



MANAGEMENT OF S SHAPED PREMOLAR – A CASE REPORT

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ABSTRACT - The anatomical variations in dental morphology can present significant challenges in dental practice, affecting treatment planning and execution. The S-shaped premolar is a rare dental anomaly characterized by an abnormal curvature in the root structure, posing difficulties in endodontic therapy and restorative procedures. This case report aims to document the successful management of an S-shaped premolar, outlining the diagnostic approach, treatment strategies, and clinical outcomes.

KEYWORDS : s shaped premolar, NiTi instruments, endodontic management

INTRODUCTION

In endodontics, variations of root canal anatomy are a common finding. Every tooth presents with a peculiar anatomy and variations. Management of variations can be challenging for the clinician. Thorough shaping and cleaning is an essential requisite for successful endodontic outcome¹. Curvatures are one of the challenges in cleaning and shaping other than complex anatomy of apical delta, presence of extra canal, lateral canals, etc to name few. According to vertucci, S shaped curvature is a common finding in maxillary premolars². It is rarely found in maxillary laterals and canines. S shaped canals have 2 curvatures making it difficult in shaping³.

This case report discusses the management of S shaped premolar.

CASE REPORT

A 28-year female patient reported to the department with the chief complaint of pain in upper right back tooth region since 15 days. The pain was spontaneous dull aching and aggravated on mastication and relieved on its own. Patient's medical history was non-contributory. On clinical examination, tooth 14 had tooth coloured restoration and radiographic examination revealed secondary caries involving pulp. The root canal presented with a S shaped curvature with apical curvature mesially. The final diagnosis was symptomatic irreversible pulpitis with symptomatic apical periodontitis. Hence, endodontic treatment was initiated.

Tooth was anesthetized with 2% lignocaine and access was opened with endo access bur under rubber dam isolation. Canal patency of buccal and palatal canals was determined with SS #10K file and working length was determined using apex locator (Root ZX mini, J Morita) and confirmed using radiograph.

The coronal enlargement was done using SX (ProTaper Gold, Dentsply) file. The remaining canal was shaped using crown down technique using ProTaper Gold files. Shaping was done till F1(20.06) ProTaper Gold. Three percent NaOCl and Saline were used as irrigants. Irrigant activation was done using passive sonic device.

Obturation was done using single cone technique using AH plus sealer. Post endodontic restoration was done using Glass Ionomer Cement.

DISCUSSION

Preparation of curved root canals leads to undesirable occurrences like formation of ledges, blockages, perforations and apical transportation⁴. The S shaped canal has 2 curves with the apical curvature being difficult to negotiate. Guttman³ suggested preflaring the coronal 1/3rd of the canal at the expense of the tooth structure to reduce the angle of curvature. In the present case, coronal enlargement was done using SX file.



PRE - OP RADIOGRAPH



ACCESS OPENING



WORKING LENGTH



MASTERCONE



OBTURATION

Mesial or distal direction curvatures in S shaped canals can be identified using conventional radiographs. Canal curvature is identified using schilders technique⁵. In the present case, 20° curvature according to schilders technique.

The incidence of procedural errors in curved canals can be reduced by: Decreasing the restoring force by means of which straight file has to

bend against the curved dentine surface and decreasing the length of the file which is aggressively cutting at a given span⁶.

The apical preparation was limited to F1(20.06), as any over enlargement may result in perforation⁷.

CONCLUSION

Managing an S-shaped premolar presents a clinical challenge that demands a multidisciplinary approach. A combination of precise diagnosis, advanced endodontic instrumentation, and meticulous restorative procedure can lead to successful outcomes. This case report highlights the importance of a comprehensive treatment plan and emphasizes the significance in successfully managing S shaped curvatures in premolars.

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