

Dental Follicle

The E- Journal Of Dentistry

ISSN 2230-9489 (e) | Dr. Syed Nabeel

Dentistry
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Scientific Editorial - A Simple Smile Makeover Case Report

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Abstract

Success in most of the practices is determined by the decision making and treatment delivery with regards to the commonly seen cases in day to day practice. This is a simple case of management of discoloured tooth number 9 and 10.

Mesh Keywords: Esthetics Dental, Crowns

Case Report

A 25 year old male patient reported with inability to smile due to the multicolored upper teeth. On examination it was found that 21 and 22 had progressively severely discolored over a period of 10 years following a fall from a bicycle.



Fig A: Note the multicolored teeth with severe discoloration of 21 and 22.



Fig B: Root canal treatment was done followed by Vital bleaching of all the teeth with OpalBoost™ (Ultradent) , and Impress emax metal free crowns were cemented.

Discussion

The simple and common dental conditions often require better decision making and adequate treatment delivery. Discoloration due to non-vitality as a result of trauma is one of the most common conditions seen in day to day practice. Metal free crowns like Impress Emax™ have been revolutionary in

delivering optimal aesthetics at affordable cost in comparison to higher Zirconia brand crowns. Evidence based dentistry practice is the order of the day. Discussion with the technician from the beginning of the case is important in delivering the optimal result.¹

Result:

Figures C and D : portray the before and after treatment phenomenon.

Optimum aesthetics were achieved and patients desires were met. Proper diagnosis , patient discussion and technical support in

essential in delivering good aesthetic results. In this case optimal results were achieved to the level of patient satisfaction.

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To compare the efficacy of obturation with three different techniques using Cone Beam Computed Tomography –An invitro study

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Abstract

AIM-To compare the sealing ability and adaptation of three different obturation techniques using CTBT.

MATERIALS AND METHODS- Access opening was performed on twenty four extracted anterior teeth and cleaning and shaping was done using protaper files, 3% sodium hypochlorite, 17% EDTA as irrigant was used . They were divided into three groups of 8 teeth each. Teeth in one group were obturated using lateral condensation technique, second group using obtura II and the teeth in third group were obturated with single cone F3 GP. Sealer used in three groups was AH PLUS. The teeth in three groups were compared using Cone Beam Computed Tomography (CBCT). The sealing ability of GP and adaptation to canal wall were evaluated.

RESULTS- On the basis of observations made by observers chosen randomly, it was seen that the sealing ability and the adaptation to canal wall was best with thermo plasticized gutta percha that is OBTURA II. Obturation with single cone was less time consuming as compared to the other two techniques. The apical sealing ability of matched-taper single-cone obturation was comparable with that of lateral condensation.

CONCLUSION- The Obtura II technique utilizing the injection- moulded thermoplasticized gutta-percha had better adaptability to the canal walls when compared to obturation with single cone GP and lateral condensation technique.

Introduction

Successful Endodontics and contemporary nonsurgical Root Canal Treatment aims at sealing completely, both the apical and coronal avenues of potential leakage and maintaining disinfected status reached by either chemical or mechanical cleaning, to prevent reinfection and percolation of bacterial substrates.^[1-4] Thus following total

debridement of the radicular space , the development of a fluid tight seal of the apical foramen and the total obliteration of the root canal must follow to ensure long term success. 60% of endodontic failures are due to the incomplete obturation of the root canal system.^[5] According to Cohen a meta analysis of factors influencing the

efficacy of root canal system depends upon :-

1. The absence of pre-treatment periapical lesion.
2. Root canal filling with no void.
3. Obturation to within 2mm of apex.
4. Adequate coronal restoration.

There are various techniques of obturation.

Cold lateral condensation, after being successfully tested and used, has set the golden standard in endodontics. However, it has been found that cold gutta percha techniques rely heavily on a root canal sealer to address the problem of the accessory anatomy, as the core filling material will not move out of the main canal. Voids, spreader tracts, incomplete fusion of the gutta-percha cones, and lack of surface adaptation have been reported.^[6]

Materials and methods

24 Extracted anterior teeth were collected from the department of Oral and Maxillofacial surgery at Army College of Dental Sciences. Access cavity preparation was done on all the teeth.

Following access cavity preparation the 24 teeth were divided into 3 groups of 8 teeth each. After determination of working length cleaning and shaping was performed for all the teeth using protaper files till F3 in three groups using 3% sodium hypochlorite, 17% EDTA and saline as irrigant. The three groups differed in the technique of obturation.

One of the newer techniques utilizing thermoplasticized gutta-percha is Obtura II. It is an injectable, heated gutta-percha technique and has been found to be significantly superior to lateral condensation and has a better adaptation to the three-dimensional root canal system.^[7]

Length control is however a disadvantage with higher chances of under and over extended obturations.^[8] Though a large number of in vitro studies have been conducted to compare the outcome of root canal obturation by warm Gutta-percha with that by Cold lateral condensation, conclusions have been inconsistent or contradictory.^[9-11]

Obturation with single cone GP is commonly used these days by many practitioners because it is less time consuming.^[12-13]

Group 1 - Obutra II

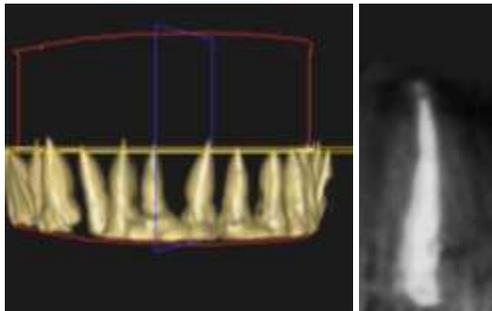
Group 2 - lateral Condensation

Group 3 – F3 GP

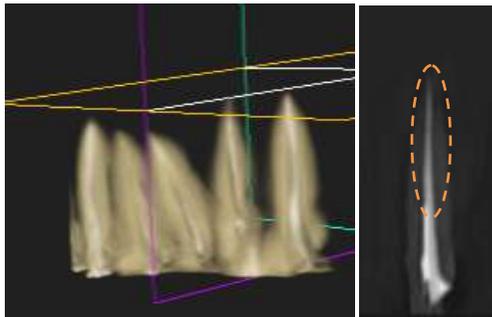
The teeth in each group were mounted on wax in arch form and compared using cone beam computed tomography at apical, middle and cervical third. The sections were analysed for voids and adaptation to the canal wall.

Result

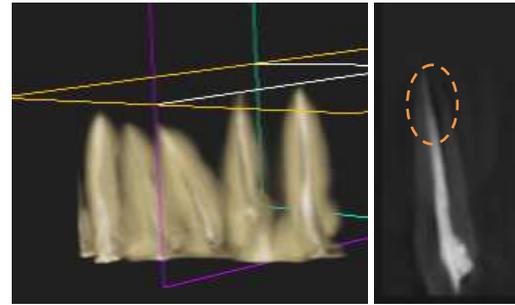
Obturation with obtura showed the best result in terms of sealing ability and adaptation to canal wall. However some voids were seen due to improper condensation. In case of lateral condensation the adaptation to canal wall was less and voids were prominent as compared to obtura when viewed with CBCT. In case of obturation with single cone F3 GP, sealing to the canal wall was minimal at the apical area and middle third and present at coronal third of the root.



OBTURATION WITH OBTURA



OBTURATION WITH LATERAL CONDENSATION



OBTURATION WITH SINGLE CONE 6% GP

The data was analysed on the basis of observation made by four observers chosen randomly:

Voids(apical)

- ⊙ 12% -obtura
- ⊙ 25% -single cone F3
- ⊙ 37% -lateral condensation

voids (middle)

- ⊙ 12% -obtura
- ⊙ 37% -single cone F3
- ⊙ 37% - lateral condensation

Voids (coronal third)

- ⊙ no voids -obtura
- ⊙ 12% -single cone F3
- ⊙ 25%- lateral condensation

No voids

- ⊙ 62% - obtura
- ⊙ 37% -single cone F3
- ⊙ 25% -lateral condensation

Thus it was seen that obtura showed minimum number of voids and thus best adaptation to the canal wall.

Discussion

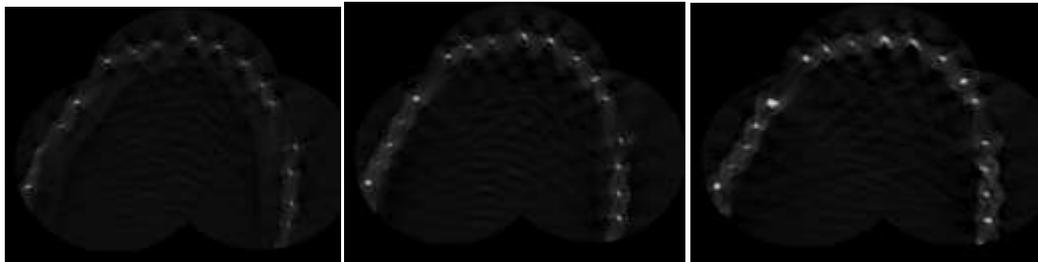
In this study 24 extracted single-rooted human teeth were used to enhance the reliability of the investigation by duplicating the clinical situation. Selection of the teeth and their assignment into different study groups was done using stratified randomization. In the present study lateral condensation was used because it is the most commonly used and studied technique, and therefore, it served as a standard with which other techniques could be compared.⁽⁶⁾

Obtura II is an injectable, thermoplasticized, gutta-percha technique and it has been found to be significantly superior to lateral condensation and has a better adaptation to the three dimensional root canal system.⁽⁷⁾

In case of obturation with single cone F3 GP it was seen that the sealing ability to the canal wall was good at the coronal third, which was minimal at the middle and apical third of the root. The time for obturation was significantly greater for lateral condensation and obtura compared to that with F3 single cone GP. The apical sealing ability of matched-taper single-cone obturation was comparable with that of lateral condensation.⁽¹²⁻¹³⁾

A new generation of CBCT scanners combines cone beam technology to traditional panoramic technique. This allows dentist to take traditional two dimensional views of the dental arch, and 3D scan in targeted areas for specialized treatment planning and assessment.

CBCT IMAGES AT DIFFERENT LEVELS HORIZONTALLY-



APICAL THIRD

MIDDLE THIRD

CORONAL THIRD

Conclusion

Within the limitations of this study, the following conclusions were drawn:

1. Obtura II exhibited the best adaptation with less number of voids, as compared to the other two groups.
2. The lateral condensation group had more voids when compared with the Obtura II and most of the voids were seen at the periphery.
3. There was not much difference in the quality of obturation provided with single cone and lateral condensation. However obturation with single cone was less time consuming as compared to the other two techniques.

4. Overall, the Obtura II group exhibited a homogenous obturation followed by lateral condensation

and obturation with single cone F3 GP.

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