



# Thermafil carrier retrieval using a lasso technique

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The Community

6,032

Endodontic treatment failure may occur due to numerous reasons, such as missed canal anatomy and insufficient disinfection, resulting in periapical infection. The use of cone beam computed tomography is invaluable in the diagnosis of periapical pathosis and neglected canals during initial endodontic treatment.

Thermafil is an obturation material that comprises of alpha phase Gutta Percha that surrounds a central plastic carrier. The Gutta Percha is warmed in a Thermaprep oven, and driven into the canal by the plastic carrier, thus providing an excellent seal. Unlike gutta percha, the plastic carrier is insoluble, and its removal usually poses a challenge to the clinician if retreatment is required.

The following techniques have been described for Thermafil carrier removal:

## 1. Solvent and braiding technique (1,2)

The solvents Dimethylformamide and chloroform were found to be effective in dissolving the Gutta Percha around the plastic carrier but not the carrier itself. The action of K files alternated by by hedstrom files were used to create space between the plastic carrier and dentine wall. Difficulty was reported in the apical third where the Gutta percha layer was thin. Multiple Hedstrom files are introduced into the space and engages with plastic carrier due to the positive rake angle, followed by an upward pull.

## 2. System B heat Source technique (3)

A system B heated plugger is introduced buccal and lingual to the plastic carrier. Hand files (Flex R files) were then introduced in the created space, and twisted in a clockwise direction to engage the plastic carrier before pulling it upwards.

## 3. ProTaper retreatment files

Protaper retreatment D1 D2 D3 instruments were recommended to remove the Gutta percha between the plastic carrier and dentine. Lateral Perforation was experienced in some samples in curved root canals.

#### 4. Stieglitz plier technique (2021)(2022)

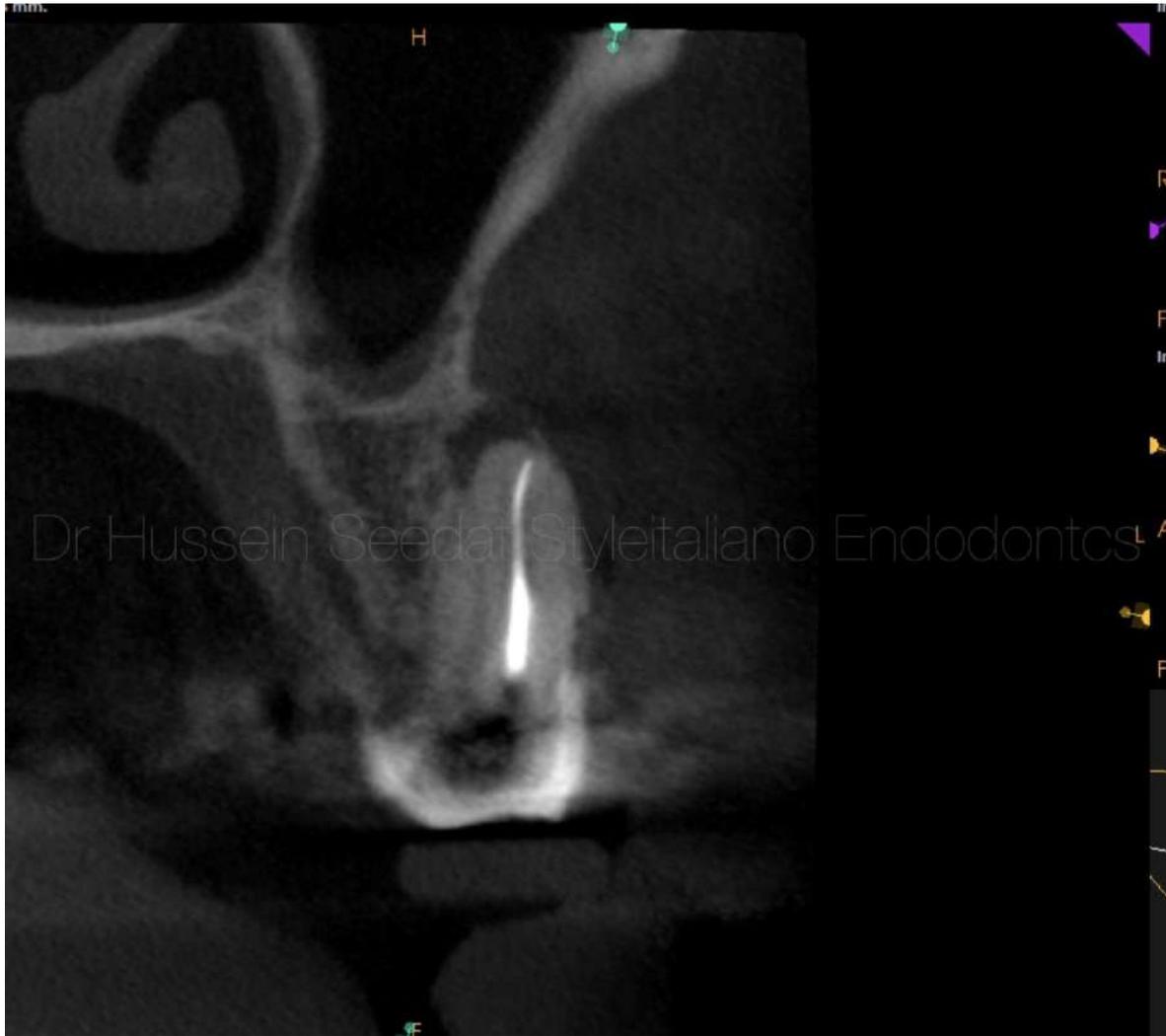
4.1 exposure of the head of the Thermafil carrier using an endodontic explorer, followed by removal of the entire Thermafil carrier using a 45 degree Stieglitz plier.

4.2 Removal of the GP surrounding the Thermafil carrier using ExtEndo instrument instrument in combination with a solvent, followed by the removal of the plastic carrier using a Stieglitz plier.

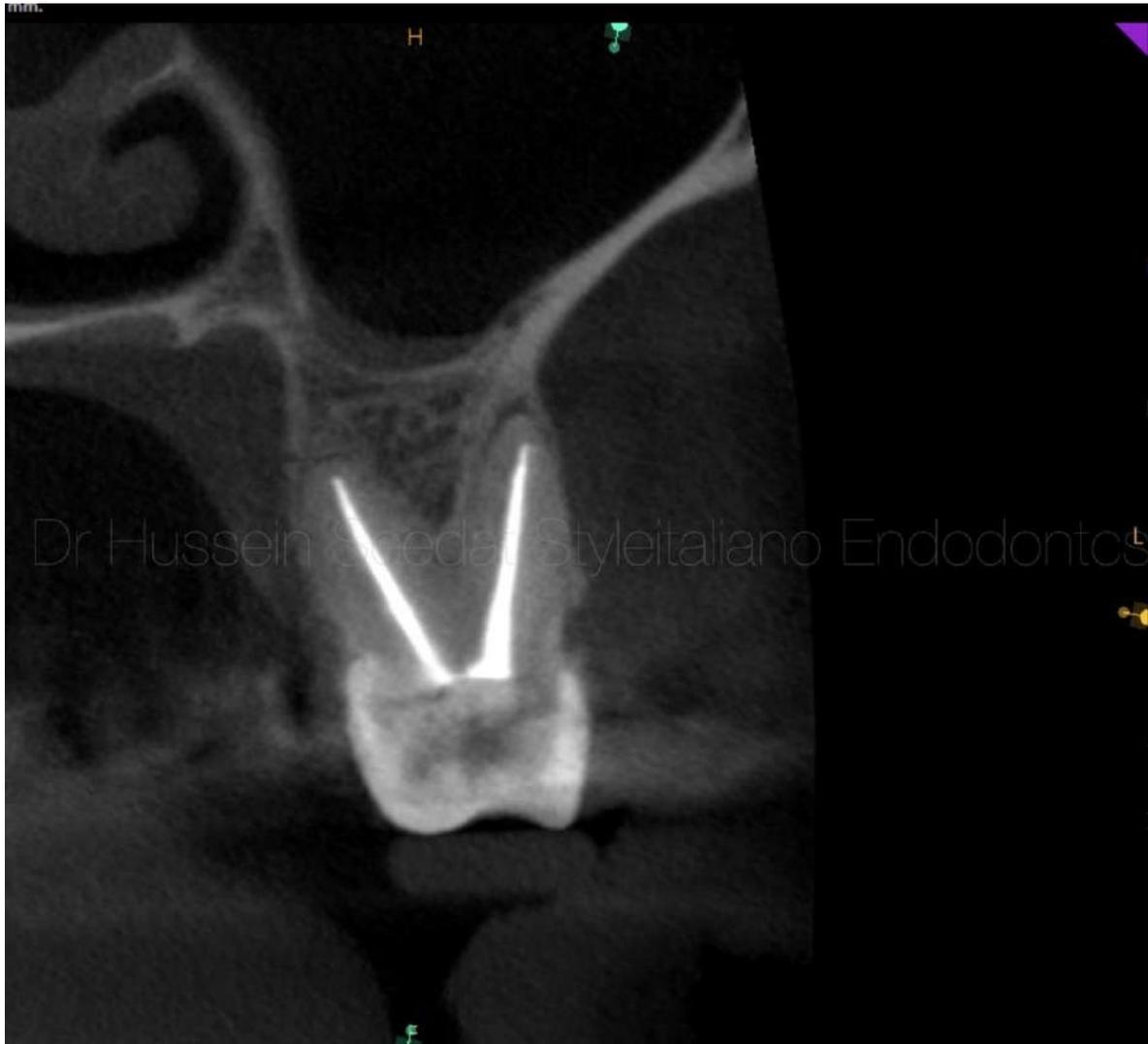


**Fig. 1**

Pre-operative radiograph provided by the referring dentist



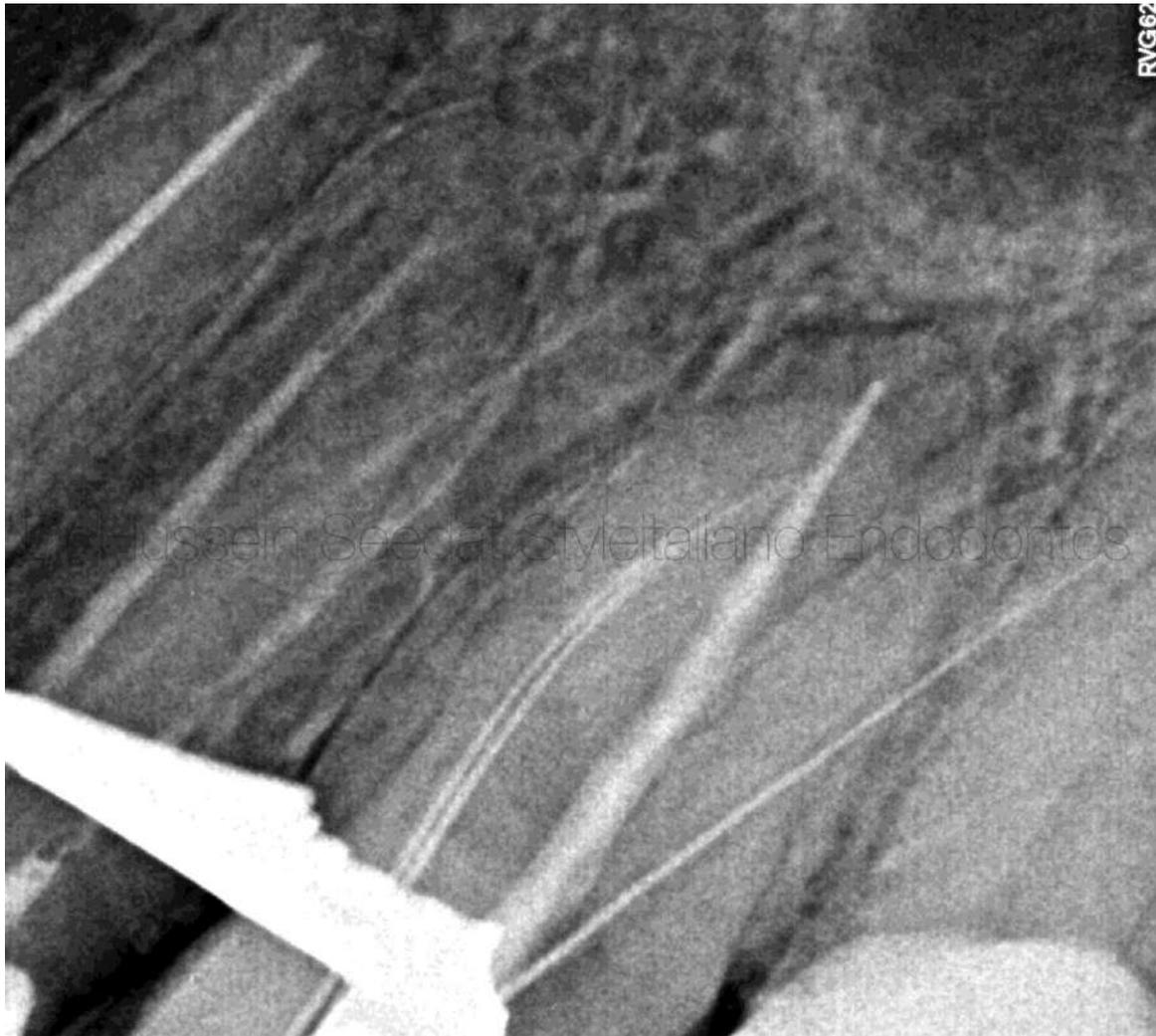
**Fig. 2**  
Coronal CBCT view of mesial root showing periapical lesion and missed MB 2 canal.



**Fig. 3**  
Coronal CBCT view of distobuccal root showing a slight periapical lesion, and palatal root showing no periapical lesion.



**Fig. 4**  
Magnified view through microscope of MB2 after locating and negotiating.



**Fig. 5**  
Intraoperative working length radiograph showing MB1, MB2 and DB canals.



**Fig. 6**  
Postoperative radiograph after obturation  
Video of entire procedure



**Fig. 7**

**About the Author**

**Dr Hussein Seedat**

Hussein Seedat acquired his BDS degree from the University of the Witwatersrand in 1999. He furthered his studies at the University of Pretoria from 2009 onwards where he acquired a postgraduate diploma in endodontics with distinction, an MSc in endodontics, as well as a postgraduate diploma in aesthetic dentistry.

He has authored and co-authored articles related to endodontics that have been published in the South African Dental Journal, as well as the Journal of Endodontics. He is in private practice in Umhlanga Rocks, Durban, South Africa, where he focuses mainly on Micro-Endodontics, and lectures extensively at congresses and educational programmes on his passion area of endodontics.

# Conclusions

Various techniques have been suggested for the removal of Thermafil carriers during endodontic retreatment, some of which have an unpredictable outcome. The use of a lasso technique is proposed as an additional technique to remove the plastic carrier to simplify what is usually considered a challenging procedure.

# Bibliography

1. Bertrand MF, Pellegrino JC, Rocca JP, Klinghofer A, Bolla M. Removal of Thermafil Root Canal Filling Material. *J Endod* 1997;23:54-57
2. Torabinejad, Fouad & Walton. *Endodontic: Principles and Practice* (4<sup>th</sup> Edition). 2014; Page 374
3. Wolcott J, Himmel VT, DDS, Lamar Hicks M. *J Endod* 1999. Thermafil Retreatment Using a New "System B" Technique or a Solvent;25:761-764
4. Beasley RT, Williamson AE, Justman BC, Qian F. Time Required to Remove GuttaCore, Thermafil Plus, and Thermoplasticized Gutta-percha from Moderately Curved Root Canals with ProTaper Files. *J Endod* 2013;29:125-128
5. Rödiger T, Wagner J, Wiegand A, Rizk M. Efficacy of the ProTaper retreatment system in removing Thermafil, GuttaCore or vertically compacted gutta-percha from curved root canals assessed by micro-CT. *International Endodontic Journal* 2018;55:808-815

# ABOUT THE AUTHOR

