

The unique

Pulp
therapeutic
&
Restorative
material



Biodentine™ XP

the Bio-Bulk Fill procedure²⁰



Pulp therapeutic & Restorative material

Superior Bioactivity^{1-4*}

Strong Mechanical Properties^{5,7}

Excellent Biocompatibility^{5-7**}

Tight Marginal Seal⁹

Antimicrobial Properties¹⁰



* Highest mean value of Calcium release and its superior concentration that encourages positive interaction with pulp cells.
** Biodentine™ showed the highest % of cell biocompatibility.
Properties verified by preclinical studies.
CE for Biodentine™ XP was obtained on the basis of equivalence with Biodentine™.

Pulp therapeutic & Restorative material

Superior Bioactivity¹⁻⁴

Favourable interaction with pulp cells

Dense dentinal bridge formation to protect pulp.



Remineralisation of damaged dentine.

Excellent Biocompatibility⁵⁻⁷

Extra-pure
C3S

0
resin

0
cell death

Antimicrobial Properties^{10,21}

pH **11+**

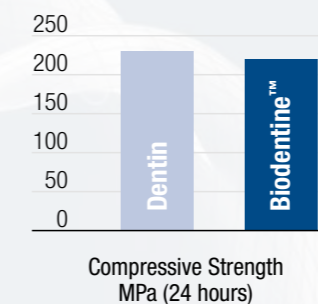
pH 10.99 at release and pH >11 maintained for 28 days.

Unfavourable environment for bacteria responsible for pain and secondary caries.

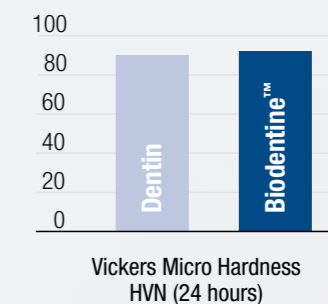
Strong Mechanical Properties^{7,8}

Similar to sound dentine

Resistance to external impact of mastication forces



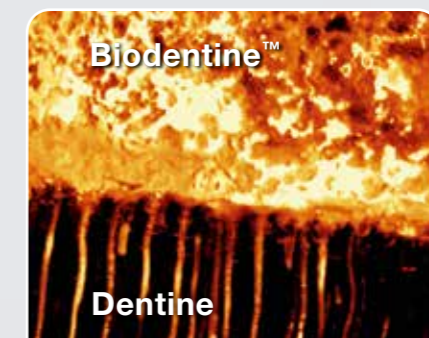
Stress absorption



Tight Marginal Seal^{4,9,11}

0
shrinkage

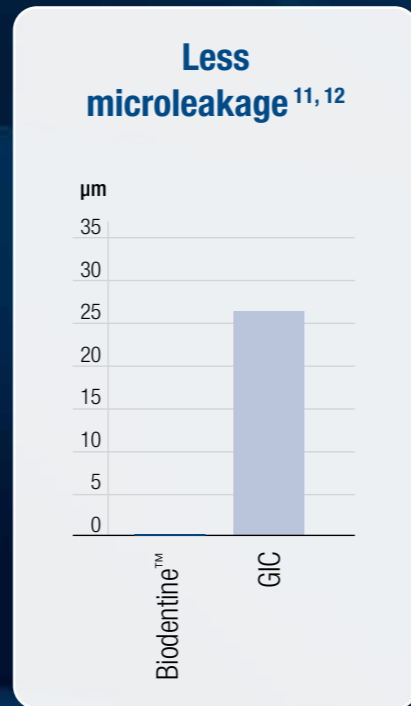
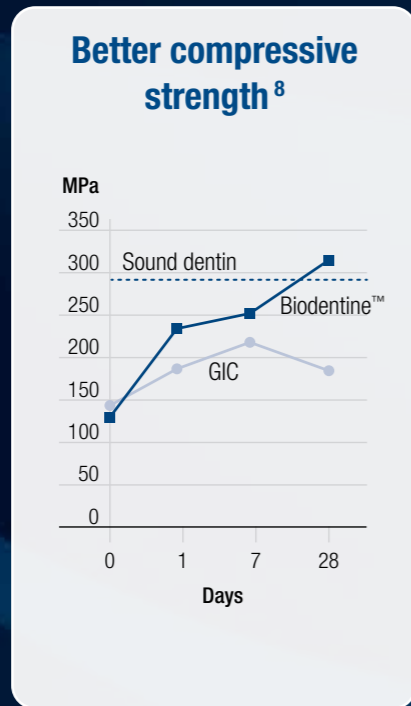
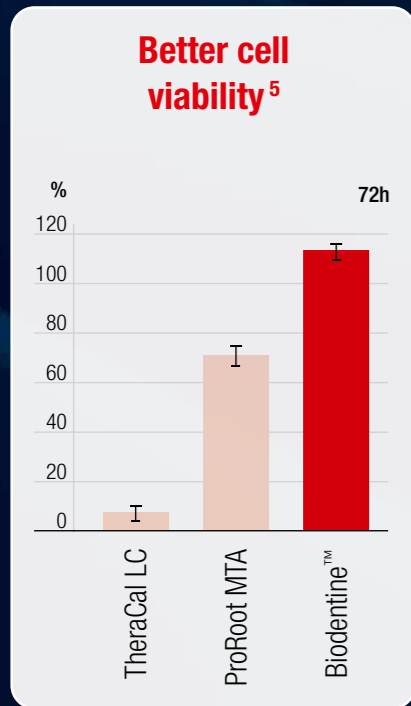
Thanks to its resin-free formulation, long-lasting dimensional stability is ensured.



Dentine

Deep penetration within dentine tubules.

**Pulp
therapeutic** & **Restorative
material**



“Results reflect a percentage of cell viability compared to cells cultured without pulp capping materials, which were considered 100%.”

Biodentine™ exhibited > 100%, the highest percentage of cell biocompatibility among the tested pulp capping materials.”

Poggio C et al. 2015

“A specific feature of Biodentine™ is its capacity to continue improving with time over several days until reaching 300 MPa after one month.”

This value becomes quite stable and is in the range of the compressive strength of natural dentine (297 MPa).”

Internal data: Biodentine scientific file
O'Brian 2008

“Biodentine™ exhibits superior marginal sealing ability as well as marginal adaptation under composite resin as compared to GIC.”

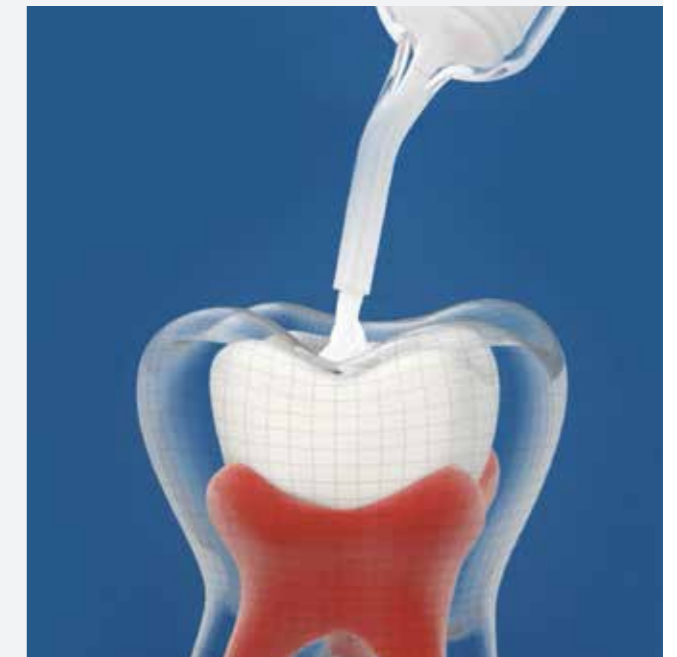
“Resistance to microleakage is important for preventing challenges such as the development of secondary caries, tooth sensitivity, aesthetic concerns, and the potential for restoration failure.”

Niranjan et al. 2016
Aljehani et al. 2023

Biodentine™ XP is THE unique material suited for

Bio-Bulk Fill procedure^{17,20}

Fill the entire cavity with only Biodentine™ XP from the pulp to the DEJ.



Final enamel restoration to be performed:

- in the same session
- or
- in the second session, which can be performed **between 2 weeks and 6 months later¹⁸**.

The full Bio-Bulk Fill procedure protocol²⁰



Pulp therapeutic & **Restorative material**

Success in your **daily** deep cavity restoration procedures

Clinical success rate

Direct pulp capping

96.4%¹⁵

Pulpotomy

93.9%¹⁶

Indirect pulp capping

95.8%¹³

When dentine thickness is:

- **Less than 0.5 mm**
- **Difficult to determine** in a clinical setting¹⁴

Using just one product, Biodentine™ XP lets you:

- Heal the pulp
- Preserve pulp vitality
- Save tooth structure²¹

12 years of success of Biodentine™ in the Bio-Bulk Fill procedure

Patient 1
1- and 12-year recall



Patient 2
8-year recall



Healthy teeth with pulp vitality and tooth structure preserved.

Cases by Prof. J. Sabbagh
DDS, MSc, PhD, FICD, HDR

6.5 million teeth saved with Biodentine™^{TM19}

Biodentine™ XP in the Bio-Bulk Fill procedure



Time-saving

One-step cavity filling



Easy to use

Direct placement in the tooth



Daily convenience

Fewer steps in the procedure



Adapted to your practice

1- or 2-session procedure



Cost-effective

1 product for dentine restoration*



Proven clinical success

multiple clinical trials

1300+
publications**

** Publications available at <https://pubmed.ncbi.nlm.nih.gov/>. CE for Biodentine™ XP was obtained on the basis of equivalence with Biodentine™.

* under final enamel restoration.

Examples of Bio-Bulk Fill procedure in daily deep cavity restorations

Indirect pulp capping in one session

By Prof. J. Sabbagh



Cavity preparation.



Biodentine™ XP placement, Bio-Bulk Fill procedure.



Final restoration using self-etch adhesive system and composite in the same session.

Indirect pulp capping in two sessions (final enamel restoration in two weeks)

By Dr. M. Ganowicz



Tooth after preparation.



Restoration of the proximal walls with composite material.



Filling of the rest of the cavity with Biodentine™.



Final enamel restoration after two weeks.

Direct pulp capping in one session

By Dr. V. Tosco



Clean cavity with pulp exposure.



Injection of Biodentine™ XP.



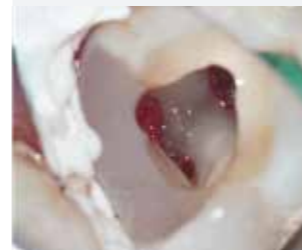
Hardening of bioceramic material before restoration.



Final restoration using selective enamel etching and composite.

Pulpotomy in two sessions (final enamel restoration in two weeks)

By Dr. S. Herbst



Complete pulpotomy with achieved hemostasis.



Bio-Bulk Fill procedure with Biodentine™.



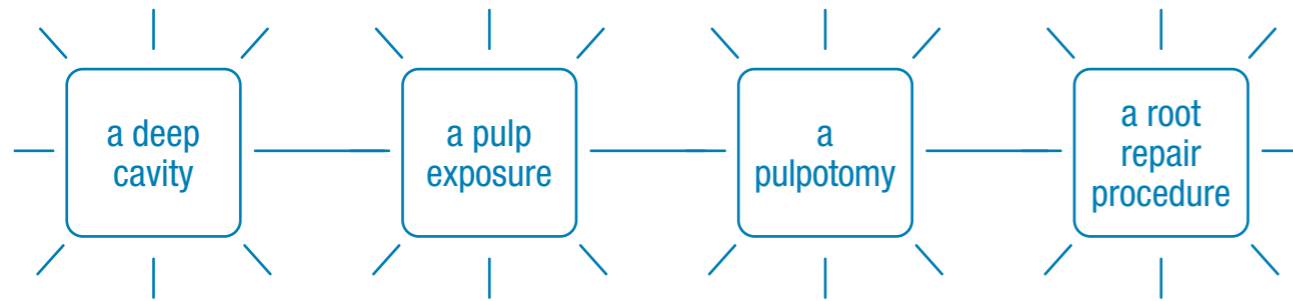
Final restoration using self-etch adhesive system and composite in a second session.



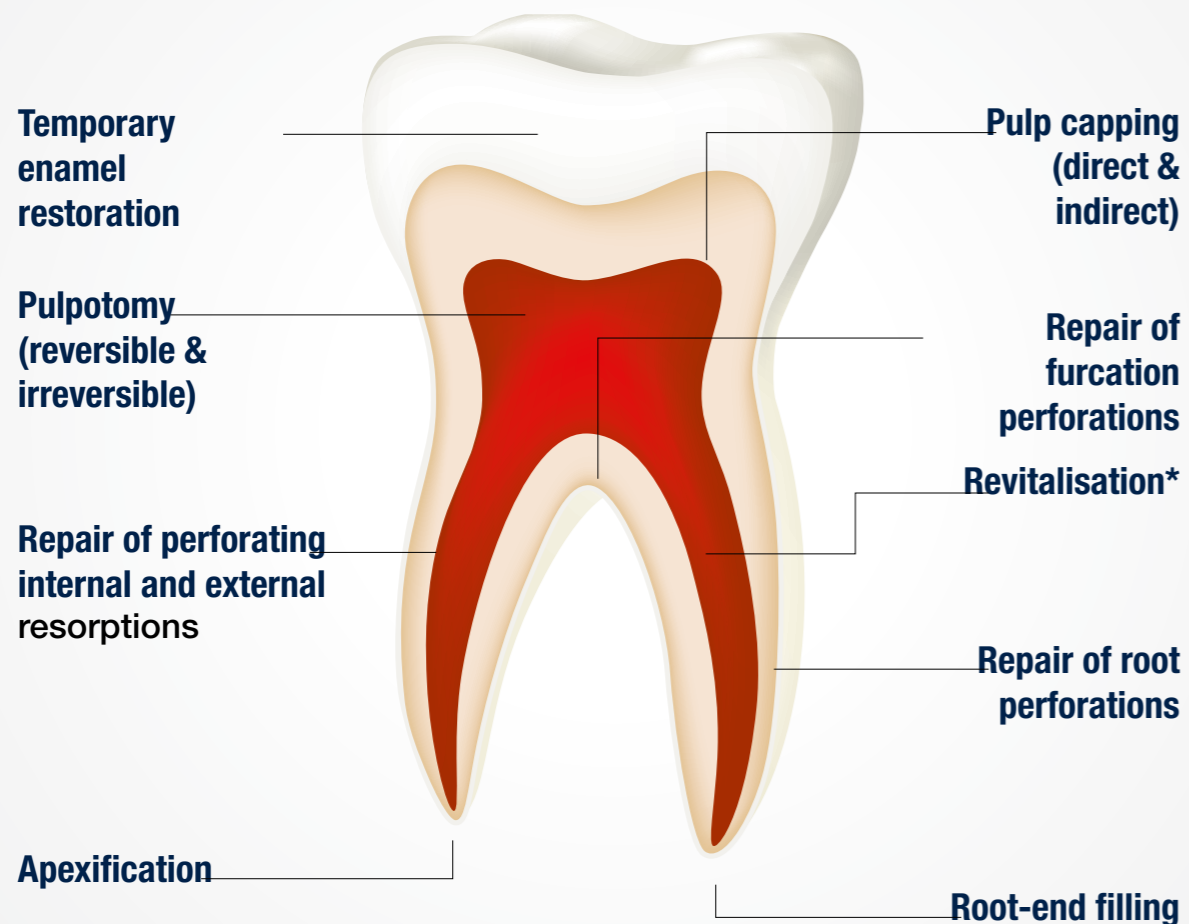
Radiology check.

Biodentine™ XP will provide you with an optimal **daily experience**

Today, 1 out of 2⁽²²⁾ patients in your practice will come for:

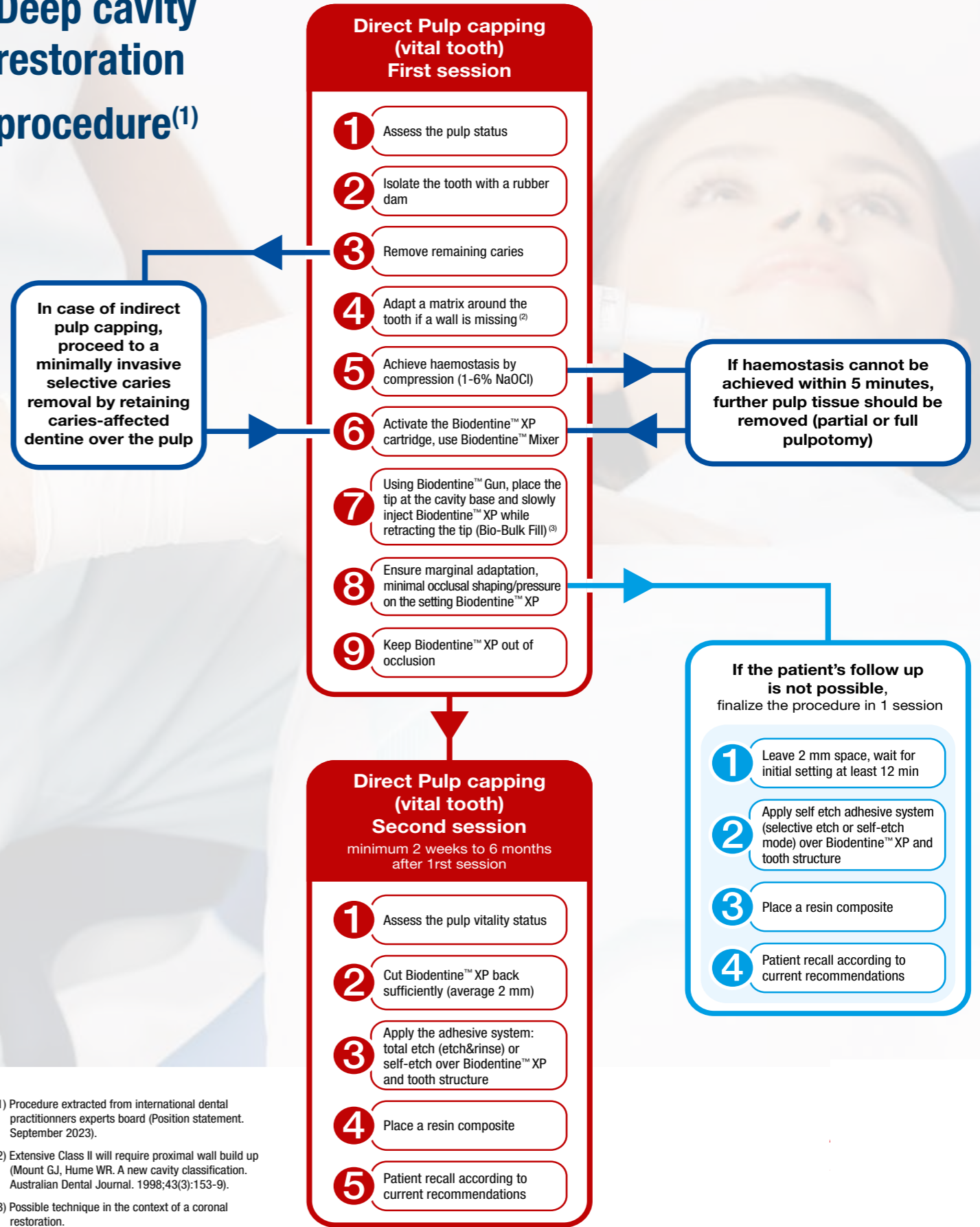


The ease of use and multiple indications of Biodentine™ from the crown to the root will help you every day to treat your patients.



*Revitalisation procedure by means of revascularisation of permanent immature teeth with necrotic pulp

Deep cavity restoration procedure⁽¹⁾



(1) Procedure extracted from international dental practitioners experts board (Position statement, September 2023).
 (2) Extensive Class II will require proximal wall build up (Mount GJ, Hume WR. A new cavity classification. Australian Dental Journal. 1998;43(3):153-9).
 (3) Possible technique in the context of a coronal restoration.

Biodentine™ saves pulps EVEN with signs & symptoms of irreversible pulpitis



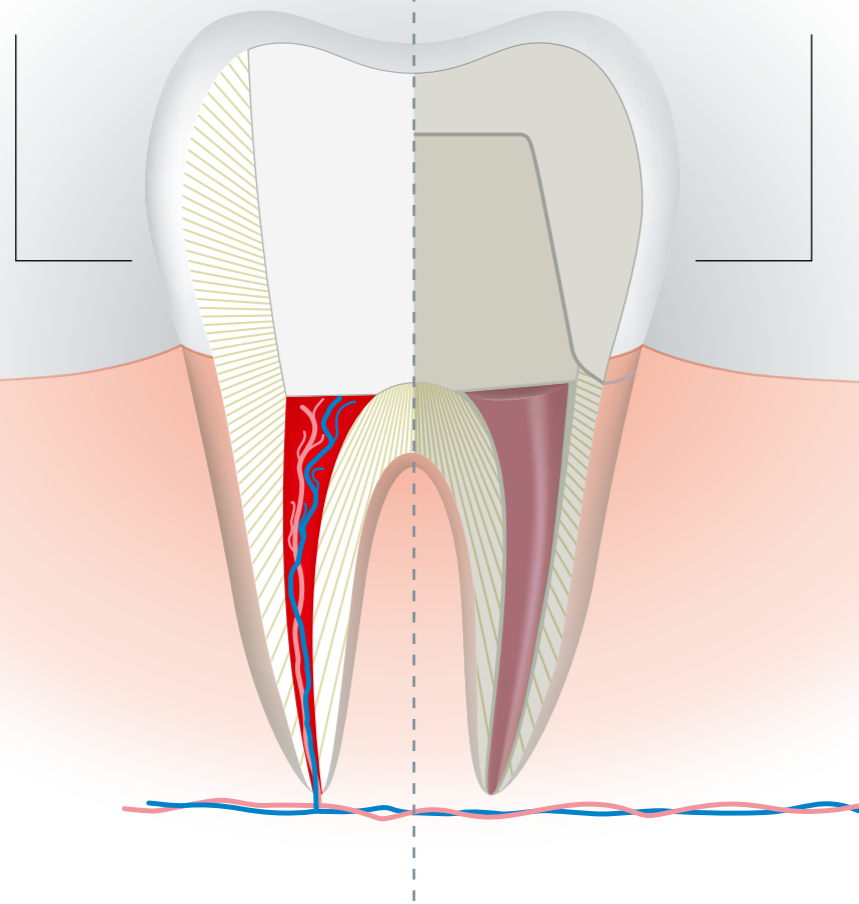
Vital Pulp Therapy

If you use
Biodentine™

Minimally invasive
vital pulp therapy

If not

Root Canal
Treatment



Managing carious pulp exposure

E.S.E.*
Clinical Directions



* European Society of Endodontology

- For class II capping of deep carious lesions an enhanced protocol should be used; including magnification, a disinfection irrigant and the application of a hydraulic calcium silicate cement.
- Carious exposure with symptoms indicative of irreversible pulpitis, when no rubber dam being used and instruments contaminated during caries removal, should be treated aseptically with pulpectomy.
- Alternatively full pulpotomy may be successful using an aseptic technique in cases where there is partial irreversible pulpitis in the coronal pulp.

Biodentine™: Step by step procedure



Proceed to caries excavation, first rinsing with 5% NaOCl, then using regular carbide/diamond burs.



Let the pulp appear and allow bleeding.



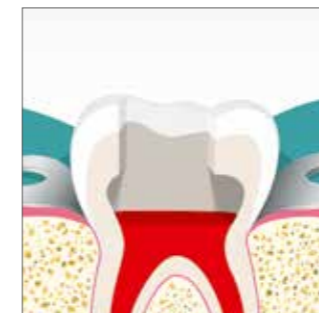
Control bleeding by applying a cotton pellet, moistened with 5% NaOCl.



If bleeding control is achieved within 5 min, fill the cavity with Biodentine™ and proceed to final enamel restoration within 6 months.



If not, remove a part of the pulp (partial pulpotomy) and resume attempt to control bleeding within 5 min.



Perform progressive pulpotomy until bleeding control is achieved within 5 min.



When the root canal entries are visible (full pulpotomy) and bleeding is controlled within 5 min, fill the cavity with Biodentine™ and proceed to final enamel restoration within 6 months.



If bleeding control within 5 min is impossible to achieve, then do the root canal treatment of the tooth.

The unique

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Biodentine XP 200
Box of 10 cartridges



Biodentine XP 500
Box of 10 cartridges



Biodentine Mixer
Box 1 mixer



Biodentine Gun
Box 1 dispenser gun

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