

Case Report

Treatment of Mandibular Second Molar with S-shaped Root Canal

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	International Archives of Integrated Medicine, Vol. 5, Issue 9, September, 2018.	
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	Available online at http://iaimjournal.com/	
	ISSN: 2394-0026 (P)	ISSN: 2394-0034 (O)
	Received on: 08-09-2018	Accepted on: 14-09-2018
	Source of support: Nil	Conflict of interest: None declared.
How to cite this article: Mirza Asif Ali Beigh. Treatment of Mandibular Second Molar with S-shaped Root Canal. IAIM, 2018; 5(9): 122-124.		

Abstract

Unusual root canal anatomy always poses challenge in successful endodontic management. One such case report is of S-shaped or Bayonet shaped root canal. It is always demanding to manage root canal with double curvature. The study is an attempt to focus on the significant work involved to manage root canal with double curvature.

Key words

'S' shaped root canal, Bayonet shaped root canal.

Introduction

Anatomical morphology of teeth poses considerable challenge for dental practitioners. One such variation that occurs in molars is the S-shaped root canal. Treatment of Dilacerated and S-shaped root canal is a demanding clinical case study to negotiate with.

With informed consent, local anesthesia was administered using 2% lignocaine and 1:100000 Adrenaline and Endodontic therapy was initiated. Access opening was done by round bur. After access opening was finished, No. 6 and 8 K (Mani) files were used along with 17% ethylene diamine tetra acetic acid (EDTA). EDTA is

chelating agent and helps in smooth passage of files through the canal. The pulp chamber was irrigated by standardized irrigation regimen using of 5.25% sodium hypochlorite (NaOCl) and normal saline.

Case report

A 58 year old male patient reported to our clinic regarding pain in lower left side of Mandible. On clinical examination, it was found that lower left second molar (37) has mesio proximal caries (**Figure- 1**). Radiograph was taken, it was found that there was pulpal involvement and tooth was tender on percussion. Hence, it was decided to perform endodontic treatment of 37.

The working length was established in all the 3 canals Mesio Buccal (MB), Mesio Lingual (ML) and Distal (D) using Apex locator (**Figure - 2**). It was rechecked using radiograph so that there were no further doubts regarding working length. Steel less steel No. 6 and 8 K files along with EDTA were repeatedly inserted so that large file passes freely through the canals. After it was done, Nickel Titanium (NiTi) files number 15, 20, 25 were used to get good patency. Frequent irrigation of the root canal and recapitulation was done to avoid ledge formation, blockage by dentinal debris and to remove the necrotic remnants of the pulpal tissue. Calcium hydroxide was used as an intracanal medicament and closed dressing was given for 1 week. In the next visit, the canals were flushed with saline and dried with paper points. A master cone radiograph was taken to confirm working length (**Figure-3**)

Figure – 1: Mesio proximal caries - lower left second molar (37).



Figure – 2: Working length was established in all the 3 canals Mesio Buccal (MB), Mesio Lingual (ML) and Distal (D) using Apex locator.



Figure – 3: A master cone radiograph was taken to confirm working length.



Oburation (**Figure- 4**) was done by lateral condensation method with sealapex. Post oburation restoration was done by Glass ionomeric cement.

Figure – 4: Oburation was done by lateral condensation method with sealapex.



Discussion

Endodontic therapy is successful only when there is complete extirpation of pulp followed by copious irrigation of disinfectants. However, curved canals or S shaped canals or dilacerated canals [1, 4] always pose difficulty in cleaning and shaping of root canal. The final results of the curved root canals may be influenced by several factors such as the flexibility and diameter of the instruments, instrumentation technique followed during the management, location of the foramina opening, the hardness of dentin, ledge formation, blockage, perforations and apical transportation.

S shaped canals are very difficult to negotiate and chances of perforation are more at the first curvature. Endodontic files have tendency to

straighten the canal and hence difficulty to remove dentine.

To Reduce Failure

To begin with smaller size file should be used since they have high flexibility and pass easily through the canal [2].

It should be followed by using intermediate size of files.

Use of flexible files (NiTi files, Flex R files): As these files help in maintaining shape of the curve and avoid procedural errors like ledge, elbow or zipping of the canal [3].

Conclusion

Understanding the complex root canal anatomy of the tooth, proper instrumentation technique

and treatment planning prevent complications and will contribute to successful endodontic treatment.

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