ISSN: 0976-3031

Available Online at http://www.recentscientific.com

CODEN: IJRSFP (USA)

International Journal of Recent Scientific Research
Vol. 9, Issue, 4(A), pp. 25547-25549, April, 2018

International Journal of Recent Scientific Research

DOI: 10.24327/IJRSR

Case Report

MAXILLARY CANINE WITH TWO ROOT CANALS: A RARE CASE REPORT

Selvendran K.E*[1]., Praveen N[1]., Madhuram Krishnamurthy[1]., Naveen Kumar V[1]., Ashok Leburu[1] and Dhanavel C[2]

[1]Department of Conservative Dentistry and Endodontics, Karpaga Vinayaga Institute of Dental Sciences, G.S.T Road, Chinna Kolambakkam, Madhuranthagam (TK), Kanchipuram DT-603308
[2]Department of Conservative Dentistry and Endodontics, Indira Gandhi Institute of Dental Sciences, Pillayakuppam, Pudhucherry-607402

DOI: http://dx.doi.org/10.24327/ijrsr.2018.0904.1879

ARTICLE INFO

Article History:

Received 8th January, 2018
Received in revised form 21st February, 2018
Accepted 05th March, 2018
Published online 28th April, 2018

Key Words:

Endodontic Treatment, Maxillary Canine, Two Root Canals

ABSTRACT

Teeth exhibit variations in their root canal anatomy and pose a challenge in diagnosis and treatment. Endodontic treatment may fail because morphological features of the tooth adversely affect the treatment procedures. Maxillary canines are statistically more commonly single rooted with a single canal. Rarely have single root with two canals.

INTRODUCTION

Knowledge of root canal anatomy is mandatory for the success of endodontic treatment. Maxillary canine are statistically more common to be single rooted, single canalled teeth. It has been reported that 39% have straight canals whereas 32% have root canals curved distally. Lateral canal are present in 30% cases. Two roots in a permanent maxillary canine is a rare condition[1-4].

The following case report describes endodontic treatment of maxillary canine with one root and two root canals.

Case Report

A 42 year old male patient reported to our Department of conservative dentistry and endodontics, Karpaga Vinayaga Institute of dental sciences with chief complaint of having pain in his left upper front tooth region for past one week with no history of swelling. Subjective symptoms include dull, intermittent non radiating pain that aggravates on mastication and temporarily relieved on medication. Past dental history reveals patient has undergone extraction of 12,11,21 and 22 one year back due to periodontitis. Patient has replaced the missing teeth with fixed partial dentures with left and right canine as abutments. No relevant past medical history.

For complete oral examination the fixed partial denture was removed. The tooth 23 looked like it was over-prepared for its use as an abutment. Vitality test was performed in 23 with endofrost cold spray and patient had no response. Radiographic examination of intraoral periapical radiograph shows widening of canal in coronal part and narrowing towards apically in 23. Presence of radioluceny in apical area measuring 2 X 2 mm with loss of lamina dura and widening of PDL space seen in relation to 23. On the basis of clinical and radiographic findings, the tooth 23 was diagnosed with Apical Periodontitis and then endodontic treatment was planned.

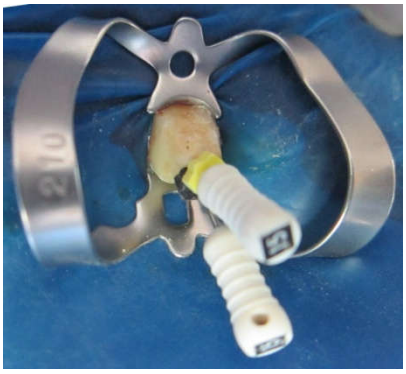
Endodontic treatment was started under local anaesthesia with 2% lignocaine with adrenaline (LIGNOX 2% A, INDOCO REMEDIES LTD, MUMBAI, INDIA). A rubber dam (GDC, INDIA) was placed and endodontic access was performed with No 4 round bur(Mani, Inc,Japan). Location and negotiation of root canals were done with a size 10 k file (MANI, Inc,

*Corresponding author: **Selvendran K.E**
Department of Conservative Dentistry and Endodontics, Karpaga Vinayaga Institute of Dental Sciences, G.S.T Road, Chinna Kolambakkam, Madhuranthagam (TK), Kanchipuram DT-603308

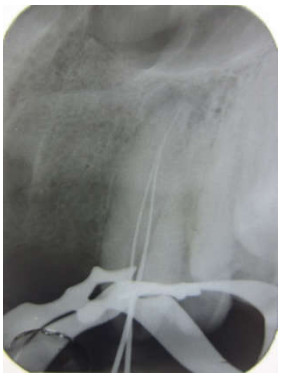
JAPAN). The negotiated canal was located more towards the labial side. The access cavity was modified and enlarged palatally in search of another canal. After the modification sodium hypochlorite champagne bubble test was performed, separate labial and palatal orifices were located by the effervescence of bubbles. Orifices were enlarged using gates glidden drills sizes 1 – 3 (Mani,Inc, Japan). Working length was estimated using two 15 size K files (MANI.JAPAN) as 24 mm for both canals.

Working length radiograph revealed type II vertucci canal pattern (2- 1). Canals were enlarged apically till 50 size K file (MANI,Inc, JAPAN) and step back preparation was done till 80 size K file (Mani,Inc, JAPAN). 5.25% sodium hypochlorite solution and 17% EDTA (RC Help, Prime dental products pvt ltd, India) were used alternatively as irrigants at every change of instrument. Calcium hydroxide paste (RC Cal, prime dental products pvt ltd, India) was placed as intracanal medicament and closed dressing was given with zinc oxide eugenol cement.

Preoperative radiograph of 23



23 with two 15 size files



Working length radiograph – canal path identified by placing files

Clinical picture of the access cavity after cleaning and shaping – two separate canal orifices are seen (Labial and Palatal)

Mastercone radiograph

23 – obturated radiograph – convergence of labial and palatal canals at the middle one third region to form a single canal and pass into apical one third region

On recall visit after two weeks, patient was asymptomatic. Closed dressing was removed and copious irrigation was done with saline. Master cone radiograph was taken with 50 size gutta - percha points (dentsply, maillefer). Final irrigation was done with 2% chlorhexidine solution and then the canal was dried with paper points. The dried canals were obturated with gutta-percha and zinc oxide eugenol sealer using lateral condensation technique. Post obturation radiograph was taken. The 3 month post treatment follow up showed apparent clinical and radiographic success.

DISCUSSION

Diagnosis and identification of the number of roots and canals are key factors for endodontic treatment success[5].

Various diagnostic measures used as aids in location of root canal orifices are

- Examination of pulp chamber floor with a sharp explorer (DG 16 explorer)
- Troughing grooves with ultrasonic tips
- Staining of pulp chamber floor with 1% methylene blue dye
- Sodium hypochlorite champagne bubble test
- Visualizing pulp chamber anatomy and root canal bleeding points
- Magnification under dental loupes and dental operating microscope.

Generally it is considered all maxillary canines only have a single canal [1-3]. However two studies have reported that maxillary canine is composed with two canals in the possibility of ranges approximately 2-3% as below as table[6, 7].

Studies on the root canal anatomy of the maxillary canine

Author	ONE Canal	TWO Canals
Pineda & Kuttler (1972)	100%	0%
Vertucci (1984)	100%	0%
Çaliçkan *et al*. (1995)	97.83%	2.17%
Weng *et al*. (2009)	96.9%	3.10%

In the present case two distinct root canal orifices were located in a labial and palatal configuration with the canal diagnostic aid sodium hypochlorite champagne bubble test. The palatal canal coursed laterally and then curved back to join the buccal canal in the apical third forming a vertucci type II canal configuration (2-1).

CONCLUSION

Clinicians should be aware of extra canals and should have thorough knowledge about variations. If the canals were eccentrically located, clinician should search for the extra canal.

References

1. Vertucci FJ. Root canal anatomy of the human permanent teeth. *Oral surg, Oral med, Oral pathol, oral radiol, Endod* 1984; 58: 589 -99
2. Zeigler PE, Serene TP. Failures in therapy. In Cohen S, Burns RC, eds. Pathways of the pulp. 4th ed. St. Louis Cv. 1994,690-91
3. Pineda F, kuttler Y. Mesiodistal and buccolingual roentgenographic investigation of 7,275 root canals. Oral surg, *Oral med, Oral pathol, oral radiol, Endod* 1972;33: 101 -10
4. John.I.Ingle, James H. Simon, Pierre Machtou, and Patrick Bogarts. Outcome of endodontic treatment and retreatment. In.Ingle Ij, Bakland Lk, Endodontics. 5th ed. Bc Decker Inc 2002; 747-68.
5. F.R.Victorino et al. Bilateral mandibular canines with two roots and two separate canals. Case report. *Braz Dent j* (2009) 20(1):84-86
6. Calickan MK, Pehlivan Y, sepetcioglu F, turkun M, Tuncer SS. Root canal morphology of human permanent teeth in a Turkish population. *J Endod* 1995;21: 200 - 204
7. Weng XL, Yu SB, Zhao SL, Wang Hg, Mu T, Tang RY, Zhou XD. Root canal morphology of permanent maxillary teeth in the Han nationalality in Chinese Guanzhong area: a new modified root canal staining technique. *J Endod* 2009; 35: 651-656 [s35]

How to cite this article:

Selvendran K.E *et al*.2018, Maxillary Canine With Two Root Canals: A Rare Case Report. *Int J Recent Sci Res.* 9(4), pp. 25547-25549. DOI: http://dx.doi.org/10.24327/ijrsr.2018.0904.1879

****