



## Single Versus Multi Visit Pulpectomy In 3-5 Year Old Children

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### KEYWORDS

Single visit pulpectomy

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### ABSTRACT:

**Introduction:** Pulpectomy is a regular clinical procedure in pediatric dentistry, which involves removal of infected dental pulp and suitable medicament could be used to fill the canal. Most pediatric dentists prefer to perform a multi visit pulpectomy

**Objectives:** To compare single visit multi visit pulpectomy on to basis of age gender and tooth number.

**Methods:** The study was conducted in a standardised setting, with all data obtained from patients with chronic pulpitis on primary teeth and apical periodontitis by reading patient records. The information gathered was assembled, evaluated, tabulated, and entered into SPSS software version 23.0, where it was statistically analysed.

**Results:** Multi visit pulpectomy was the least performed. 4 year old children were the most commonly treated. Maxillary right primary first molar was the most commonly treated tooth among males and lower left primary second molar in females.

**Conclusions:** Single-visit pulpectomy was more common than multi-visit pulpectomy in this study. The majority of the patients who underwent single-visit pulpectomy were males, with 24 percent being 3 years old, 43 percent being 4 years old, and 32 percent being 5 years old. The most single-visit pulpectomy procedures were performed on the upper right primary second molar. 7 percent of patients who underwent multivisit pulpectomy were under the age of three, 50 percent were between the ages of four and five, and 42 percent were females. The lower right primary first molar received the most multi-visit pulpectomy.

### 1. Introduction

Dental caries in children is a pretty common chronic illness. Caries causes pain and infection, affecting one's quality of life, as well as normal eating and sleeping patterns, as well as growth and development concerns [1,2]. Furthermore, teeth with a lot of decay may need to be extracted, which might lead to tooth loss at a young

age[3,4]. In addition to masticatory function, attractiveness, and the prevention of speech and psychological disorders, primary teeth protect room for the permanent teeth to erupt and ensure appropriate succedaneous tooth eruption timing[5-7]. As a result of early primary tooth loss, permanent molars drift mesially, leading in malocclusion. Pulpectomy is a



procedure that keeps pulpally damaged primary teeth in the mouth rather than extracting them[8,9].

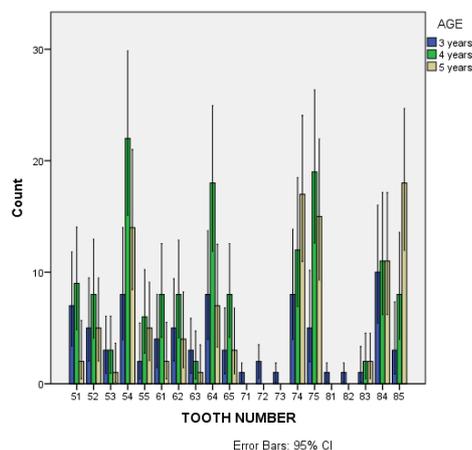
Pulpectomy is a root canal procedure that is performed to treat inflamed or necrotic pulp tissue that has developed as a result of caries or trauma [10,11]. Pulpectomy is recommended for primary teeth with irreversible pulpitis or necrosis, or a tooth treatment planned for pulpotomy in which the radicular pulp exhibits clinical signs of irreversible pulpitis such as excessive haemorrhage or pulp necrosis such as suppuration or purulence, or a tooth treatment planned for pulpotomy in which the radicular pulp exhibits clinical signs of irreversible pulpitis such as excessive haemorrhage [12,13]. Pulpectomy is the mechanical removal of all necrotic tissue debris from the root canal of a primary tooth, followed by thorough cleaning and disinfection with disinfectants, and chemo-mechanical preparation of the root canal for filling with suitable obturating material and a coronal seal [14,15]. A successful pulpectomy is defined clinically and radiographically by the absence of signs and symptoms[16]. Furthermore, age, gender, tooth status, pathological state, and clinical expertise all influence the outcome of pulpectomy in primary teeth[17,18].

The fundamental purpose of pulp treatment in primary teeth is to keep them healthy and functioning as important components of the dental arch, allowing them to chew and communicate while also keeping the essential space for permanent teeth to emerge [19,20]. To achieve these vital goals, dentists frequently use critical pulpotomy procedures [21]. However, in certain patients with permanent pulpitis or necrotic radicular canals, pulpotomy was ineffective, necessitating the use of another operation known as partial or total pulpectomy therapy[22,23].

The pulpal tissue is removed and an intracanal medicament is inserted in the first visit of a multiple visit pulpectomy, followed by obturation in the second visit if the underlying pathology persists; if the underlying pathology persists, additional visits may be required [24,25]. SVP (single-visit pulpectomy) involves removing the pulp and filing the canals to a resistance point just below the apex, then irrigation and final drying before obturating material is applied[26,27].

## 2. Objectives

The objective of a study is to compare the effectiveness,



safety, and outcomes of single-visit pulpectomy versus multi-visit pulpectomy in young children aged 3 to 5 years old. The study aims to analyze the demographic distribution (age and gender) of patients undergoing each procedure, as well as the distribution of treated teeth (location and type) in both groups.

## 3. Methods

The current investigation was a comparative, descriptive, and retrospective study in which the required data of patients with chronic pulpitis or periapical periodontitis requiring pulp therapy were obtained by examining and analysing patient records. The research was conducted in a university with a large South Indian population. The study's benefits were a diverse population and the capacity to do preference analysis. The disadvantage was that it only covered a small geographic area. The institutional ethical board gave its consent to the current study. Patients were chosen from a list of paediatric out-patients aged 3-5 years who visited clinics complaining of tooth ache between December 2020 and February 2021. The information was gathered for the Dental Information Archiving Software, which is a database of all treatments performed on children who came to the dental hospital's paediatric section with dental problems. The data yielded a total sample size of 450 people. All patients aged 3-5 years who required pulpectomy because to severe caries were included in the study. All incomplete and censored data met the exclusion criteria. To reduce mistake, the data was cross-verified with



images and evaluated by a second person. The total number of people in the sample was found to be 387. Although internal validity is high, outward validity is low. The data was organised and tallied in a Microsoft Excel spreadsheet in a systematic manner. The tabulated information was entered into the IBM SPSS programme version 23.0 for statistical analysis.

#### 4. Results

The study demonstrates the frequency of the age of patients who had single-visit pulpectomy based on statistical analysis. 24 percent of the kids who had a single visit pulpectomy were 3 years old, 43 percent were 4 years old, and 32 percent were 5 years old. Males made up 55% of the patients, while females made up the remaining 45%. Upper right primary second molars received the most single-visit pulpectomy, followed by lower left primary second molars.

Figure 1 shows the correlation between the age of the patient and the tooth number treated under a single visit. Blue depicts 3 years old, green depicts 4 years old and brown depicts 5 years old. It reveals that the most generally treated teeth in 3 year old patients were lower right primary first molars, upper right primary first molars were the most commonly treated teeth in 4 year old patients, and lower right primary second molars were the most commonly treated teeth in 5 year old patients.

In a single visit pulpectomy, Figure 1 depicts the relationship between age and tooth number. Lower right primary first molars were the most commonly treated teeth in 3 year old patients, upper right primary first molars were the most commonly treated teeth in 4 year old patients, and lower right primary second molars were the most commonly treated teeth in 5 year old patients, according to the study. The Pearson chi square test was determined to be statistically significant in this case ( $p < 0.05$ ). The link between the patient's gender and the number of teeth during single-visit pulpectomy is depicted in Figure 2. Males treated their upper right primary first molars the most, whereas females treated their lower left primary first molars the most. The Pearson chi square test revealed a statistically significant ( $p < 0.05$ ) link between the age and gender of patients who underwent single visit pulpectomy.

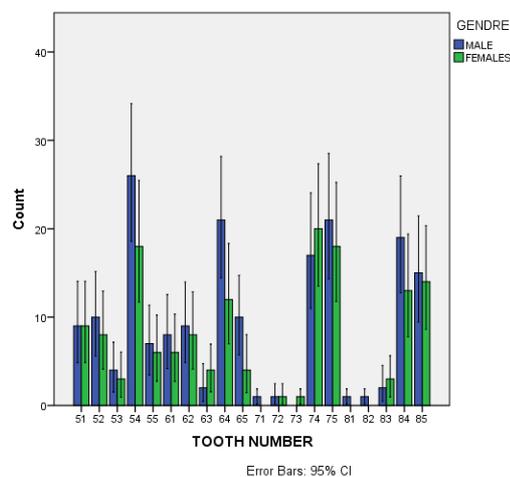


Figure 2 shows correlation between the gender of the patient and the teeth number for single visit pulpectomy. Males are depicted in blue, while females are depicted in green. It demonstrates that males treated their upper right primary first molars the most, whereas females treated their lower left primary first molars the most.

According to the findings, 7% of the patients who underwent multi-visit pulpectomy were under the age of three, 50% were aged four, and 42% were aged five. Males made up 48% of the patients, while females made up the remaining 52%. The most multi-visit pulpectomy was performed on lower right primary first molars, followed by lower right primary second molars.

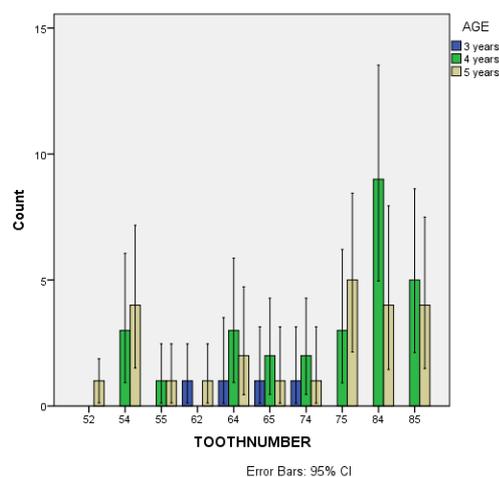


Figure 3 shows the correlation between age and tooth number in multi visit pulpectomy. Blue depicts 3 year old, green represents 4 year old and brown represents 5 year olds. It shows that the upper left primary molars, upper left primary lateral incisor and the lower left



primary second molar were the most commonly treated teeth in the patients of 3 years of age, the lower right primary first molars were mostly treated teeth in the patients of 4 years of age and the lower left primary second molars were the mostly commonly treated teeth in patients of 5 year of age.

Figure 3 depicts the relationship between age and the number of teeth removed during a multi-visit pulpectomy. The most commonly treated teeth in 3 year olds were the upper left primary molars, upper left primary lateral incisor, and lower left primary second molar, the lower right primary first molars were the most commonly treated teeth in 4 year olds, and the lower left primary second molars were the most commonly treated teeth in 5 year olds. The Pearson chi square test for the same resulted in statistically insignificant findings ( $p>0.05$ ). The association between gender and the number of teeth removed during a multi-visit pulpectomy is depicted in Figure 4. The lower right primary first molars and the lower left primary first molars were typically treated in males, whereas the lower right primary first molars and the lower left primary first molars were commonly treated in females. The results of the Pearson chi square test were statistically significant in this case ( $p,0.05$ ). Based on the number of visits, Figure 5 depicts the relationship between the patient's age and the type of pulpectomy. Blue represents single visit pulpectomy and green represents multi visit pulpectomy. It shows that 4 year old patients were treated under single visit and multi visits followed by 5 year old patients and 3 year old patients.

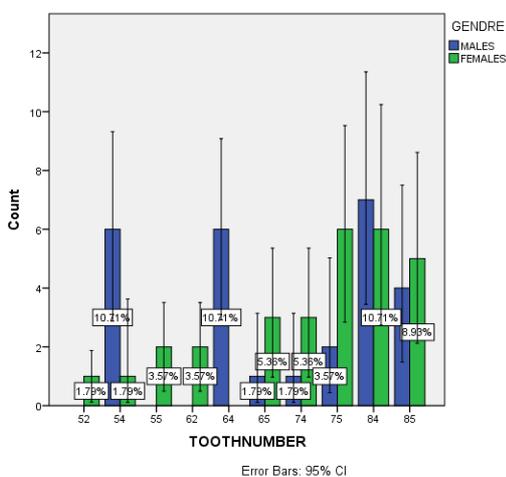


Figure 4 shows the correlation between gender and tooth number for multi visit pulpectomy. Males are

represented by blue, while females are represented by green. It reveals that in males, the lower right primary first molars and the lower left primary first molars were usually treated, whereas in females, the lower right primary first molars and the lower left primary first molars were commonly treated.

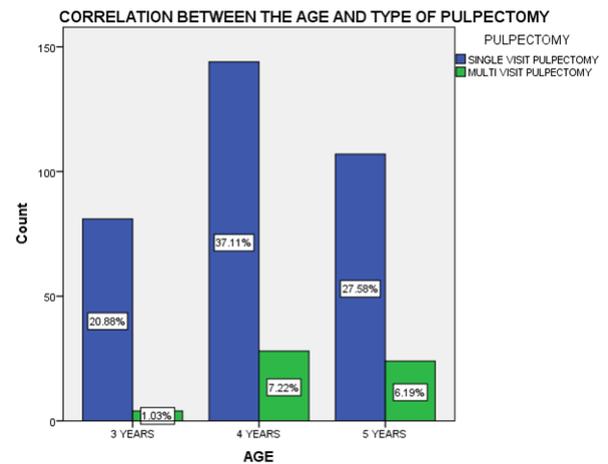


Figure 5 shows the association between the patient's age and the type of pulpectomy based on the number of visits. It shows that four-year-old patients were treated in single-visit and multi-visit settings, followed by five-year-old and three-year-old patients. More single-visit pulpectomy procedures were conducted than multi-visit pulpectomy procedures.

### 5. Discussion

Clinical techniques, operator and evaluator skill and experience, location and size of periapical lesions, and follow-up intervals are all aspects that influence endodontic therapy[28]. In this study, single-visit pulpectomy was more common than multi-visit pulpectomy. This could be because of the following factors: 1. It takes less time. 2. Use of local anaesthesia is reduced. 3. There are fewer risks of reinfection. Multi-visit pulpectomy is the best approach in inevitable circumstances, such as teeth with periapical lesions and complex root canal anatomy, to avoid reinfection and maximise treatment success[29]. The length and frequency of treatment appointments are also determined by the patient's behavioural issues, anxiety level, and parental and child education, even socio economic factors[30].



Patients aged 4 to 5 years old demonstrated the most cooperation during single and multi-visit pulpectomy, followed by patients aged 5 to 3 years old. This could be related to the patient's behavioural type and the impact of his or her parents[31]. According to a study, due to their behavioral style at that age, 4 year old patients frequently listen and respond with interest to dentist explanations and vocal directions [32]. Patients as young as 5 years old will have no fear of new experiences if their parents have adequately prepared them for dental treatment.

Males were treated in single visits more frequently than females in the current study. It's possible that this is because males are more cooperative than females. This research is similar to Kristina Arnrup et al's study on paediatric patients' lack of participation and dental phobia[33,34].

It was clear that molars had a high caries rate and were therefore treated with pulp treatment. This could be attributed to fissures in the primary molars, which trigger caries activity when food lodges between them. Molars are more susceptible to dental caries than premolars and front teeth, according to studies. Primary molars are more prone to severe caries than anterior teeth in the primary dentition. This does not have to be the case in the case of early childhood caries.

## 6. Conclusion

Single-visit pulpectomy was more common than multi-visit pulpectomy in this study. The majority of the patients who underwent single-visit pulpectomy were males, with 24 percent being 3 years old, 43 percent being 4 years old, and 32 percent being 5 years old. Upper right primary second molars received the most single-visit pulpectomy, followed by lower left primary second molars. 7 percent of patients undergoing multi-visit pulpectomy were under the age of three, 50 percent were between the ages of four and five, and 42 percent were females. Lower right primary first molars received the most multi-visit pulpectomy, followed by lower right primary second molars.

## 7. Acknowledgement

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## 8. Conflict of Interest

None declared.

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