

Assessment of Single Visit Endodontics in an Outreach Project: A Case Study

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Received: September 25, 2017; **Published:** October 18, 2017

Abstract

Objectives:

1. To compare one visit endodontic treatment technique to a multi visit endodontic technique.
2. To assess if the materials and techniques utilized in one visit endodontic treatment are feasible for community outreach programs.

Methodology: The Single visit endodontic technique used by University of Pacific was observed and specific technical information was requested from the proponents of the technique. This information was then compared to the current endodontic technique practiced at the Fiji National University. Similarities, differences and style of practice were noted, analyzed and critiqued in relation to relevant literature and compared to factors that were considered favourable for implementation in a village setting.

Results: In FNU, the technique used is a standard multiple visit endodontic approach, where the apical stop (constriction) is increased 2 - 3 file sizes greater than the initial apical file to complete the preparation. Hand files are used to prepare the canals in conjunction with calcium hydroxide, Ledermix or a mix of both depending on the diagnosis. EDTA and sodium hypochlorite are used as irrigants to assist in canal disinfection. Obturation is carried out a minimum of 2 weeks later using AH 26plus and gutta percha. The University of Pacific carries out a single visit endodontic technique where canals are enlarged with LightSpeedLSX and disinfected with an EndoVac negative-pressure irrigation system. Sealapex sealer was used along with hotshot gutta percha points to obturate the tooth. The single visit technique fulfilled more critical factors for implementation in a short term village project.

Conclusion: Single visit endodontic is in most clinical situation a viable option for successful root canal treatment and is feasible for implementation in a community outreach project.

Keywords: Case Study; Endodontic Treatment; Feasibility; Multiple Visit; Outreach Project; Single Visit; University; Village

Introduction

Final year dental students from the dental school of the Fiji National University (FNU) joined a dental group of staff and students from the University of the Pacific – Arthur A. Dugoni School of Dentistry who were conducting a community project in Moala village in Fiji from the 25th to 29th March, 2013. This project has been ongoing over the past eight years for a week every year providing oral health care, screening, oral health promotion, fluoride treatment, restorative care, extractions and endodontic treatment.

One of the aims of this placement and experiential learning was for students to be able to critique and compare two different methods of root canal treatment and gauge the feasibility of single visit endodontic treatment in a village setting.

High dental caries prevalence and consequences of untreated caries affect the Fiji population. In the 2004 National Oral Health report, 55.7% of the participants had permanent teeth with untreated caries. Time, distance and cost are some of the factors which contribute to the population in remote villages seeking dental service at a stage when caries has progressed beyond preventive treatment and needs advanced restorative treatment or extraction.

Objectives

- To conduct a case study on single visit root canal therapy as part of experiential learning and reflective writing process for undergraduate students.
- To compare one visit endodontic treatment technique to a multiple visit endodontic treatment.
- To assess if the materials and technique utilized in single visit endodontic treatment are feasible for community outreach program.

Methodology

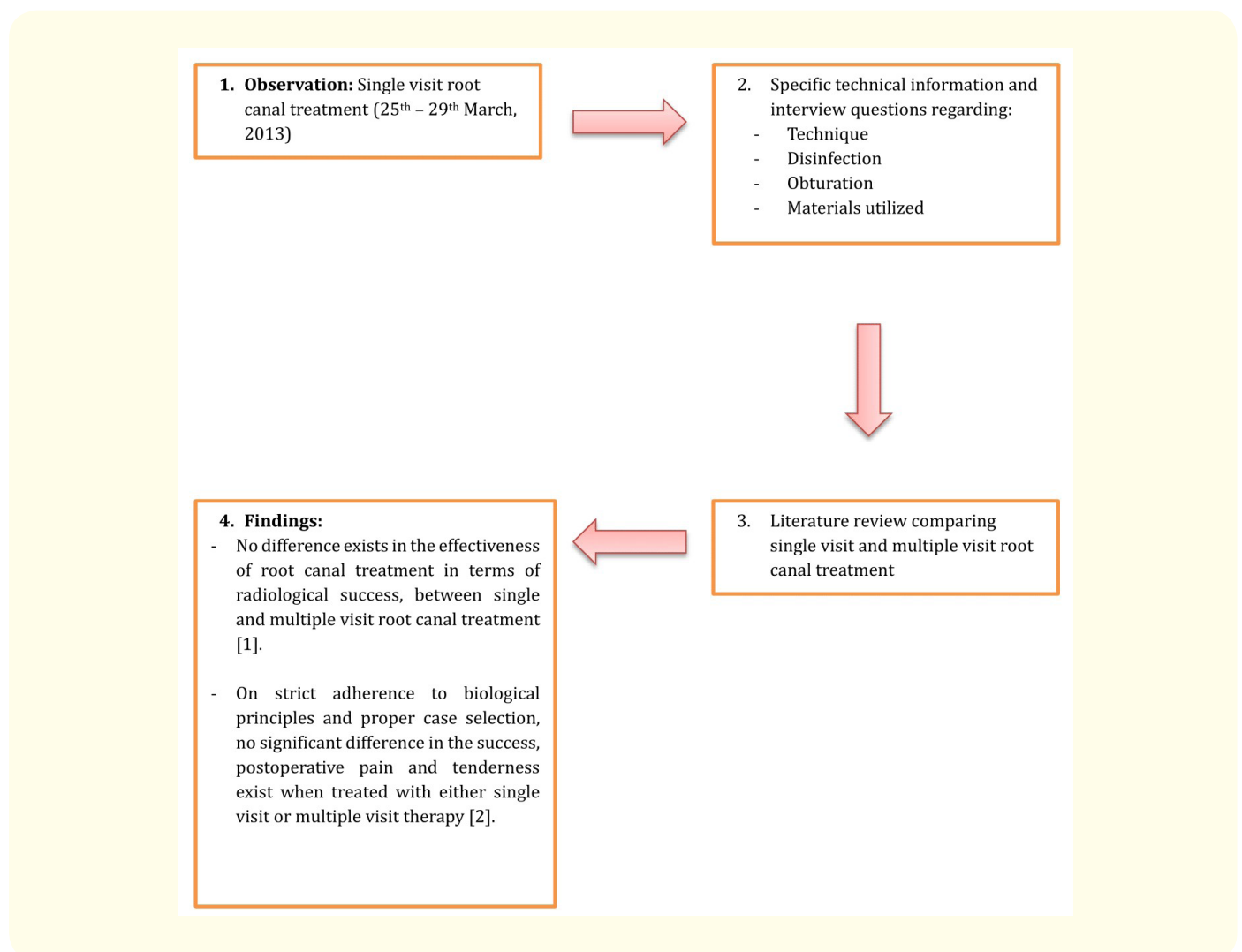
Case studies are a creative alternative to traditional approaches to description which involves a systematic inquiry into an event which aims to describe and explain the phenomenon of interest.

Three key stages that are critical to conduct case studies are:

- Stage 1 – Describing experience
- Stage 2 – Describing meaning
- Stage 3 – Focus of the analysis

Stage 1 – Describing Experience

Many studies conducted suggest that single visit endodontic treatment is an effective manner in which to treat teeth requiring endodontic success, with it achieving success of similar level to that achieved by multiple visit endodontic treatment [1-3].



Results

	Fiji National University	University of the Pacific – Arthur A. Dugoni School of Dentistry
Technique	<ul style="list-style-type: none"> - Multiple visit - Apical stop increased 2 - 3 files greater than initial apical file using hand files 	<ul style="list-style-type: none"> - Single visit - Canals enlarged using LightSpeedLSX
Disinfection	<ul style="list-style-type: none"> - Calcium hydroxide paste - Ledermix paste - Combination of both - Depends on diagnosis - Sodium hypochlorite and Ethylenediaminetetraacetic acid (EDTA) are used as irrigants 	<ul style="list-style-type: none"> - Disinfected with EndoVac negative pressure irrigation system
Obturation	<ul style="list-style-type: none"> - Carried out a minimum of 2 to 4 weeks later using AH26 Plus and gutta percha 	<ul style="list-style-type: none"> - Sealapex sealer used along with gutta percha points
Instruments and Materials	<ul style="list-style-type: none"> - Rubber dam isolation - Stainless steel hand files - Sodium hypochlorite - EDTA - Ledermix paste - Calcium hydroxide paste - AH26 Plus root canal sealer - Paper points - Gutta percha points - Periapical radiographs 	<ul style="list-style-type: none"> - Rubber dam isolation - LightSpeedLSX (rotary instrument for filing) - EndoVac negative pressure irrigation system (17% EDTA) - Sealapex sealer (non-eugenol, calcium hydroxide polymeric root canal sealant) - Gutta percha points - Portable x-ray unit

Table 1: Comparing Multiple and Single Visit Root Canal Treatment.

Discussion

- Continue case study method to Stage 2 and 3.
- Review and analyze data existing in Moala village project
- Prospective study comparing single visit root canal treatment outcome over a two year period.

The single visit technique fulfilled more critical factors for implementation in a short term village project. Generally, in Fiji, endodontic treatment is conducted over multiple visits. It can be difficult for people from the villages to complete the root canal process due to the number of appointments required. Village outreach projects last from only a few days to weeks which make it impractical to carry out multiple visit endodontic treatment. Single visit endodontic treatment carried out by students of University of the Pacific – Arthur A. Dugoni School of Dentistry at Moala village is thus beneficial to the villagers.

Conclusion

Single visit endodontic treatment is in most clinical situations a viable option for successful root canal treatment and is feasible for implementation in a community outreach project. Not all clinical scenarios are a candidate for single visit endodontic treatment. Teeth

with a draining sinus require multiple visit endodontic treatment in order to ensure thorough cleansing of the canals and to give medications placed inside the canals enough time to exert its anti-inflammatory and anti-bacterial effects.

Therefore, a clinician should make a sound judgment based on proper history, examination, tests and diagnosis before making a decision to carry out a single or multiple visit endodontic treatment. In a village setting where outreach projects last for less than a week, this is critical as a clinician will either commence endodontic treatment and complete the entire treatment or stabilize and refer.

Acknowledgments

1. Dr. Allen Wong (DDS, EdD, DABSCD) from University of the Pacific-Arthur A. Dugoni School of Dentistry, United States of America for allowing me to be a part of community outreach at Moala, observe single visit endodontic treatment procedure and corresponding via email to provide vital information regarding materials and methods utilized to carry out single visit endodontic treatment.
2. Dr. Bernadette Pushpaangaeli and Dr. Mark Cumberbatch for providing the assistance needed to enable me to present this case study at the International Association for Dental Research (Asia – Pacific Region) in Bangkok, Thailand in 2013.

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Volume 15 Issue 3 October 2017

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