

Formocresol Pulpotomy vs.Vitrebond Indirect Pulp Therapy: a 5 year retrospective study on dental rehabilitation cases completed under general anesthesia at the University of Nebraska Medical Center Pediatric Dental Clinic

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INTRODUCTION

- Carious primary teeth diagnosed with a normal pulp requiring pulp therapy or with reversible pulpitis should be treated with vital pulp procedures.
- Pulpotomies and indirect pulp therapy are the two most commonly used vital pulp therapies in pediatric dentistry.
- A pulpotomy is the removal of the coronal portion of the primary tooth's pulp, which prevents the spread of infection to the radicular pulp and preserves the tooth's vitality.
- Indirect pulp therapy is the excavation of caries, but leaving the affected dentin to prevent pulpal exposure. A base or liner is placed over the affected dentin and then a final restoration is placed.
- Per the most recent AAPD clinical practice guidelines (2021-2022), there is still a lack of studies directly comparing the two vital pulp therapy interventions.

PURPOSE

- We aim to evaluate if indirect pulp therapy or Formocresol pulpotomies are more successful. While previous studies have shown a good success record for both pulp therapy modalities, we would like to explore our own success rate at our UNMC clinic.
- By conducting our own retrospective study, we hope that it will help us improve clinical skills and treatment outcomes at our pediatric dental clinic

RESEARCH QUESTION

- What are the success and failure rates of Formocresol pulpotomies and Vitrebond indirect pulp therapies?
- Is Indirect Pulp Therapy a better alternative than Formocresol pulpotomies?
- What is the demographic breakdown of our general anesthesia cases?

METHODS & DATA ANALYSIS

- **Type of Study:** Retrospective
- **Who:** Participants included 361 children who required full oral rehabilitation under general anesthesia
- **Time frame:** June 2016-December 2017
- **Ages:** 2-9 years old
- **Treatment Requirements:** A primary tooth treated with either a Formocresol pulpotomy or Vitrebond indirect pulp therapy
- All data were collected and organized on Microsoft Excel
- Calculations were completed with Statistical Package for the Social Sciences (SPSS) software and Microsoft Excel.

PARTICIPANT DATA

Insurance Breakdown	Total
Nebraska MCNA	292
Iowa DHS	23
Private Insurance	43
Self-Pay	3
Total Number of patients	361

Gender	N	%
Male	166	46%
Female	195	54%
Total	361	

Average Age:	4.5
Total # of Indirect Pulp Therapy	522
Total # of OR Cases	361
# of IPTs per OR Case	1.44598338
Total # of Pulpotomies	247
Total # of OR Cases	361
# of Pulpotomies Per OR Case	0.684210526
Indirect Pulp Therapy Failures	1
Indirect Pulp Therapy Total	522
Pulpotomy Failures	24
Pulpotomy Total	247

RESULTS

- **Gender Distribution:** 54 % female, 46% male
- **Average Age:** 4.5 years old
- **Insurance:** 93% Medicaid, 7% Private Insurance
- 32.5% of the IPT treated teeth and 34% of the pulpotomy treated teeth had no follow up.
- Success/failure rates were calculated solely based on patients who followed up with us.
- **Formocresol Pulpotomy:** 85.2% success rate, 14.8% failure rate
- Out of 247 pulpotomies, there were 24 documented failures.
- 19 teeth demonstrated failure due to internal/external resorption.
- 1 tooth with a Formocresol pulpotomy demonstrated failure due to an acute abscess.
- 3 teeth demonstrated failure due to a chronic abscess.
- **Vitrebond Indirect Pulp Therapy:** 99% success rate, <1% failure rate
- Out of 522 IPT treated teeth, there was 1 documented failure.
- This tooth demonstrated failure due to a chronic abscess with a parulis.
- Average about 1 Vitrebond indirect pulp therapy per OR case
- Average about < 1 Formocresol pulpotomy per OR case

DISCUSSION

- Our findings continue to show that both have good outcomes and the failure rate of both treatment methods are low, however, Vitrebond indirect pulp therapy has proven to be more successful.
- Any noted failures could be attributed to: inaccurate diagnosis, micro-leakage of restoration, undiscovered pulp exposure, inadequate removal of pulpal tissue and poor oral hygiene.
- Confounding factors: lack of patient follow-up and relocation of dental home.
- Key factor in selecting best treatment: pulpal diagnosis (reversible or irreversible pulpitis).

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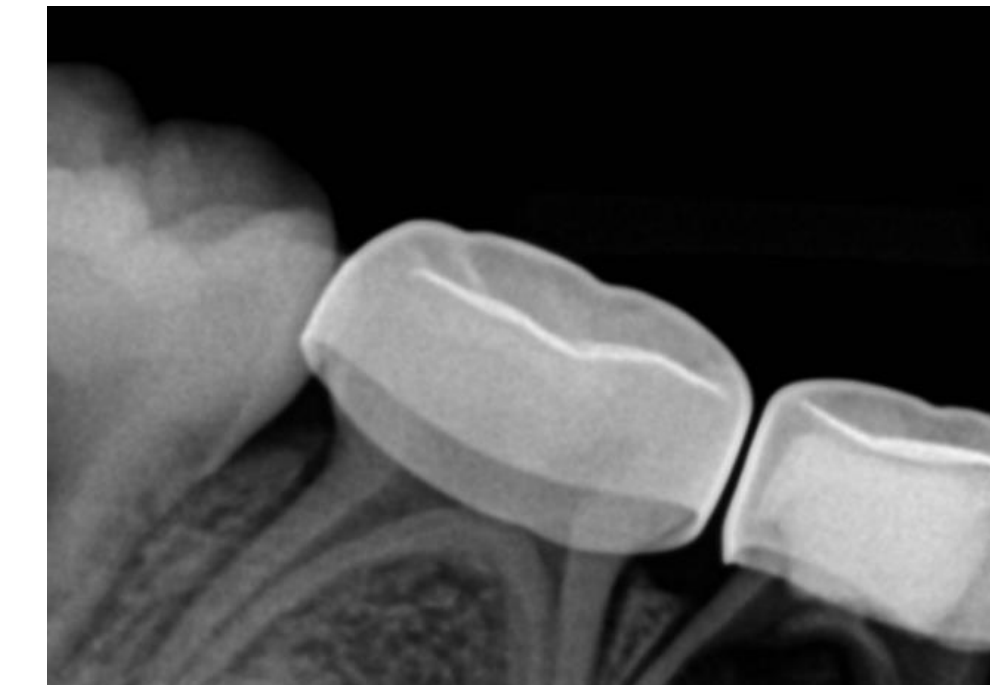
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C.V.: Internal/external resorption of #S



R.P.: Internal/external resorption of #L



A.T.: External resorption of #S



B.M.: external resorption of #T



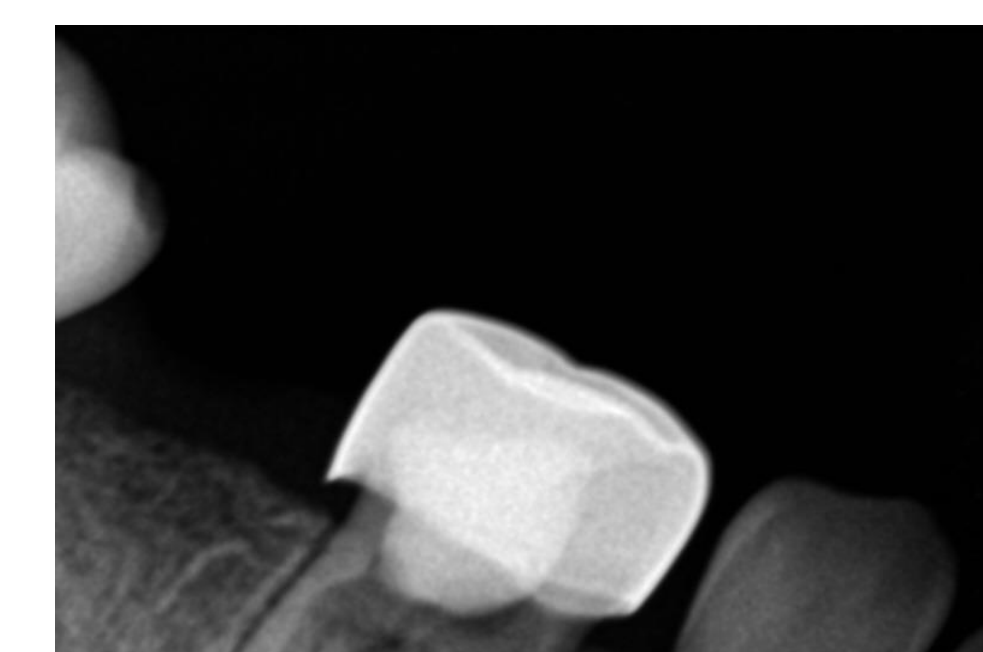
D.Z.: acute abscess of #B



S.R.: internal resorption of #K



T.D.: internal and external resorption of #K



L.N.: internal restoration of #S



K.G.: chronic abscess of #I; parulis