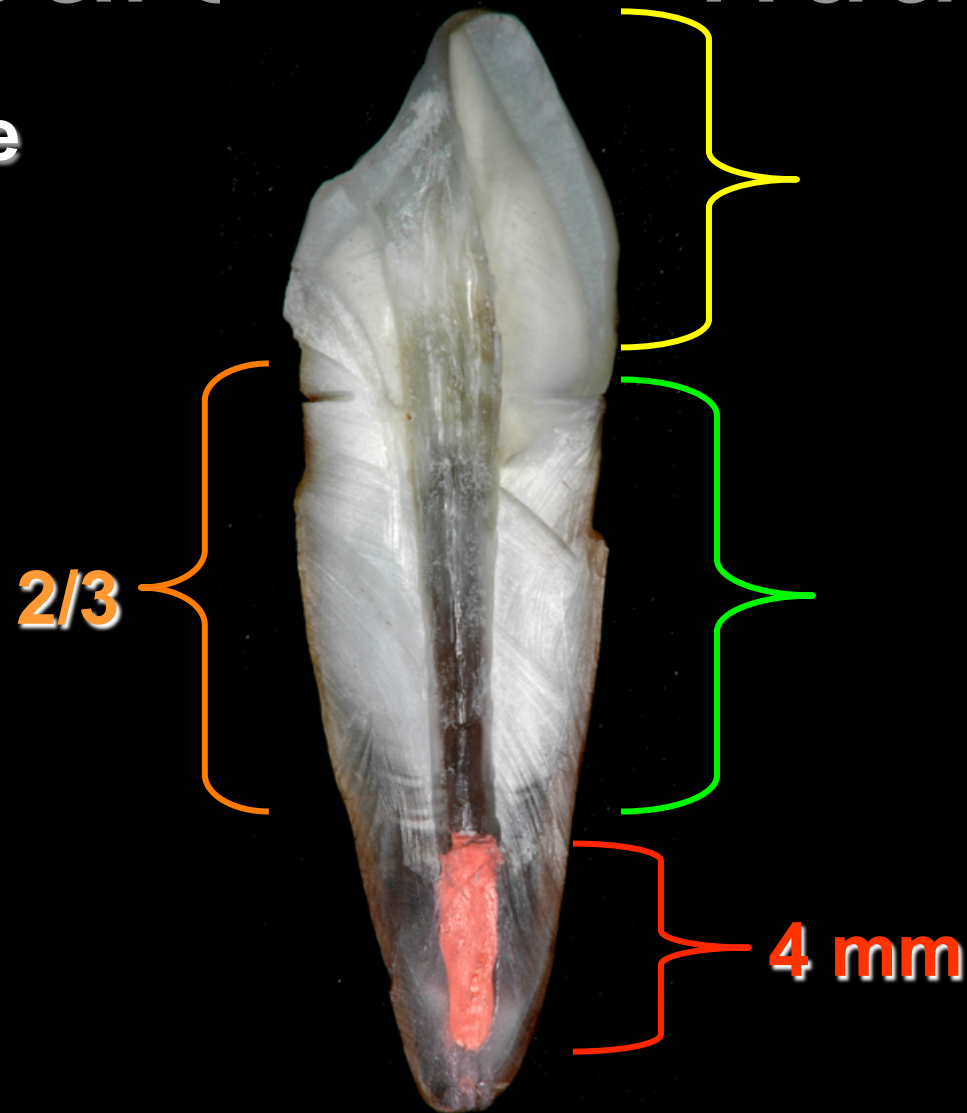


**Broca de Gates**

# Preparo do Conduto

*Preparo do conduto*

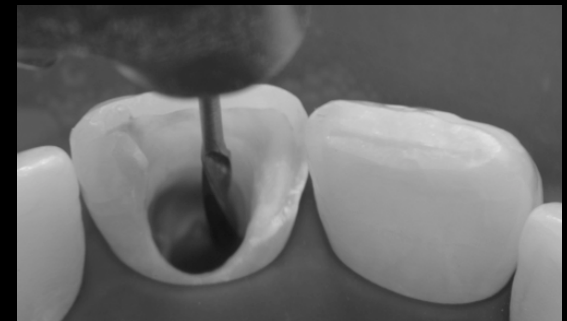
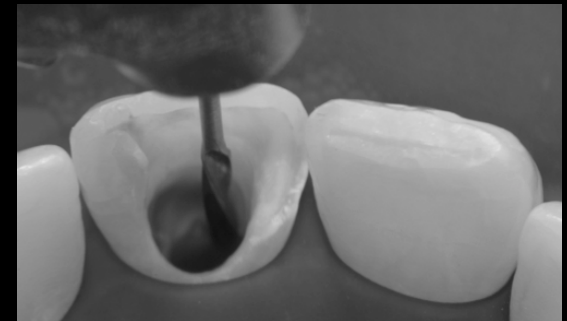
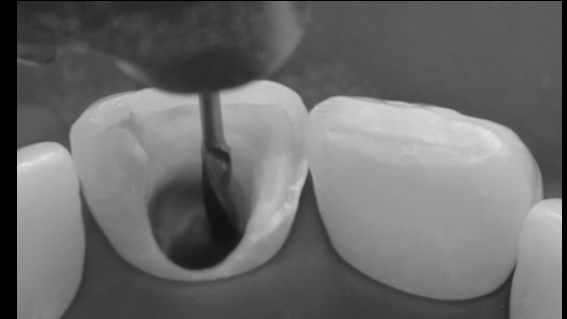
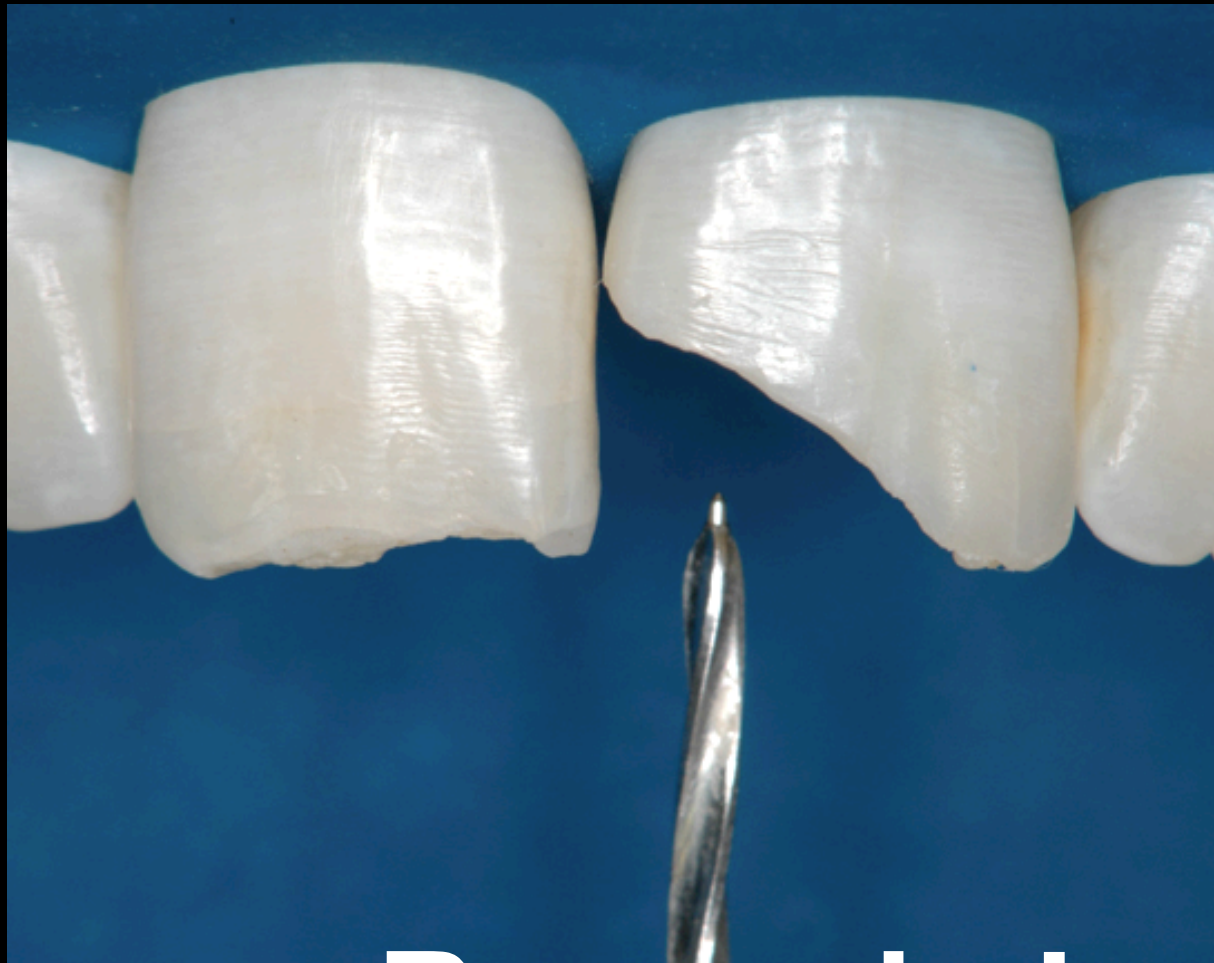
Princípios de  
retenção





# **Preparo do Conduto**

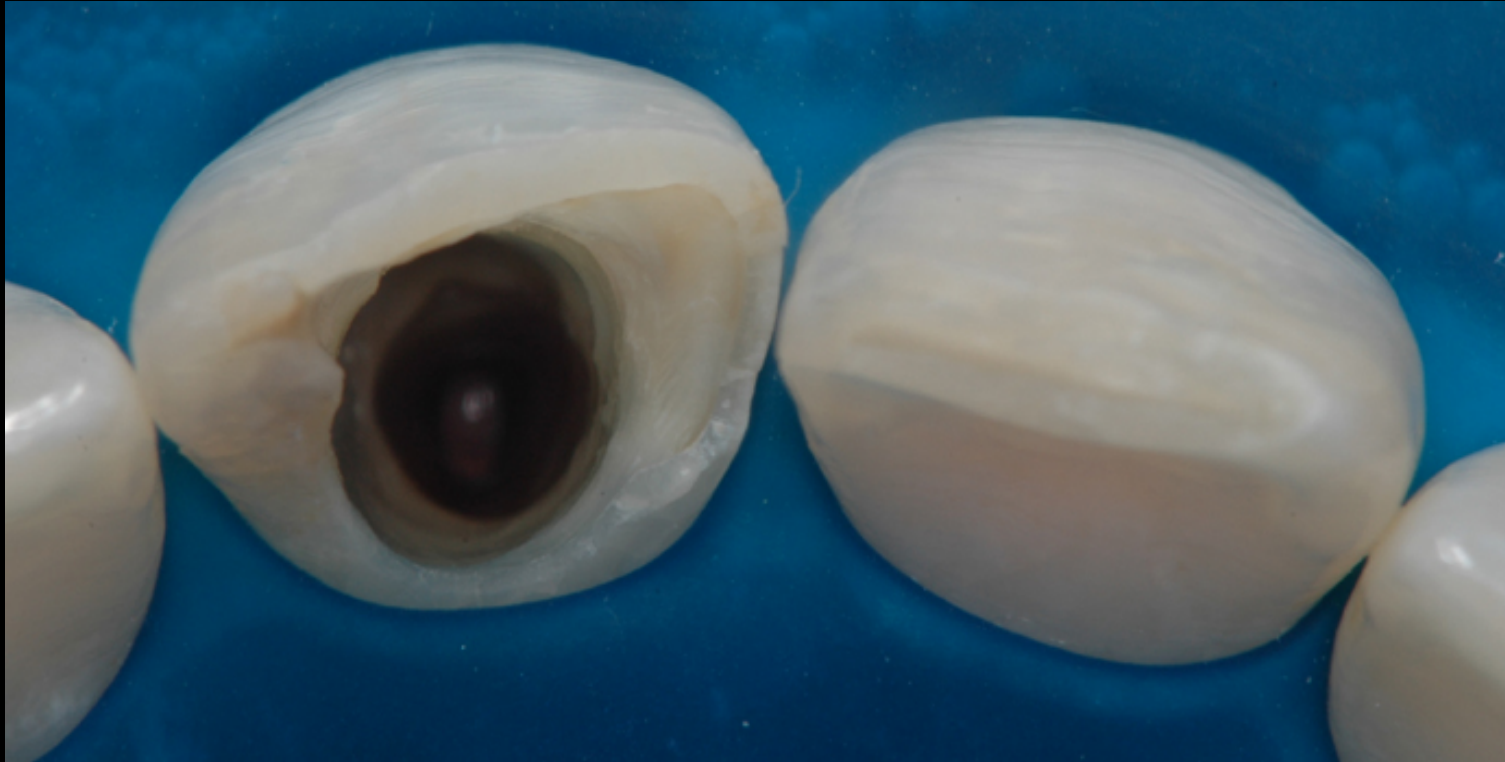
*Preparo do conduto*



**Broca de Largo**

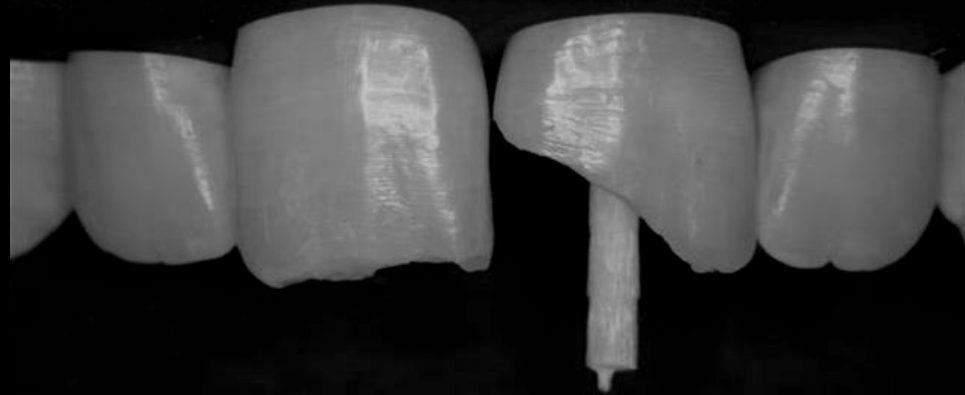
# **Conduto preparado**

## Conduto preparado

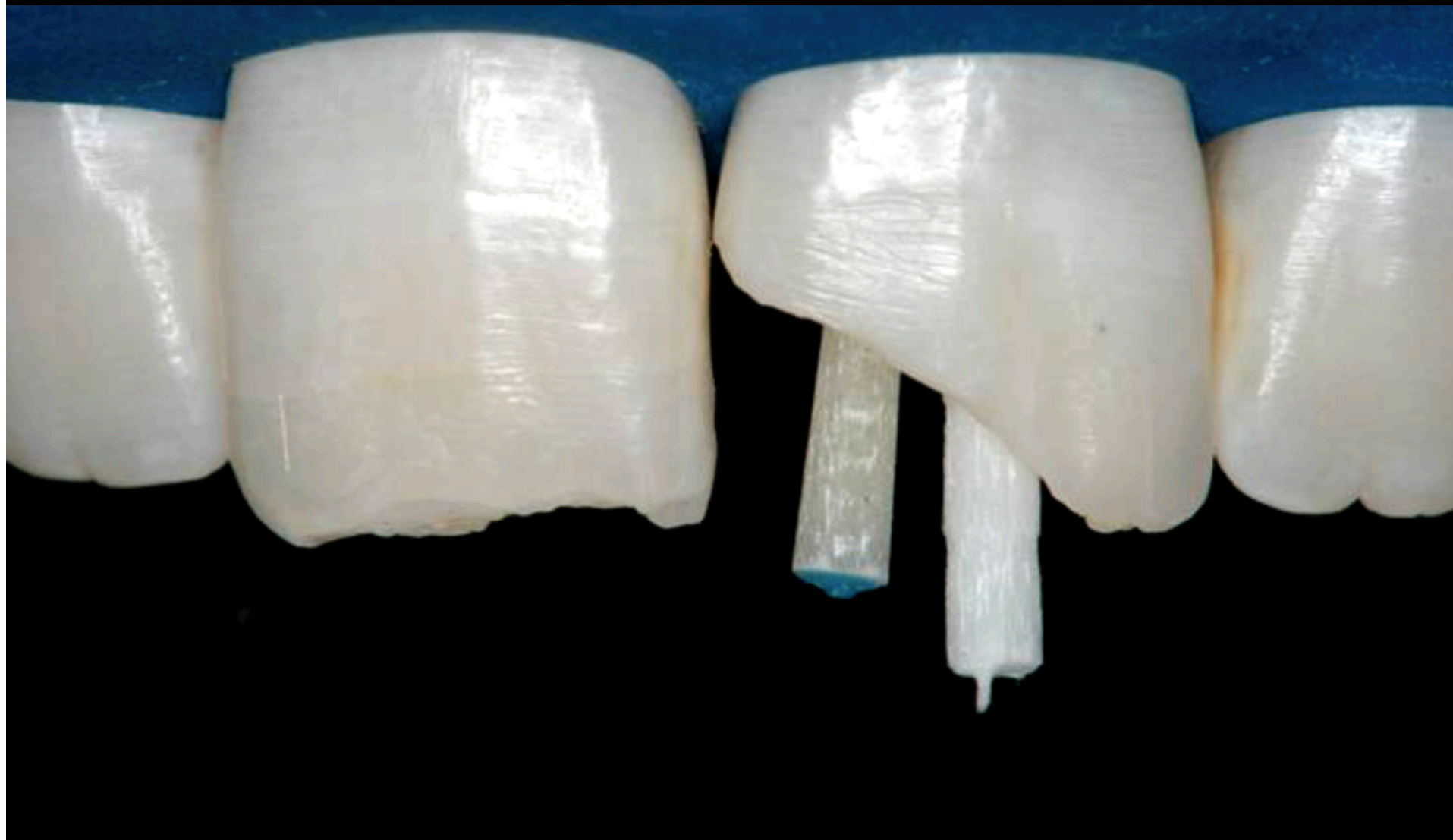


# **Prova do Pino**

*Prova do pino*



***Utilizando pinos secundários...***  
*Utilizando pinos secundários...*



# ***Prova dos Pinos*** *Prova dos pinos*



***Internamente...***  
*Internamente...*



***Vamos imaginar ?***  
*Vamos imaginar?*



# ***Prova do Pino***

*Prova do pino*





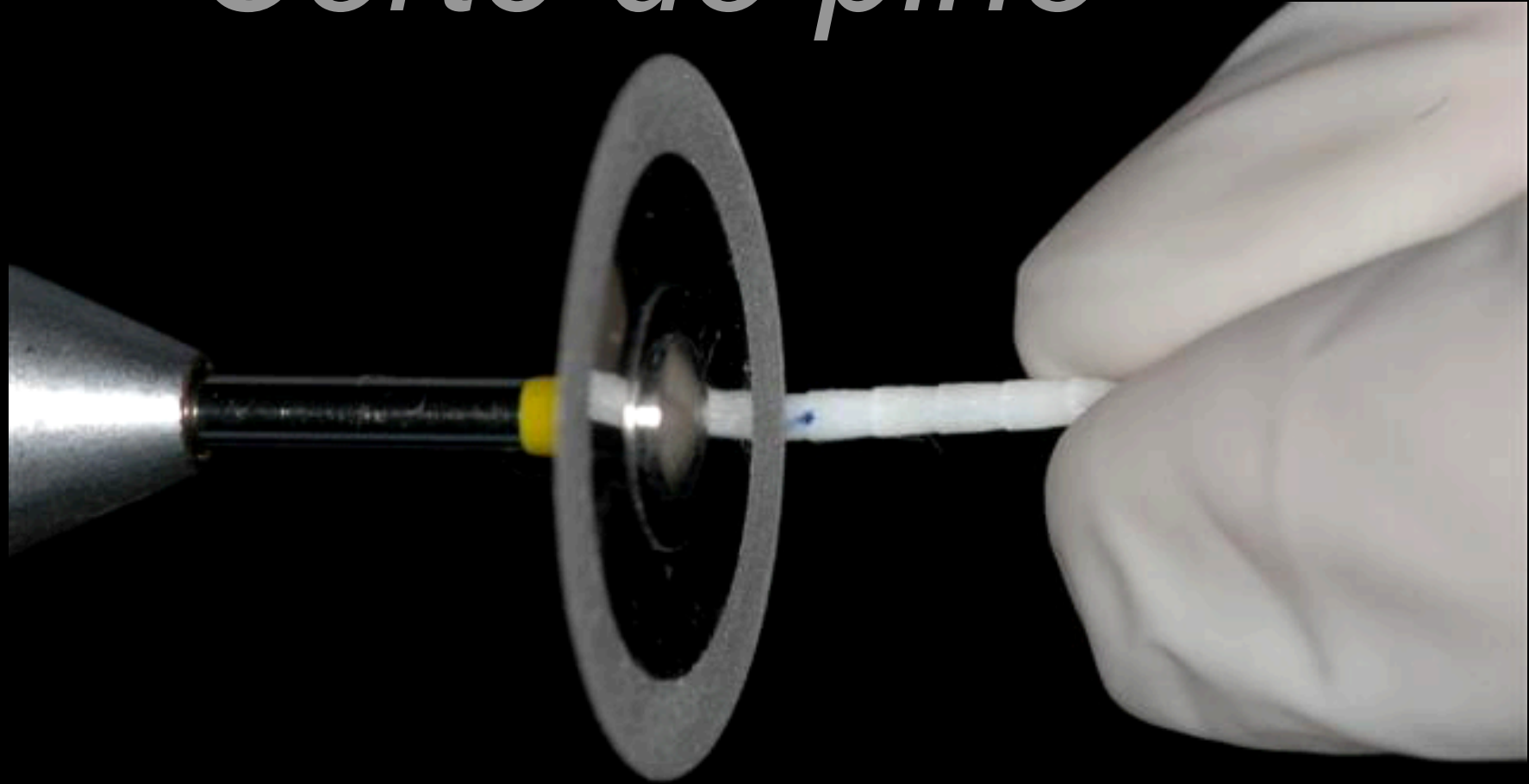
# **Corte do Pino Principal**

*Corte do pino principal*



# **Corte do Pino**

*Corte do pino*



# **Corte do Pinos Secundários**

Corte do pinos secuncários



# **Corte do Pinos Secundários**

*Corte do pinos secuncários*



# **Preparo do Pino**

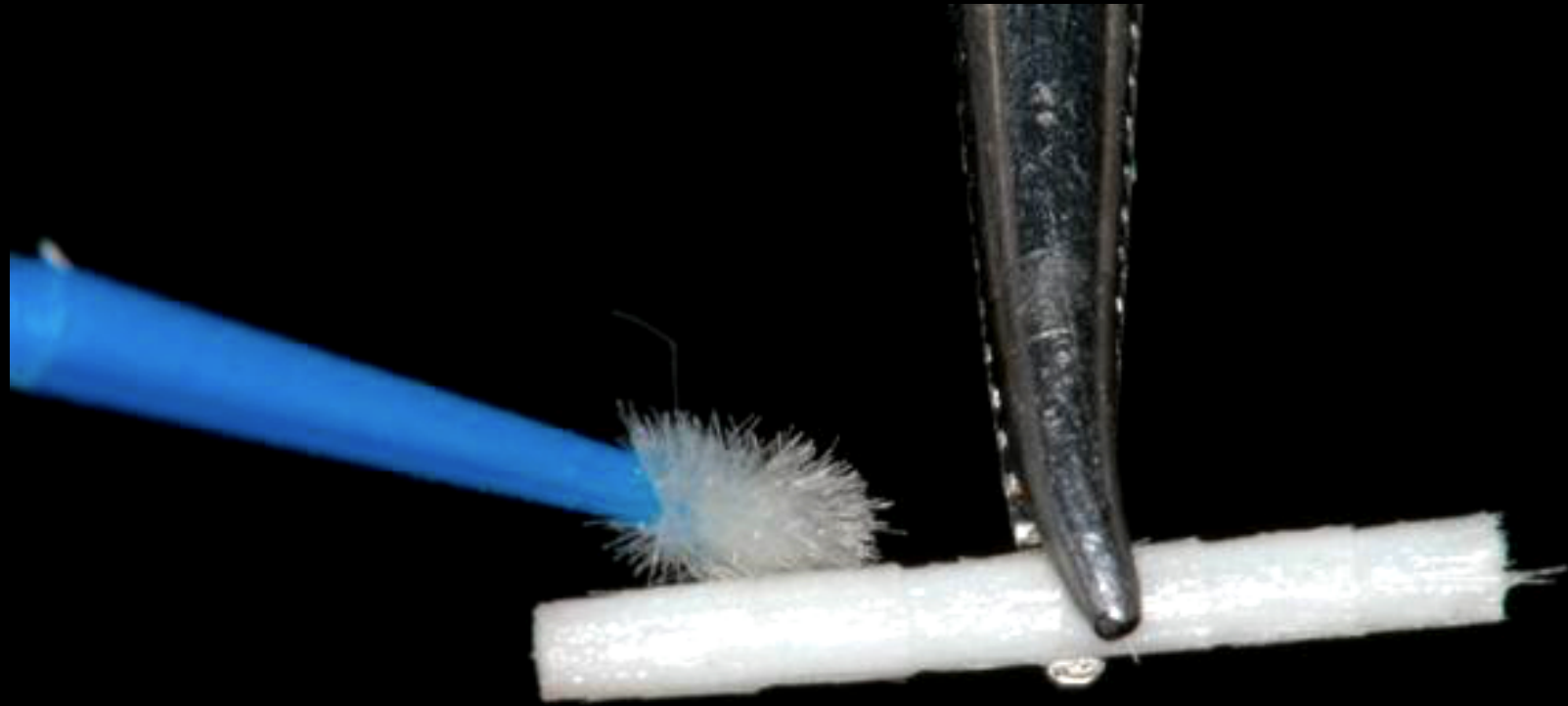
## *Preparo do pino*

**Limpeza: álcool 70%**



# *Preparo do Pino*

*Preparo do pino*



**Silano**

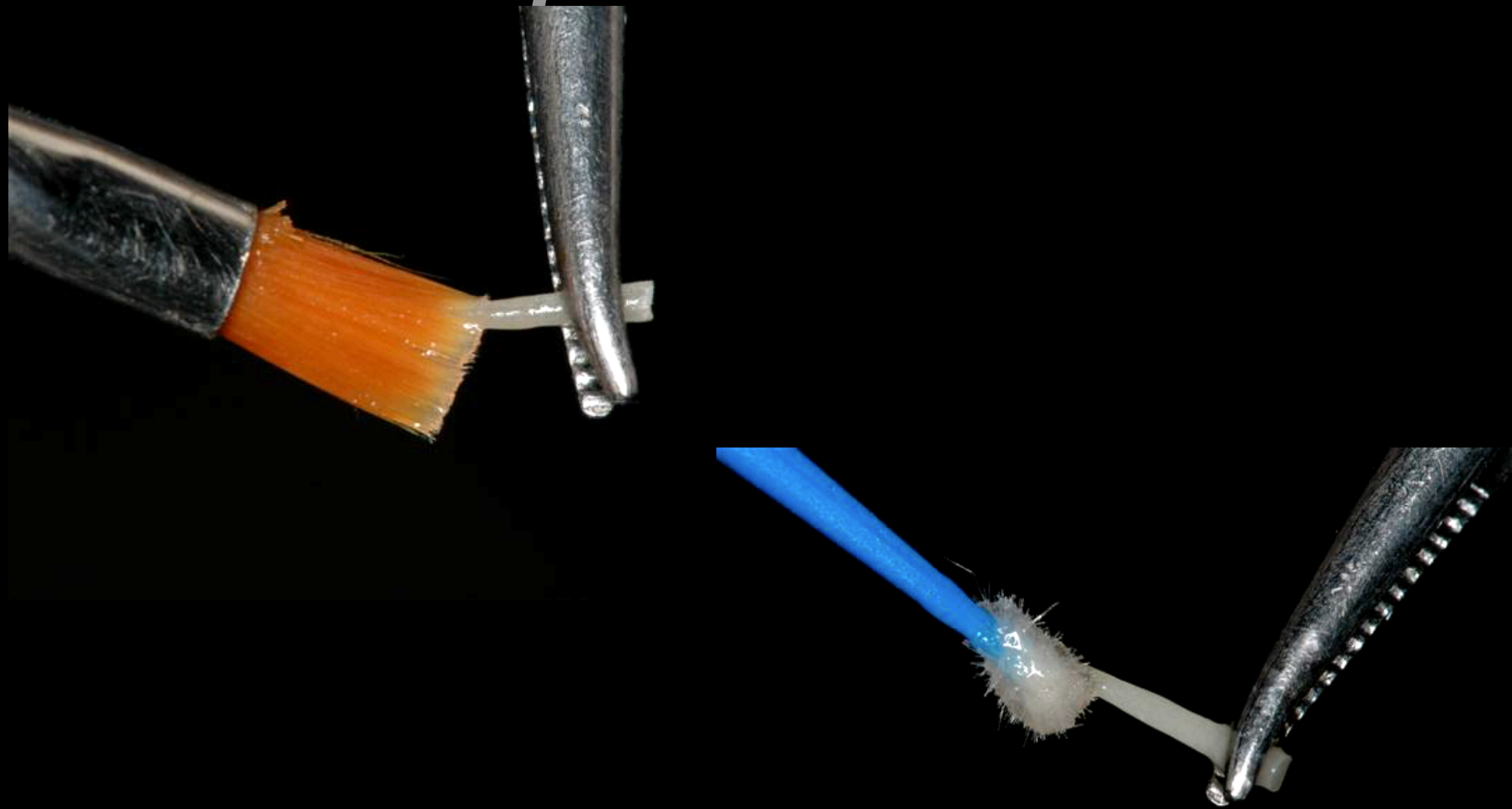
# **Preparo do Pino**

*Preparo do pino*



**Secagem**

# **Reforpins** Reforpins





# ***Escolha do Sistema Adesivo***

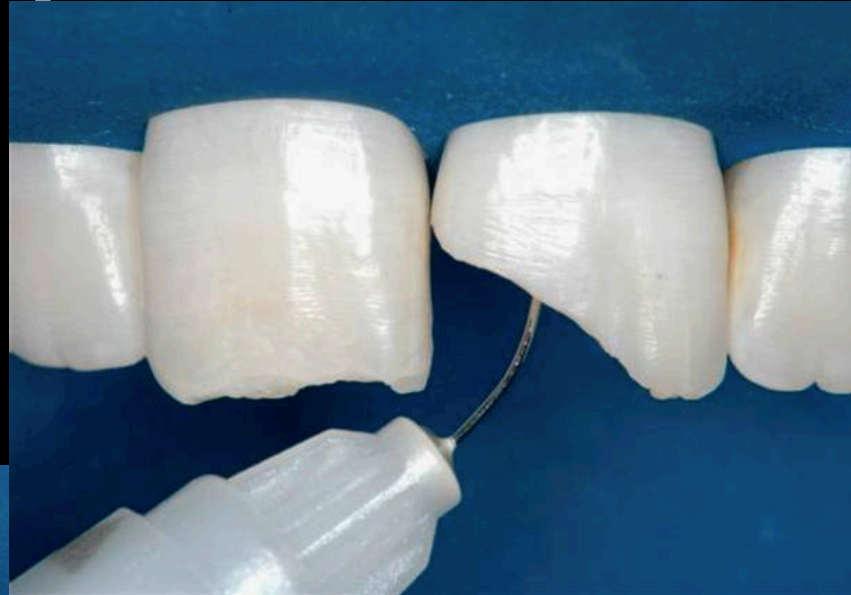
*Escolha do sistema adesivo*



**Scotch Bond Multipurpose (3M ESPE)**

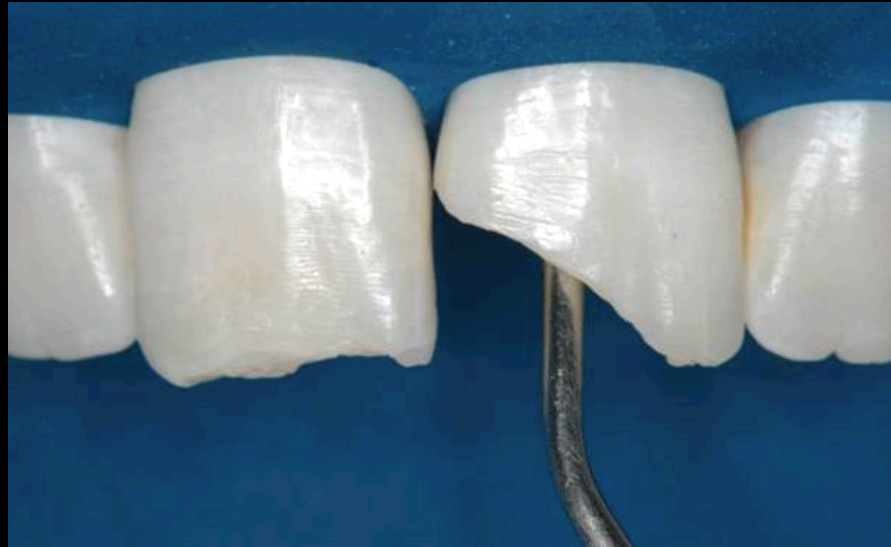
# **Preparo do Dente**

*Preparo do dente*



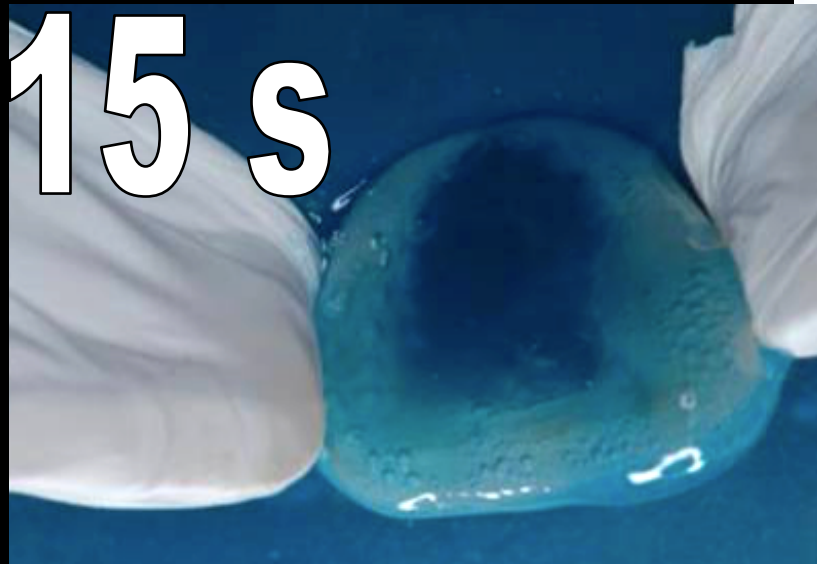
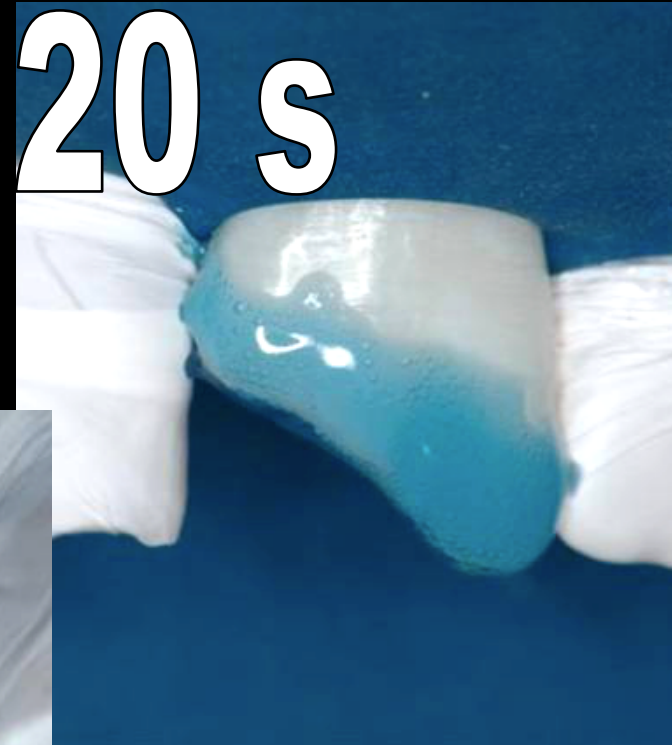
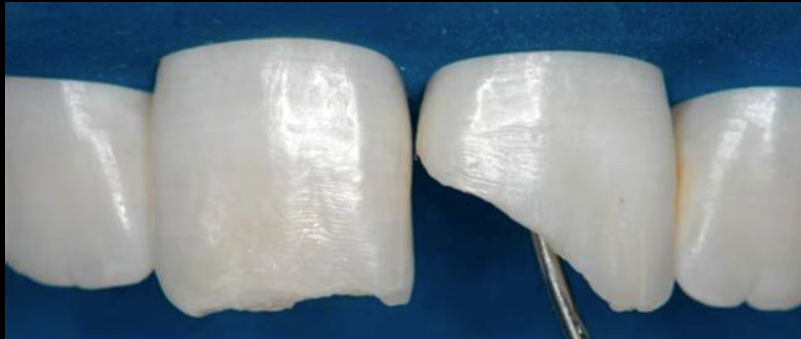
***Secagem antes do condicionamento***

*Secagem antes do condicionamento*



# Condicionamento Ácido

## Condicionamento



# **Condicionamento Ácido**

Condicionamento ácido



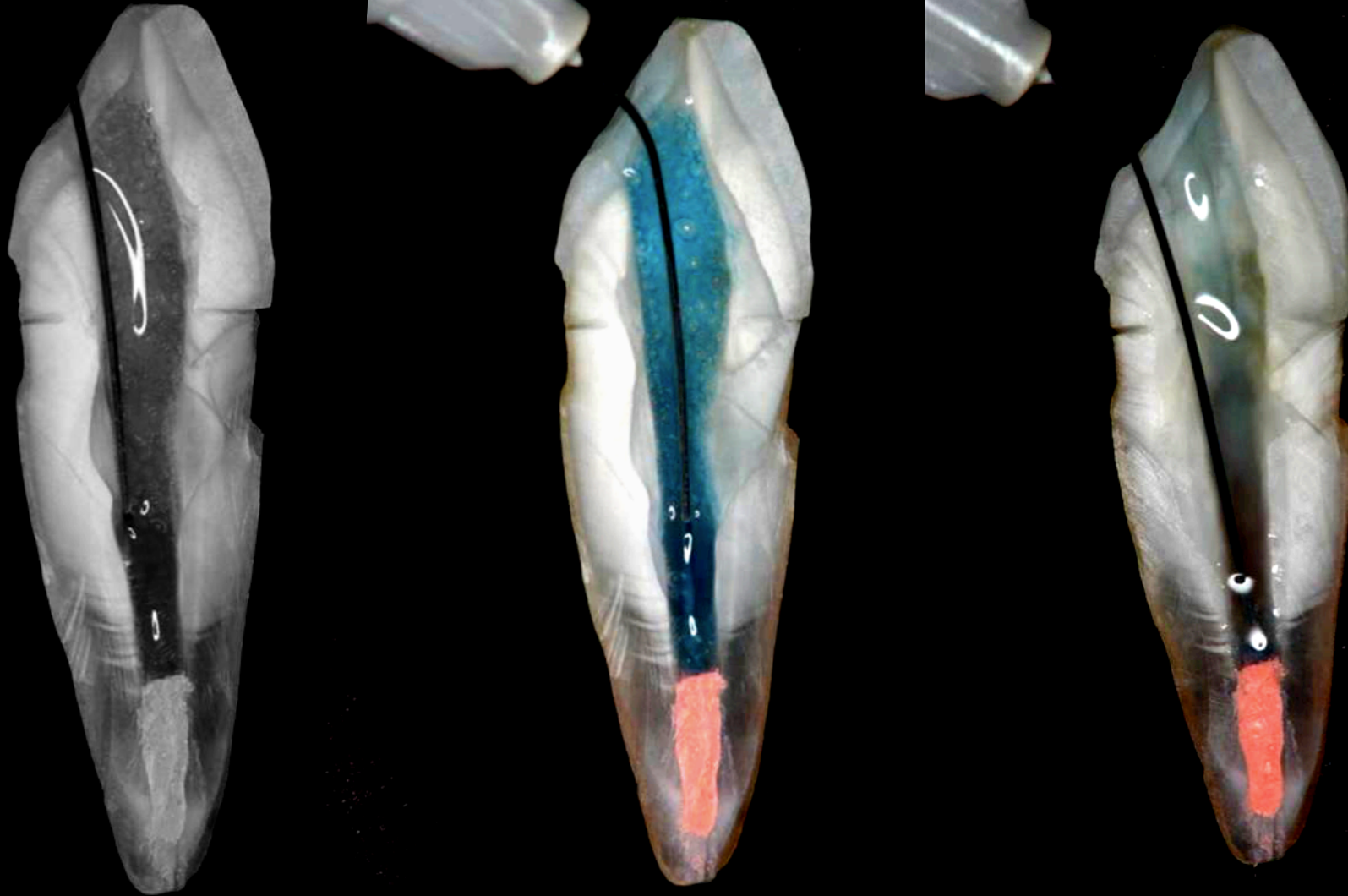
# ***Lavagem do Ácido***

*Lavagem do ácido*

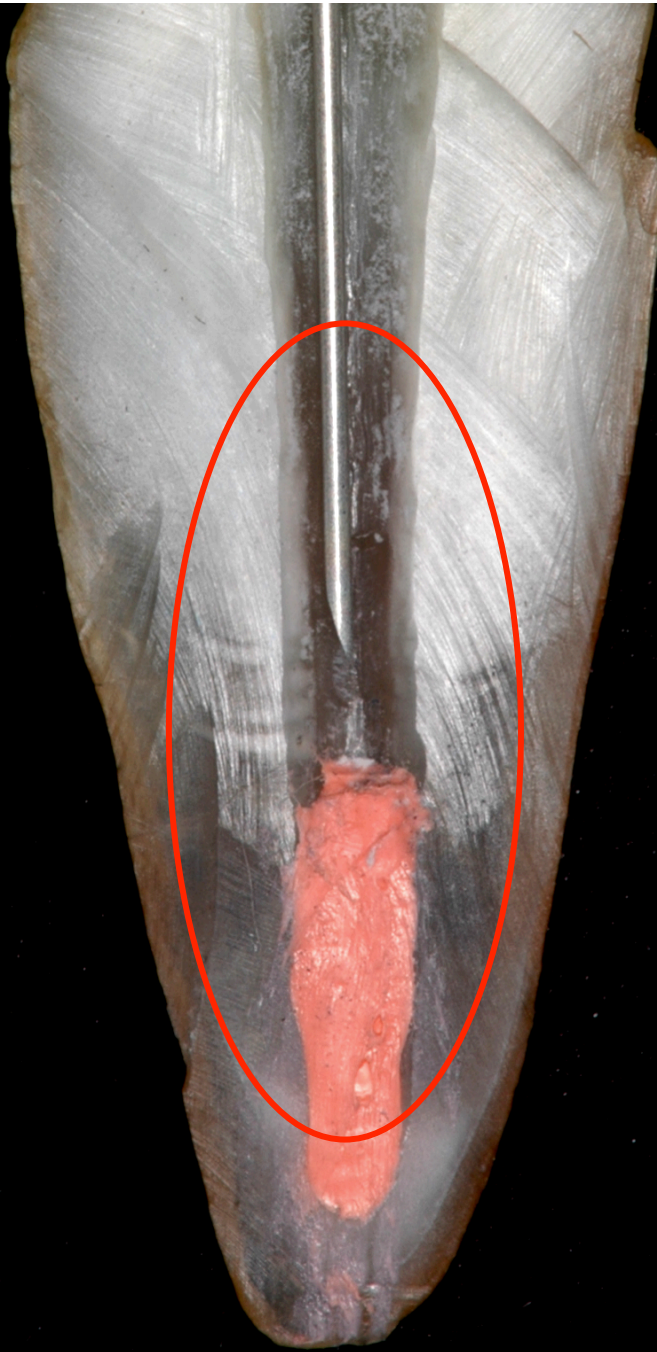
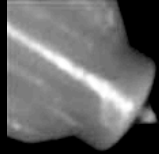


# **Lavagem do Ácido**

Lavagem do ácido



**Será ?**  
Será





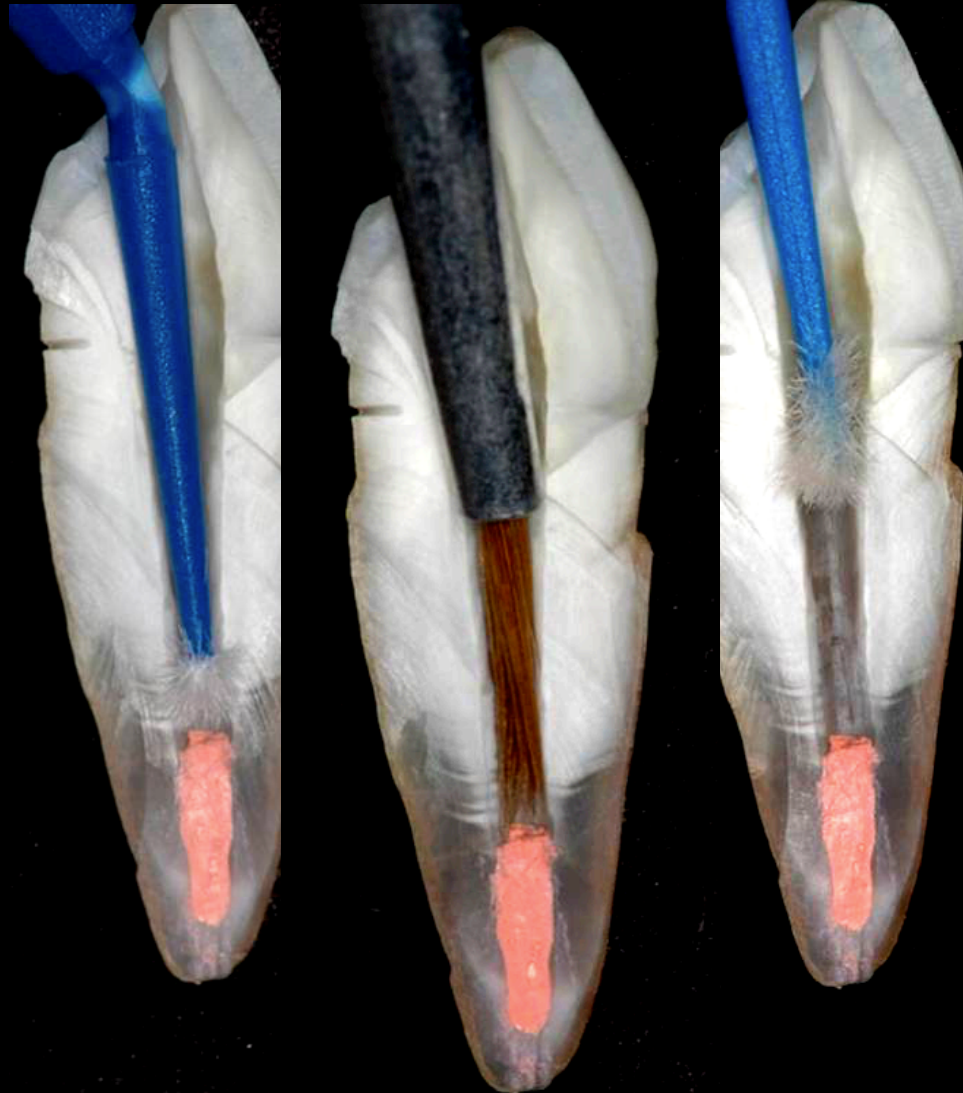
# **Secagem do Ácido**

Secagem do ácido



# ***Aplicando o sistema adesivo...***

*Aplicando o sistema ...*

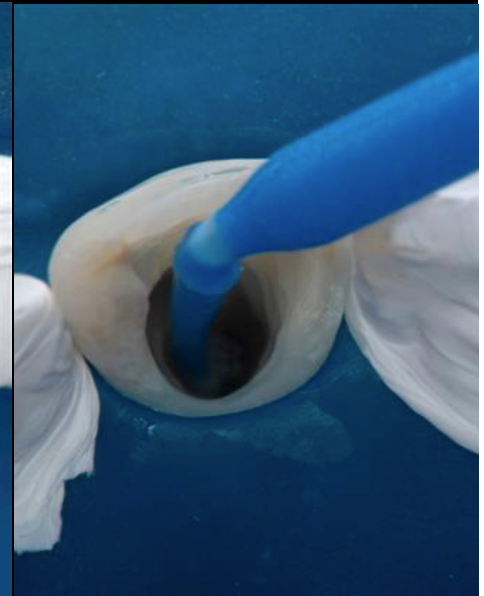
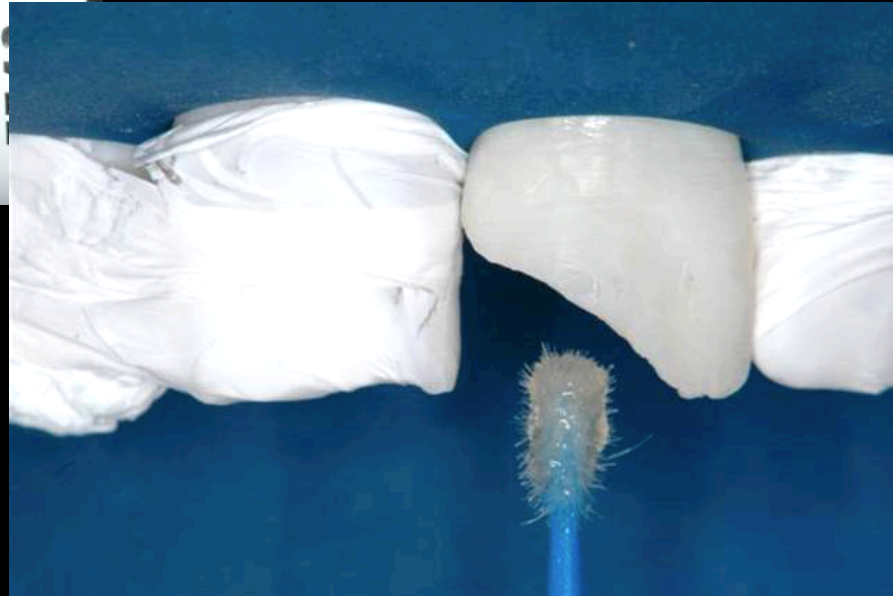


***Aplicando o sistema adesivo...***  
*Aplicando o sistema ...*



# *Aplicando o sistema adesivo...*

## *Aplicando o sistema ...*

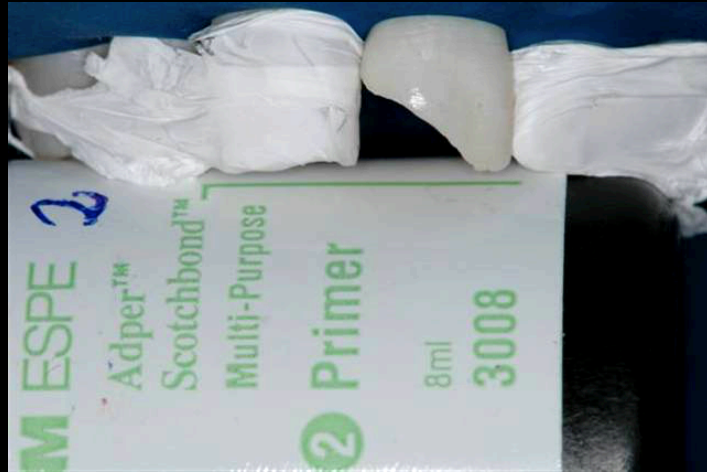


# ***Aplicando o sistema adesivo...*** *Aplicando o sistema ...*



# **Aplicando o sistema adesivo...**

*Aplicando o sistema ...*



# ***Aplicando o sistema adesivo...***

*Aplicando o sistema ...*



# *Preparando o cimento...*

*Preparando o cimento ...*





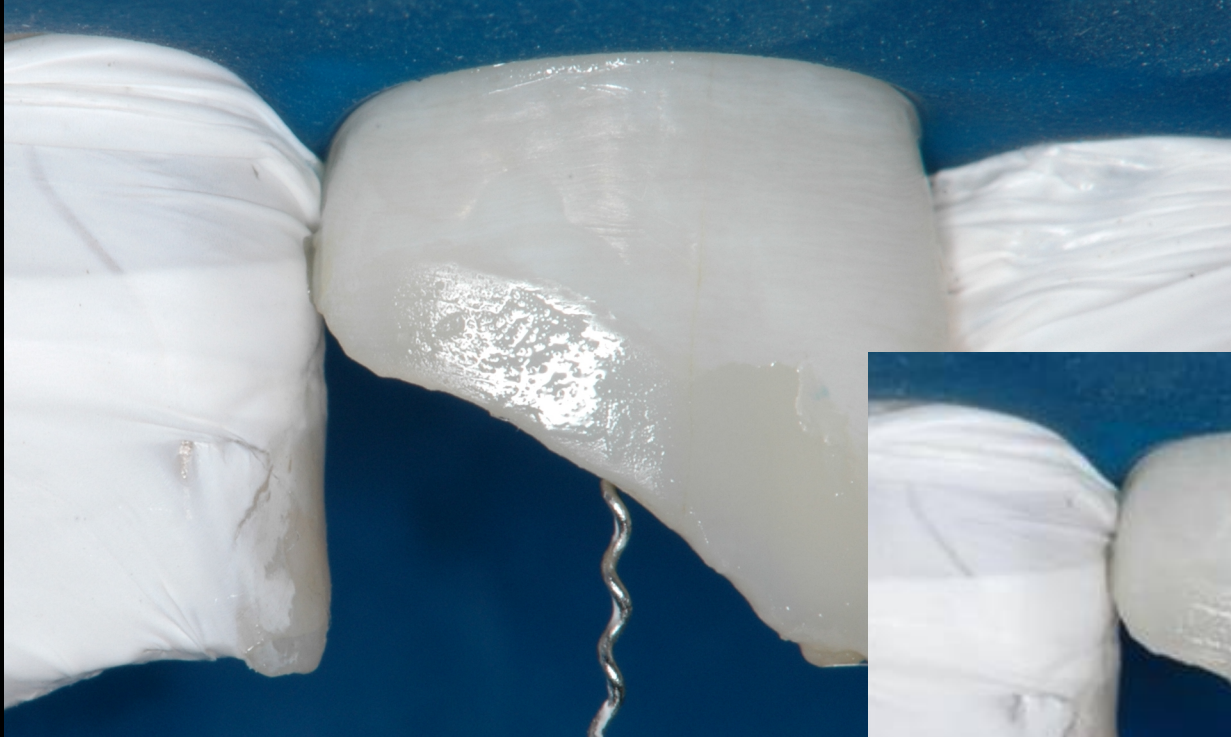
***Antes de cimentar...***  
*Antes de cimentar ...*



***Na cimentação...***  
*Na cimentação ...*



***Na cimentação...***  
*Na cimentação ...*



# ***Na cimentação...*** *Na cimentação ...*



***Preenchimento...***  
*Preenchimento ...*



***Espera-se que...***  
*Espera-se que ...*



***Espera-se que...***  
*Espera-se que ...*



**...tenha o maior preenchimento possível do conduto radicular, com a menor linha de cimentação**

