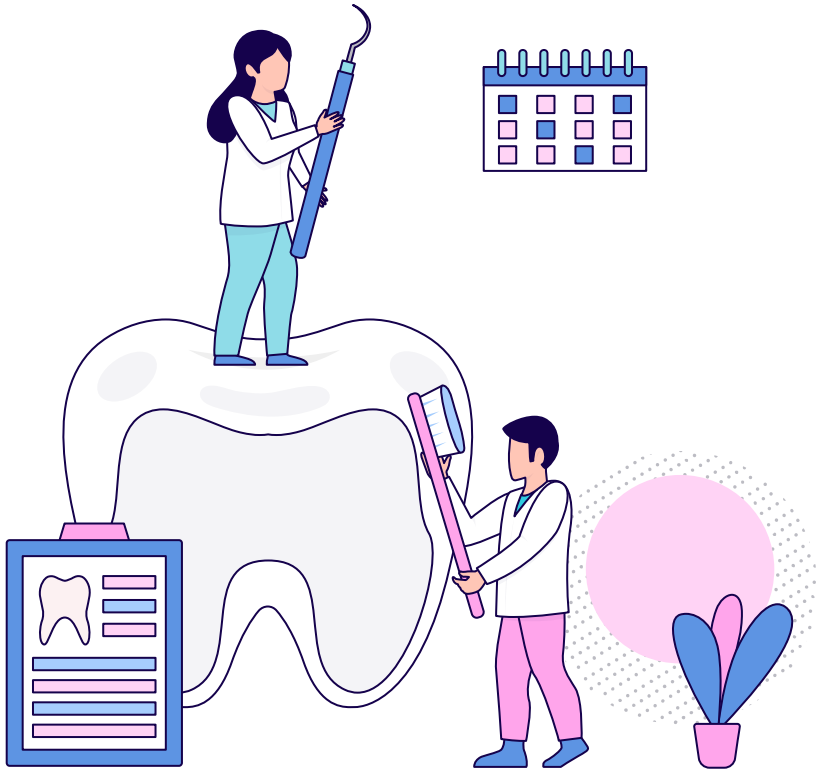
Learning How to Overcome Challenges in Endodontic Treatment: Large and Curved Canals

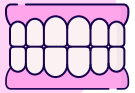
Rachel Healy

Goals of Project

- Demonstrate the difficulties of obturating large canals
- Discuss techniques to effectively navigate curved canals



Introduction: The Patient



Chief Concern: “I have a hole in my tooth”
Medical History:
13 years old, Female, Hispanic
No hospitalizations or conditions
Medication: No medications
Allergies: No allergies
Social History: Eighth grade in the East Bay, Loves Animals
Dental History: Lightly restored, High Caries Risk, Last Cleaning October 2023

First Visit: Endodontic Testing #3

EOE: No swelling, No CLAD, WNL

IOE: Erythematous gingiva, Buccal Calculus, ICDAS 6

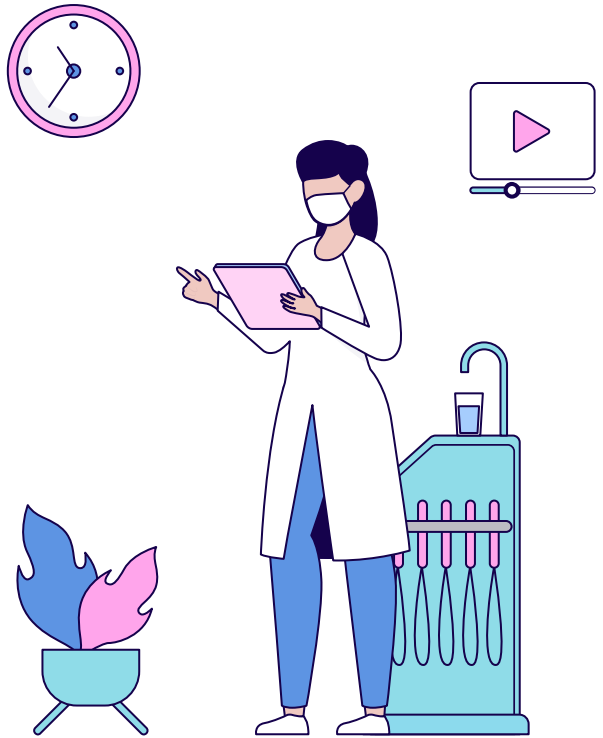
Cold Testing: ++ Not lingering

Percussion: WNL

Palpation: WNL

Perio: No mobility, Probings B/L 323 323, BOP

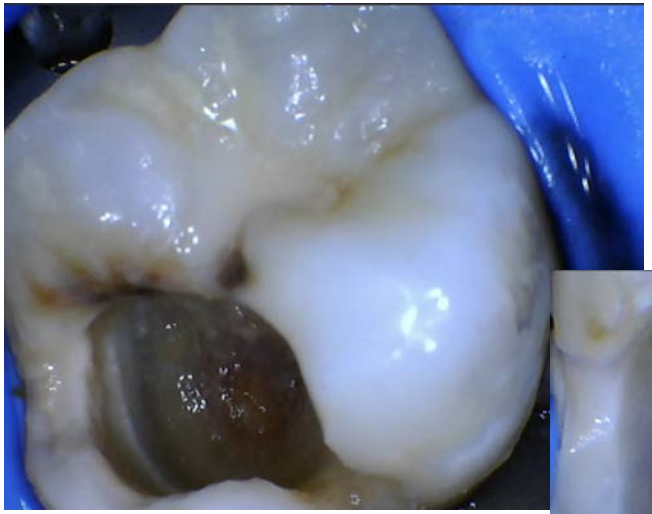
Diagnosis: Asymptomatic Irreversible Pulpitis with Normal Apical Tissues



First Visit: Pre-Op Radiographs

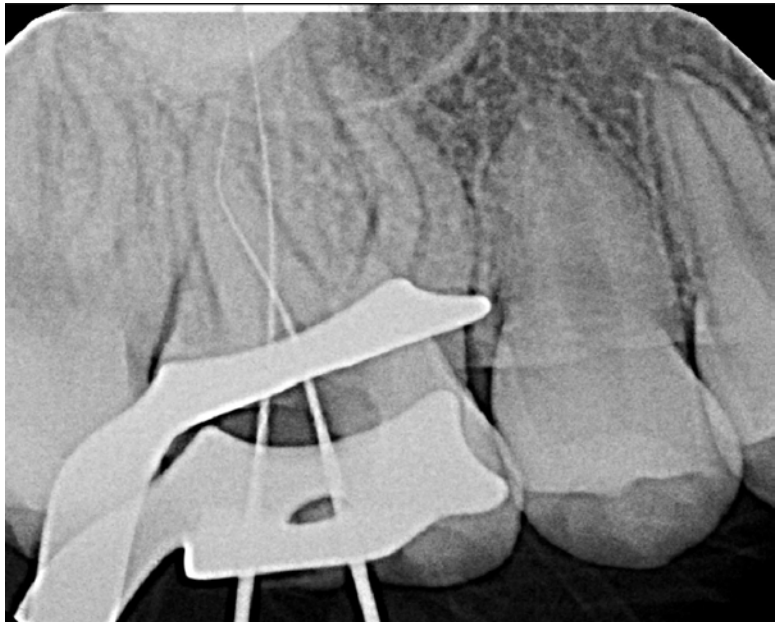
First Visit: Caries Control & Access

Caries control removal led to carious exposure of the Distal Buccal and Palatal pulp horns

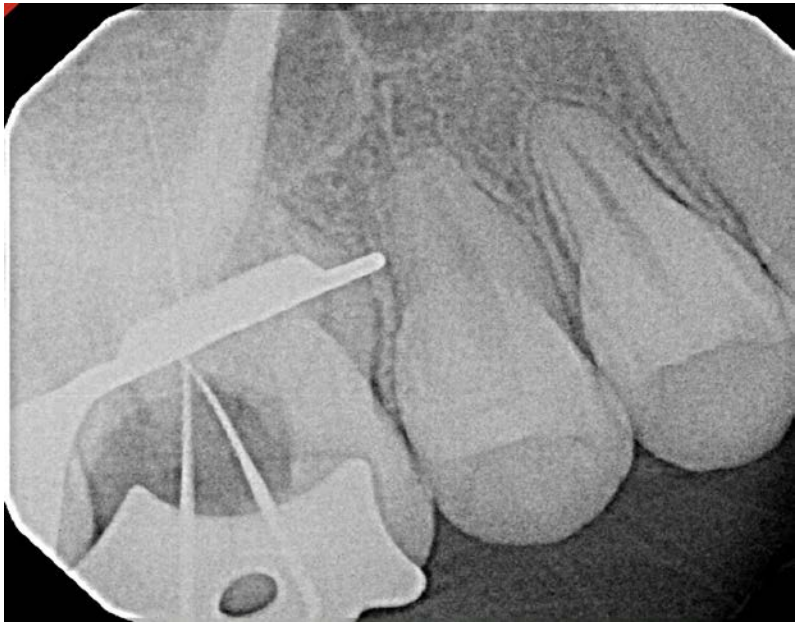


First Visit: Working Length

Distal Buccal Canal: 21mm

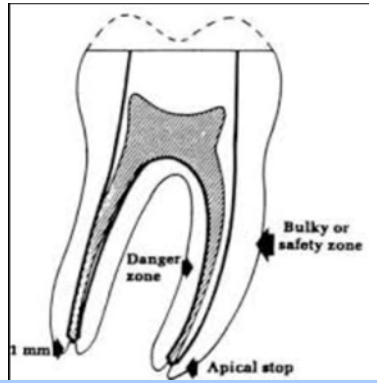


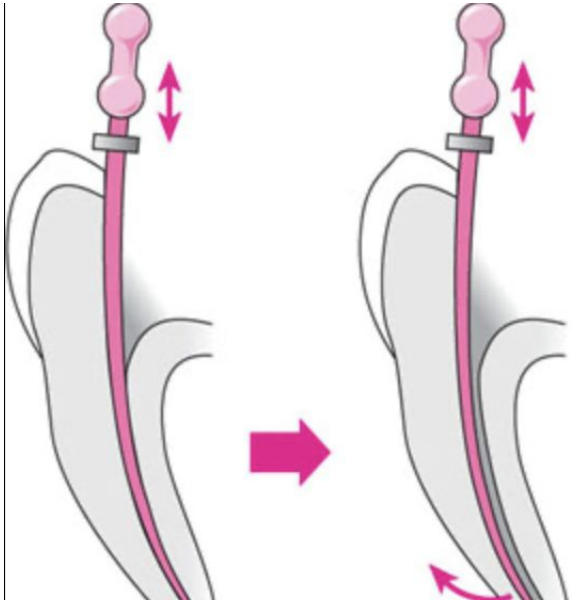
Palatal Canal: 20mm



First Visit: Tackling the Distal Buccal Curve

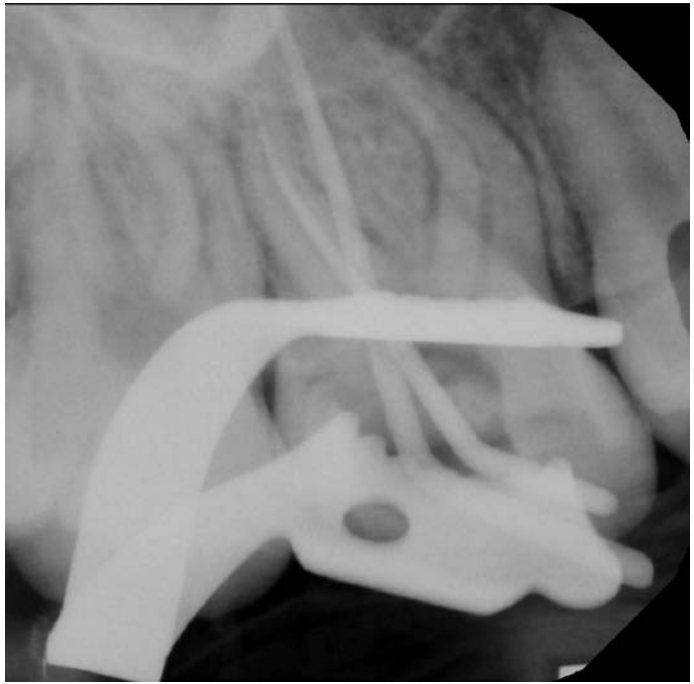
Due to the curvature of the distal buccal canal and the thin root, I had to utilize the technique of anticurvature filing in order to avoid strip perforations and ledging the canal. I did this through the use of hedstrom files to a size 30. I was unable to bring a rotary file down the canal due to the curvature of the apical third.



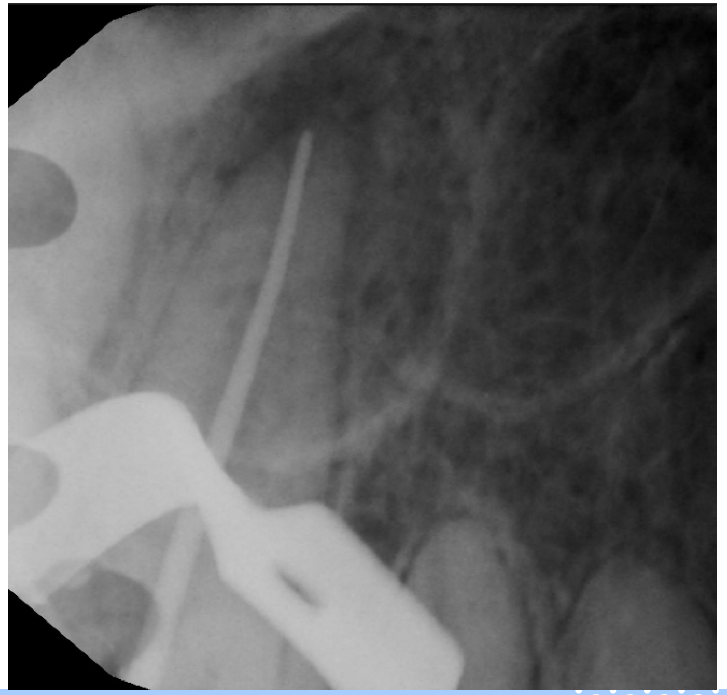


Second Visit: Obturating the DB & P Canals

Distal Buccal: Size 25 gutta percha

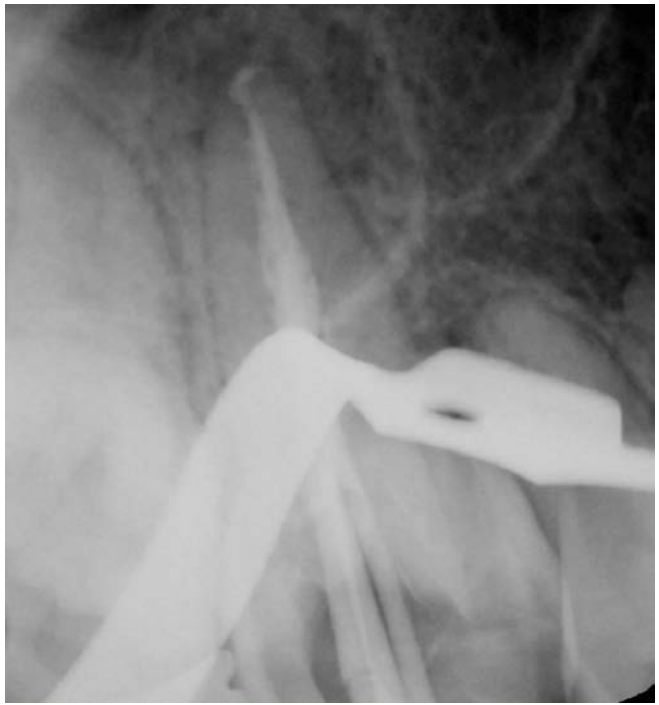


Palatal Canal: Size 50 gutta percha



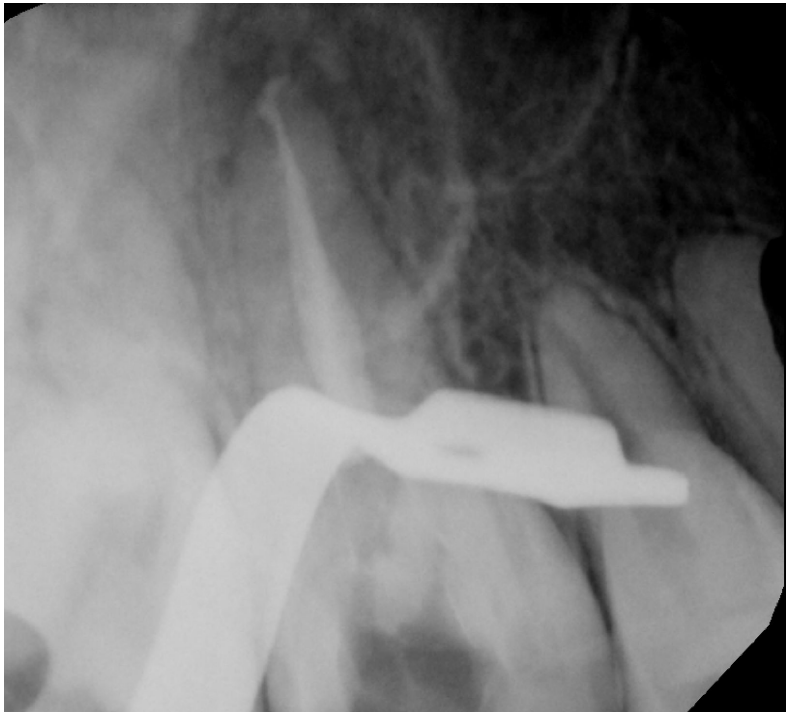
Second Visit: Obturating the DB & P Canals

Here, we can see that the palatal canal is quite large even with a size 50 gutta percha cone and multiple accessory cones during the mid-obturation with BCC Sealer. At this point, I obturated the canal and decided that I would continuously heat and pack in the gutta percha apically, then I would have help to back-fill the rest of the canal another day with warm vertical condensation.



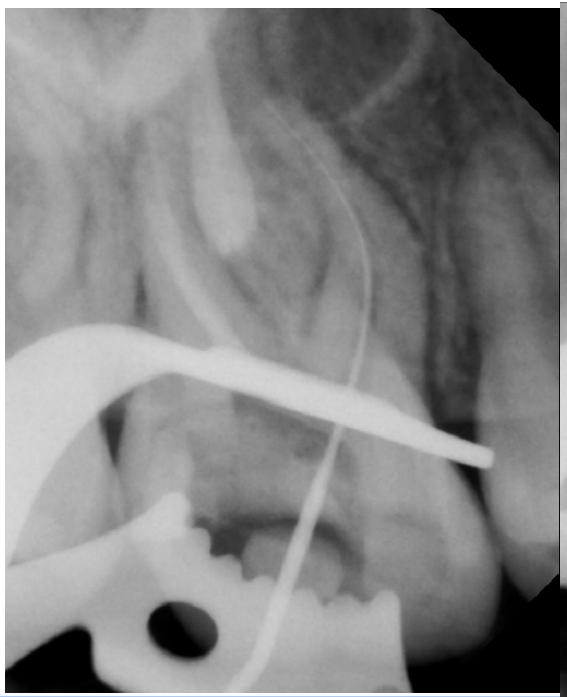
Second Visit: Obturating the DB & P Canals

I continuously heated and packed the gutta percha in the palatal canal to minimize voids and prepare for warm vertical condensation at the next appointment.



Third Visit: Tackling the Mesial Canal

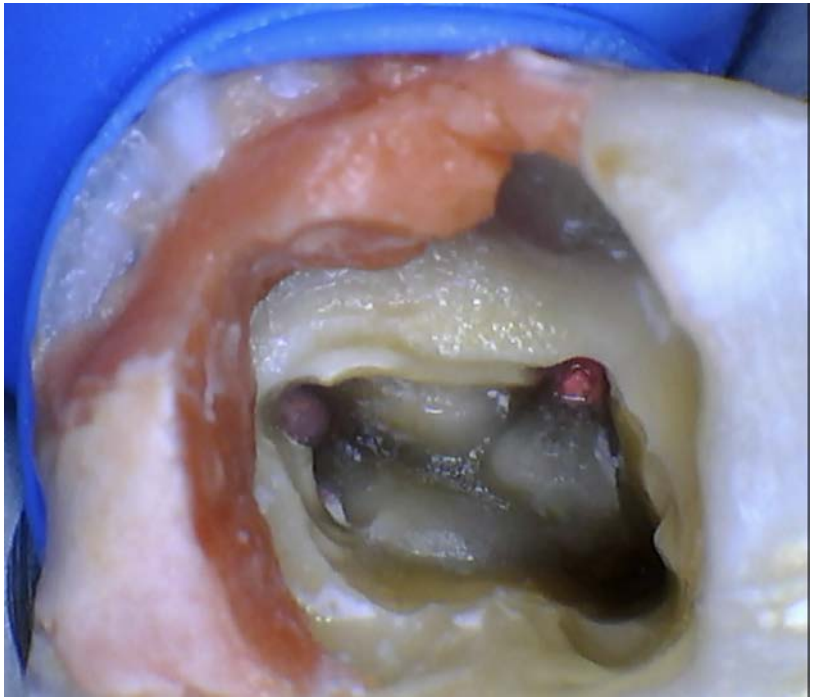
Mesial Canal: 21mm



Size 30 gutta percha with BCC Sealer

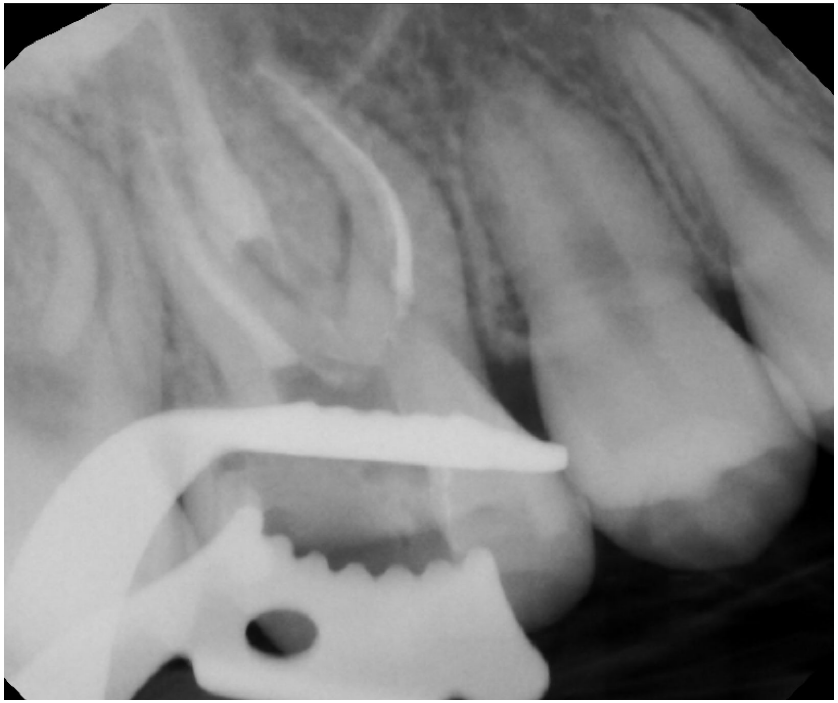
Third Visit: Access Photo

Here, we can see all three canals with the palatal and distal buccal canals obturated and the mesial canal cleaned and shaped. There were no implications of a second mesial buccal canal. After this photo, I obturated the mesial canal and continued to compact the palatal canal in order to perform warm vertical condensation.

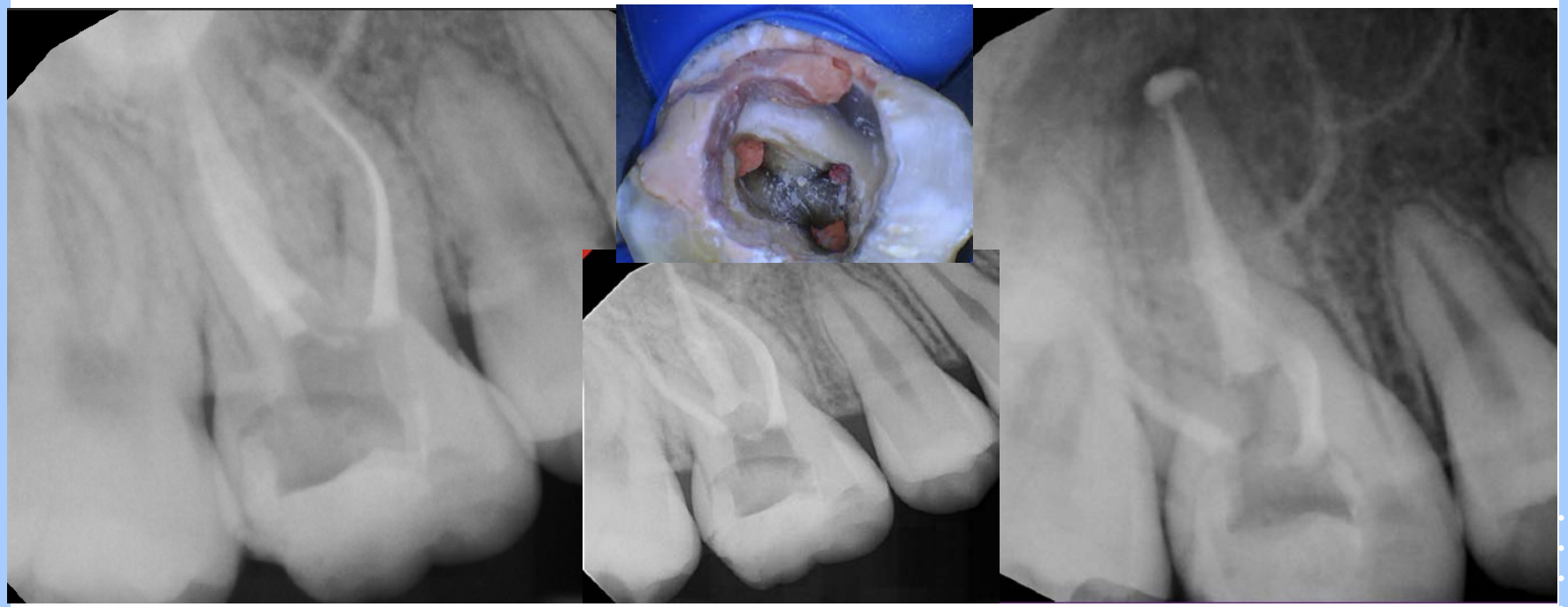


Third Visit: Warm Vertical Condensation

I heated, removed, and packed the gutta percha in the palatal and mesial buccal canals in order to prepare for the warm vertical condensation. For the warm vertical condensation, I partnered with a resident to use a portable back-fill unit to fill the rest of the canals.



Third Visit: Final Radiographs



Discussion

All in all, this project is an example of the cases that can be seen in the pre-doctoral clinic and serves to educate others on how to approach specific challenges in endodontic treatment. Students can use the anticurvature technique to clean and shape curved canals, especially when the rotary file will not go to working length, such as in this case. This technique helps to prevent strip perforations and possible ledging. Additionally, students can utilize the back-fill unit with the help of faculty or residents for warm vertical condensation when obturating large canals that may not yield an ideal result with the single cone or lateral condensation alone.

Self-Reflection

Strengths

- Patient Management - Distraction and Tell Show Do Strategies
- Access & Caries Removal - Straight line access and thorough caries removal
- Obturation - Smooth obturation of the mesial and distal buccal canals after cleaning and shaping

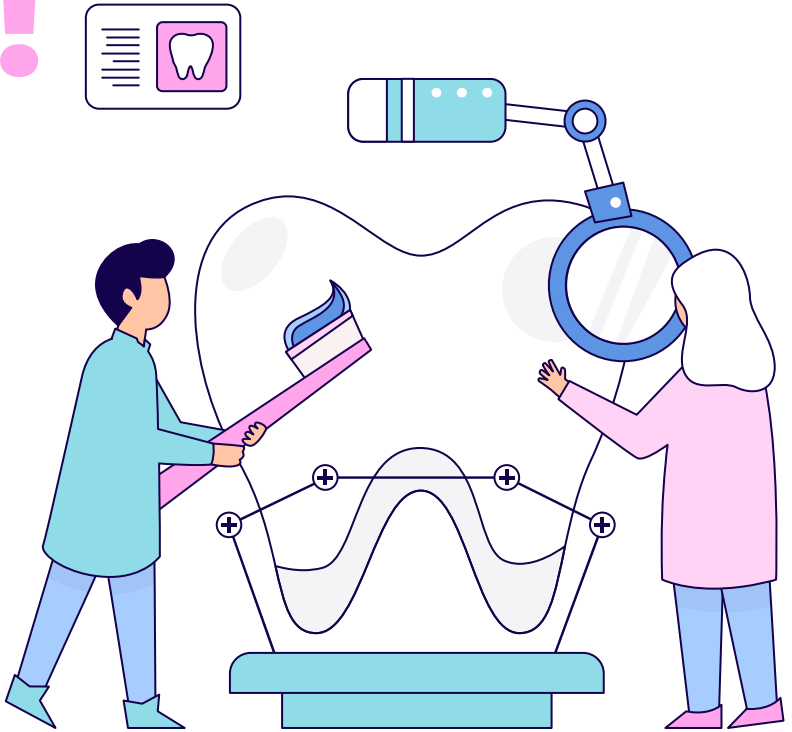
Difficulties

- Obturation- Making sure that the palatal canal was densely filled and lacking voids
- Curved Canals - Cleaning and shaping the mesial and distal buccal canals effectively without ledging or perforations
- Pediatric Patient - Working with time constraints each visit, gagging with the x-rays, and patient behavior management

Thank You!

Any questions?

I love it!!!!!!



OKU Sutro Excellence Day Project Cover Sheet

Project Title

Learning How to Overcome Challenges in Endodontic Treatment: Large and Curved Canals

Full name(s) and class year(s) of all project collaborators

Example: Jane Smith, DDS 2022; John Smith, DDS 2022

Rachel Healy, DDS 2024

Project Category

DDS/IDS - Clinical Awards: Endodontics

Enter your abstract text here (max 300 words)

This project highlights the challenges that can be seen during endodontic treatment. Large canals are common amongst certain canals, such as the palatal canal of maxillary molars. However, large canals are even more predominately seen in pediatric patients. Obturation of these large canals often requires large gutta percha cones and/or warm vertical condensation. Furthermore, another common challenge that provider's must overcome are curved canals. Treatment for curved canals requires different techniques in order achieve a glide path to allow for successful cleaning and shaping as well as obturation. In this project, a case will be highlighted from the pre-doctoral clinic that combines both challenges - large and curved canals on a pediatric patient. The project will reveal the techniques used as well as the areas for future growth and improvement that can be applied to other pre-doctoral students.