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Dr. Hernández-Cabanillas received his dental degree from the Autonomous University of Baja California (UABC) in 2010 and a Graduate Certificate in Pediatric Stomatology from the Autonomous University of San Luis Potosí (UASLP) in 2014. He is a lecturer at the Faculty of Health Sciences at UABC and a guest professor for the Pediatric Stomatology Postgraduate Course at UASLP. He has given numerous presentations and authored many articles on various topics in dentistry, including minimally invasive dentistry, management of early childhood caries, and bioactive dental materials.

CASE PRESENTATION

Pulpotomy in a Primary Molar Using a Calcium Silicate Material

Calcium silicate cements are commonly used as a filling material in pulpotomies, as clinical studies on the material have demonstrated a high rate of success due to their ion release and compatibility with different adhesive systems. In the following case, a pulpotomy was performed using BISCO's TheraCal PT on a second temporary molar after 180 days of evolution.

Diagnosis

An 8-year-old patient presented to the clinic with severe, high-intensity, and long-lasting pain in the upper right molar area that only subsided with medication. On clinical examination, a cavitated carious lesion is observed on the occlusal-interproximal area of the second upper temporal molar. Radiographically, a radiolucent shade is observed, covering enamel, dentin, and possibly in contact with the pulp (Figures 1–2). Based on the clinical and radiographic findings, a diagnosis of irreversible pulpitis was established and pulpotomy was indicated as treatment.

Treatment

The operative field was isolated with a clamp and all infected tissue was removed with manual and rotary instruments. The pulp chamber ceiling was removed with a sterile drill to access the inflamed tissue and remove it with an excavator until the entrance to the root canals was visualized. Hemostasis was achieved by pressing a moist sterile cotton pellet (Figure 3).

A dual-cured, resin-modified calcium silicate material (BISCO, TheraCal PT) was placed directly into the pulp chamber until it completely covered the area (Figure 4). It was then light-cured for 10 seconds and

showed good adaptation to cavity walls and margins (Figures 5–6). Finally, the tooth was restored with a stainless-steel crown.

Conclusion

Clinical and radiographic follow-up at 180 days showed adequate treatment progress (Figures 9–10). The tooth remained asymptomatic without signs of degeneration or pulp necrosis, and cold and vertical percussion vitality tests were favorable.

The use of calcium silicate materials is increasingly common in modern pediatric dentistry as they offer significant advantages over materials historically used for pulpotomy fillings. In addition, the technology offered in TheraCal PT's dual-cured resin matrix allows for strong adaptation to the walls and margins of the pulp chamber, adequate working time, and a sequence of quick and easy steps—making it an ideal choice for successful pulpotomies.

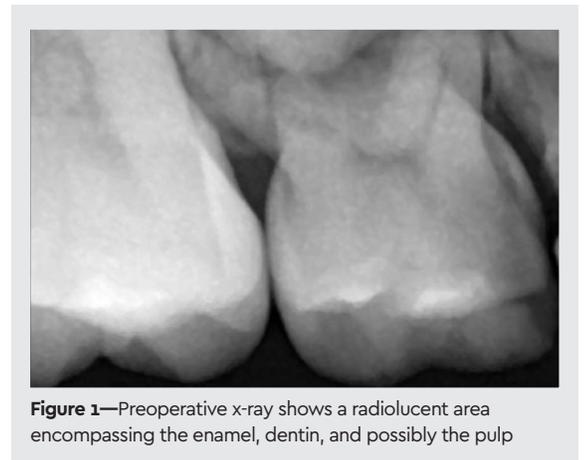


Figure 1—Preoperative x-ray shows a radiolucent area encompassing the enamel, dentin, and possibly the pulp



Figure 2—Clinical examination reveals a cavitated carious lesion on the occlusal-interproximal area

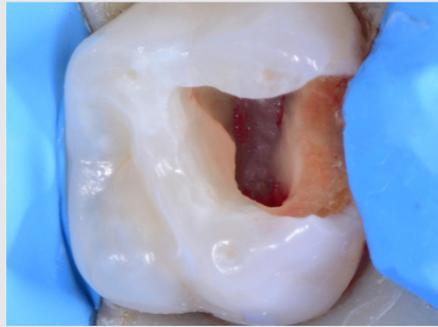


Figure 3—Pulp chamber hemostasis achieved with a moist sterile cotton pellet

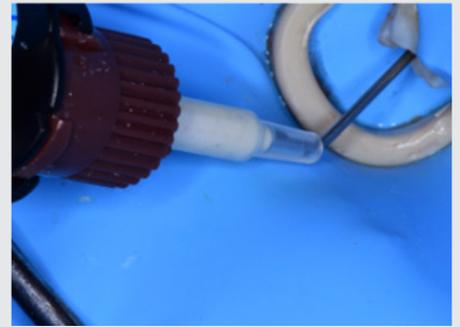


Figure 4—Calcium silicate material (BISCO, TheraCal PT) is placed directly in the pulp chamber

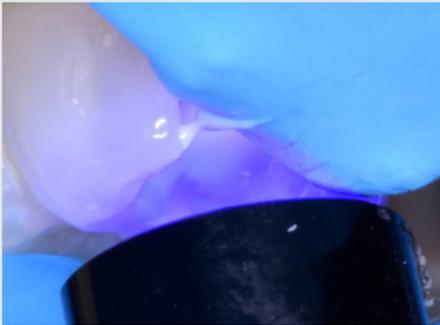


Figure 5 & 6—After TheraCal PT is placed in the pulp chamber, it is light-cured for 10 seconds and shows good adaptation to the cavity walls and margins

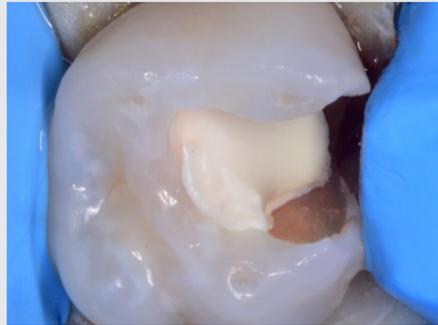


Figure 7—Tooth was restored with a stainless-steel crown

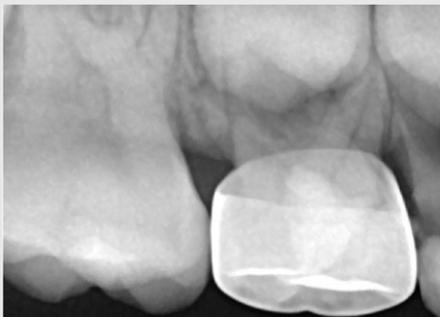


Figure 8—Immediate postoperative x-ray



Figure 8—180-day clinical follow up



Figure 9—180-day radiographic follow up

GO-TO PRODUCT USED IN THIS CASE

THERACAL PT

A dual-cured, resin-modified calcium silicate designed for pulpotomy treatment, TheraCal PT maintains tooth vitality by acting as a barrier and protectant of the pulpal complex. Its chemical formulation consists of synthetic Portland Cement calcium silicate particles in a hydrophilic matrix, which facilitates calcium release.



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