

# Pulpectomy in Primary Teeth - A Review

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## Abstract

Pediatric endodontics involves management of pulpally infected deciduous teeth. An attempt should be made to maintain the pulp of a tooth affected or infected by caries, traumatic injury or other cause. The successful pulpectomy is dependent upon the acquisition and analysis of appropriate diagnostic data. Purpose of pulpectomy in primary teeth is to allow primary teeth to maintain the arch length, help in mastication, esthetics and there by prevent any psychological trauma to the child patient.

**Keywords:** Pulpectomy, Pulp therapy, Primary teeth

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## Introduction

A pulpal injury irrespective of different causes is frequently irreversible and painful. Objective of pulpectomy is to prevent pain, sensitivity or swelling and permit resorption of the primary root structures and filling materials at the appropriate time to permit normal eruption of succedaneous tooth<sup>1</sup>. Pulpectomy involves removal of the root and contents of pulp chamber in order to gain access to the root canals which are debrided, enlarged and disinfected. Root canals are filled with resorbable material.<sup>2</sup>

## Indications

- \* Chronic irreversible pulpitis.
- \* Minimal periapical changes with sufficient bone support.
- \* Internal resorption without any perforations.
- \* Pulpless primary anterior teeth.<sup>3</sup>

## Contraindications

- \* Uncooperative Patient.
- \* Any systemic conditions like congenital heart disease.
- \* Mobile tooth and tooth which cannot be restored.
- \* Internal resorption in the apical third of the root.
- \* Any cystic pathologies eg radicular cyst, dentigerous cyst<sup>3,4</sup>

## Clinical Procedure of Pulpectomy

### Access opening of Primary Teeth

Access opening into the primary tooth is essentially same as those for permanent tooth<sup>5</sup>. Isolation of tooth

Use of the rubber dam is essential in any endodontic procedure as it is best method of isolating the tooth from the oral cavity<sup>6</sup>.

### Biomechanical Preparation

The biomechanical preparation in the primary teeth can be said to be different enough to warrant the following considerations:

Due to tortuous course of canal coupled with numerous accessory canals, the complete removal of pulp in the primary teeth may often be difficult, if not impossible. In order to avoid overextension working from the apex of teeth. Instruments should be gently curved to help negotiate canals<sup>7</sup>. The canals are enlarged several file sizes past the first file that fit snugly into the canal, with a minimum size of 30-35. During cleaning and shaping abundant irrigation must be done since many bifurcation present in

the root canals can not be attained by mechanical means. Debridement of primary root canal is more often accomplished by chemical means sodium hypochlorite than mechanical means. After canal debridement, the canals dried with sterile paper point and sealed into the pulp chamber with temporary cement<sup>8</sup>.

### Obturation of the Root Canal

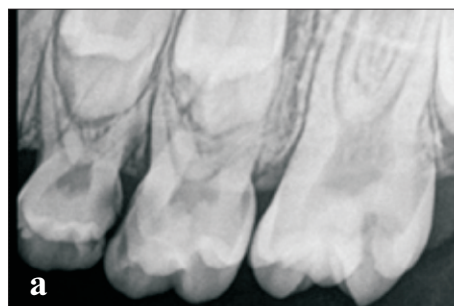


Figure showing pulpectomy procedure in primary upper molar.

- a. Showing pre r/g of 55.
- b. Showing working length determination.
- c. Showing obturation done in 55.

### Root Canal Filling Materials

The filling material most commonly used for primary pulp canals are zinc oxide – eugenol paste, iodoform paste and calcium hydroxide<sup>9</sup>.

**Zinc Oxide Eugenol Paste:** Most commonly

used paste. In 1837 Bonastre found ZOE and later on it is used by Chisholm in 1876. It is first material to be used for obturation in primary teeth as proposed by Sweet in 1930. It has analgesic and anti-inflammatory properties.

### Calcium Hydroxide & Iodoform Paste

Various histopathologic and clinical analysis of calcium hydroxide and iodoform combination ( Vitapex, Neo Dental, Chemical products Co. Tokyo) have been issued by Fuchino and Nishino. This material was found easy to apply and resorbs at a slightly faster rate than that of root. It has no toxic effects on permanent successor and is radiopaque. For these reasons, the calcium hydroxide iodoform mixture can be considered to be a nearly ideal primary tooth filling material.<sup>10</sup>

Calcium Hydroxide combinations: Metapex (Meta Biomed) and Vitapex (Neo Dental Chemical products Co., Ltd, Tokyo, Japan)

### Other Recent Materials

**Endoflas:** South America produced Endoflas which contains similar components such as Vitapex, zinc oxide, and eugenol.

**Endo flas – Chlorophenol- Free(CF) & Calen Paste with Zinc Oxide:** This material is free of chlorophenol which removes osteoblast cells due to fixation effect. And combination with zinc oxide provides better consistency and prevents pathologic root resorption.<sup>10</sup>

**Pulpotec & Aloe Vera:** Pulpotec has anti bacterial, antiseptic and anti-inflammatory properties whereas aloe vera is herbal and having wound healing property by collagen synthesis and wound contraction.<sup>10</sup>

**Zinc – Oxide Ozonated Oil :** It is a gaseous , enliven form of oxygen which has exceptional bactericidal and fungicidal effects.

**Lesion Sterilization & Tissue Repair:** It is formulated by Niigata University School of Dentistry. It is also mentioned as non – instrumentation endodontic treatment (NIET), which contains combination of metronidazole, ciprofloxacin, and minocycline, this repairs the damaged tissue.<sup>10,11</sup>

### Obturation Procedure

In the deciduous teeth with larger root canals, the walls should be filled by thin mix coating with the help of a reamer in anticlockwise direction followed by thicker mix and is forced physically. Pastes can also, be filled by means of lentulospiral mounted on the

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micro motor hand piece. The direction of rotation needs to be checked for the material to properly flow into canal. The endodontic pressure syringe is also effective for placing the paste in the canals.<sup>11</sup>

**Restoration**

When the canals are appropriately obturated, the primary tooth is restored with suitable filling material and place stainless steel crown<sup>12</sup>.

**Conclusion**

In a situation when there is infection of the pulp tissue of a primary tooth, it needs to be treated to prevent a dental abscess and tooth loss in extraction. So ,pulpectomy is best manner of treatment to save and restored the infected primary tooth so as to act as natural space maintainer for succedaneous tooth.The ultimate objective of this procedure is to save the tooth, so that it will maintain the integrity and function of the dental arch.

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