Case Report

DOI: 10.7860/JCDR/2014/9308.5248

Dentistry Section

Management of Grade III Mobile Anterior Tooth in Function Using Endostabilizer – A Case Report

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ABSTRACT

Impact of implant dentistry is such that today very few dentists think about saving grade III mobile anterior teeth. A patient with grade III mobility of central incisor due to apical root resorption was treated by using 80 no.stainless steel 'H' file as endostabiliser and one year follow up was done. Endostabiliser reduced the mobility of grade III mobile teeth drastically, immediately after its placement. Tooth was absolutely asymptomatic throughout one year follow up.

Keywords: Endostabilizer, 'H'-file,Root resorption, Mobility

CASE REPOT

A 35-year-old female patient reported to the Department of Endodontics with grade III mobility of upper left central incisor (# - 21). Patient had complaint of pain while mastication only, otherwise she was all right in rest position. There was no relevant medical history. Past dental history reveals history of trauma two years back. She was on self-medication and did not report to any dentist. She developed pain and discomfort while chewing since last two months and thus came to the hospital for treatment. The Department of Oral diagnosis advised extraction but as the patient was not ready for extraction they referred the patient for opinion to the Department of Endodontics. On clinical examination, there was grade III mobility, fractured incisal edge and severe abrasion involving pulp with mild tenderness. Radiographic examination revealed apical root resorption with interdental bone resorption. No associated root fracture was seen [Table/Fig-1].

Root canal treatment with endodontic stabilizer and coronal composite restoration followed by flap surgery was planned. Inform consent was taken from the patient. Patient was explained about possible prognosis and longevity of the tooth. Before starting endotreatment sub-gingival scaling was done. After that access opening, working length determination and manual biomechanical preparation up to 60 No. instrument was done. Irrigation protocol followed was sodium hypochlorite (NaOCl) as initial and chlorhexidine as final irrigant. While doing all this treatment, tooth was stabilized with left hand index finger of the operator 70 and 80 No. 'H' file were tried in the canal, 80 No. 'H' file was snugly fitting in the canal, thus selected as endostabiliser for the tooth. After root canal preparation the root apex is penetrated with 80 No. 'H' file and extended apically 2 mm short of the original root apex and was checked radio graphically [Table/Fig-2].

Root canal was dried and coated with luting glass ionomer cement. The 80 No. 'H' file is also coated with glass ionomer cement and immediately fitted up to checked length and further screwed two mm into resorbed root portion. Instrument was cut at the base of pulp chamber with inverted cone diamond bur and access cavity sealed with intermediate restorative material and radiograph was taken [Table/Fig-3]. Anti-inflammatory and analgesic prescribed and patient instructed to take it only if required .

Mobility of tooth was drastically reduced to grade I from grade III immediately after placement of file as endostabilizer. Patient was recalled after 15 days to check mobility of tooth and comfort of patient. Radiographic evaluation was done [Table/Fig-4]. Access cavity sealed with composite resin, slight mobility was still present with tooth, but patient was very happy as it saved her tooth from extraction. As mobility was reduced drastically, patient was not ready for flap surgery. Patient was recalled after every three months to check the condition of the tooth and radiographs were taken. [Table/Fig-5-8].

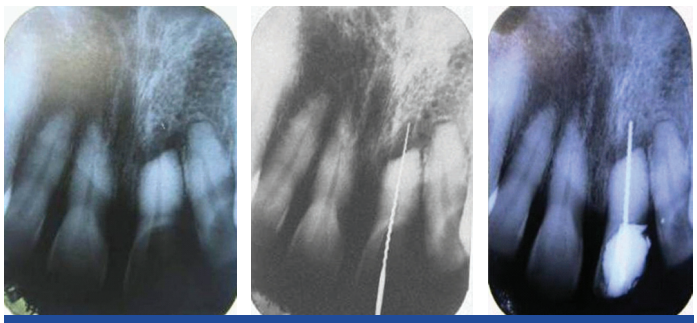
DISCUSSION

With the recent influx of osseointegrated endosseous implant in dentistry, attention has been drawn away from using endostabiliser as a means of stabilizing and retaining natural tooth [1].

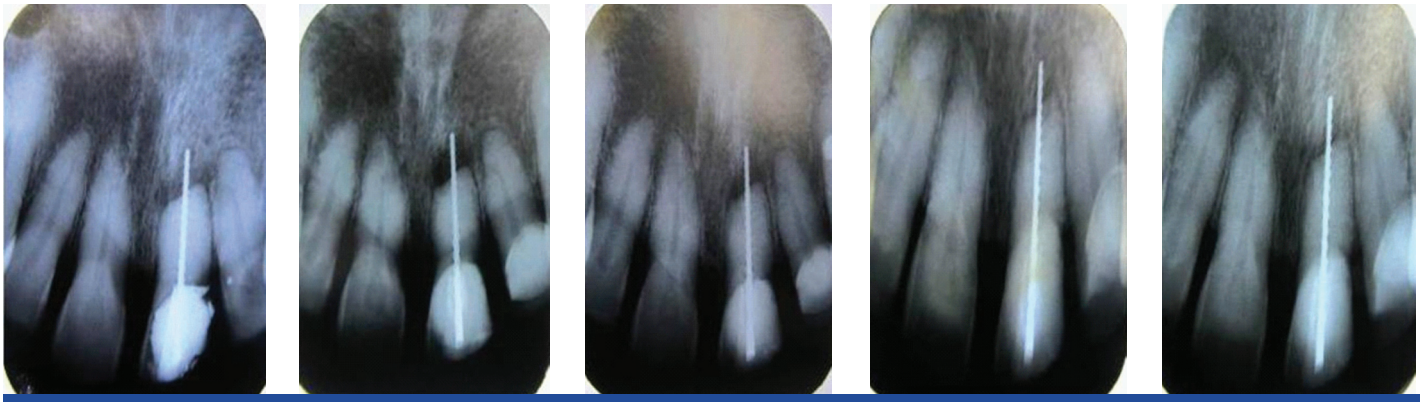
Endostabiliser also called as diodontic implants or endodontic endosseous implant is a device intended to be inserted through the root canal into a periapical affected bone to stabilize a tooth of grade II or III mobility. These are the smooth or tapered rods of chromium cobalt or titanium. Rods matching the corresponding sizes of the root canal instruments cemented into the root canal so as to extend beyond the root end into periapical bone. It increases the root length artificially and reduces tooth mobility drastically [2]. Because of non-availability of these instruments, large number of stainless steel root canal file can be used [3].

Use of endostabiliser presents a sound physiologic procedure for stabilizing mobile teeth that have lost considerable amount of alveolar support. It increases root length, alter root crown ratio, immobilize fractured root and periodontally compromised teeth or supply combination of all these benefits [3,4]. When the resorption is severe enough to endanger the retention of tooth, an endoosseous stabiliser can be placed through the root and extended into the bone to stabilize the tooth artificially [5].

Endodontic implant is indicated in (1) periodontally involved teeth requiring stabilisation (2) transverse root fracture (3) pathologic resorption of root apex (4) tooth in which additional root length



[Table/Fig-1]: Pre-operative radiograph with apical root resorption **[Table/Fig-2]:** Diagnostic x-ray trying H-file as endostabilizer **[Table/Fig-3]:** Post-operative radiograph showing 80 no. H-file as Endo-stabilizer



[Table/Fig-4]: Radiograph after 15 days **[Table/Fig-5]:** Radiograph after 3 months **[Table/Fig-6]:** Radiograph after 6 months **[Table/Fig-7]:** Radiograph after 9 months **[Table/Fig-8]:** Radiograph after 12 months

is desired for improving alveolar support (5) extensive internal resorption affecting the integrity and strength of the root(6) pulpless tooth with unusually short root (7) previous apical surgeries which leads to undue mobility [3-7].

Contraindicated in(1) active progressive periodontal disease associated with the tooth (2) periodontal communication (probing defect) near the apex of the tooth (3) anatomical structure in close proximity of apex of the tooth [7].

As per patient's expectation endostabiliser is a quick, effective, and economic treatment to save the tooth. The use of larger no. of stainless steel 'H' file for stabilization of tooth makes the procedure simple and easy. Though studies have contraindicated the use of stainless steel in close proximity to bone, the use of stainless steel file was successful in this case [8]. The radiograph clearly showed adequate bone regeneration in periradicular area. As glass ionomer cement is biological acceptable material to periodontal tissue, use of this cement for coating root canal wall and file to stabilize in the canal as well as in bone proved successful. It also acts as supplementary obturating material.

With proper case selection, procedure is simple and straightforward with less chances of damage to vital structure. In one-year follow up mobility of tooth reduced drastically. This type of procedure using root canal instrument to stabilize root fracture can also be done. Because of drastic decrease in mobility of tooth, initial success rate were reported in literature [8-11].

The reduced crown root ratio can be improved by placement of an inert chrome-cobalt alloy or stainless steel endoimplant. Careful case selection with proper technique, intraosseous endodontic implant or endodontic stabilizer are safe and effective [12,13].

'H' file was used as endostabiliser because threaded stabilizer gives significantly stronger retention and also has the advantage of transmitting masticatory stresses to bone through the threads of the rod [14]. The procedure is less time consuming and invasive as compared to extraction and then fixed bridge or implant. Long history of trauma without any treatment causes apical root resorption, which reduces root length and crown ratio causes mobility of that tooth, which is also enhances by periodontal problems. Being anterior tooth, generally patient refuses for extraction and prefer to carry mobile tooth until it is lost eventually. Though there is a mixed response for use of endostabiliser it can be used for their simplicity in procedure and affordable to poor patients.

CONCLUSION

Although endoimplants have lost a primary role in dentistry, in some limited circumstances they may be good substitute for tooth extraction. In case of anterior teeth, endostabiliser is like a boon to the patients as it reduces mobility of the tooth drastically, immediately after its placement. And even if there is poor prognosis with endostabiliser, patient can think for extraction in future. But today he can leave dental office with his own tooth and smile on face by opting very simple procedure of endostabiliser.

REFERENCES

[1] Feldman H, Feldman G. Endodontic stabiliser. *Journal of Endodontic.* 1992;18(5):245-48.
[2] Nichels E, Torabenjed M. Endostabiliser, endodontic adjutants in Endo, 3rd edition, 1995 : 469 - 77.
[3] Silverbrand H, Rabkin M, Cranin AN. The use of endodontic implant stabilizer in post traumatic and periodontal diseases. *Oral Surgery OM OP.* 1978;45(6):920-29.
[4] Franklin S Weine. Survival of endodontic endosseous implant. *J of Endodontis.* 1993;19: 524.
[5] Arens DE. An alternative treatment for severely resorbed maxillary lateral incisor. *J of Endodontics.* 1995;21(2):95-100.
[6] Stephan Cohen, Kenneth Hargreaves. *Pathways of the pulp*; 9th edition 2006. P. 637-38.
[7] Endodontic implant/ certified fixed orthodontic courses by Indian dental academy by Indian dental association on march 19 ,2013.
[8] Priyadarshani L, Laxminarayan L. Endodontic miscellanary : Use of endodontic file as an endodontic implant. *Endodontology.* 2000;12:37-39.
[9] FARZAD SALEHZ POVR/IRAN – Endodontic stabiliser. *Endodontic Journal.* 3/2005. 17-18.
[10] Girish Parmar, Pramod kumar AV. Custom fabricated endodontic implant : Report of two cases. *J of Endodontic.* 2000;26(5):301-03.
[11] James H Simen, Alfred L Frank – Endodontic stabilizer, additional histologic evaluation. *J of Endodontics.* 1980;6(2):450-55.
[12] J Edgar, Valdivia Cardenas, Enrique Hair Salas Beltran, Felipe Hernandez Ananos. Niti endodontic intraosseous implant. *Dental press Endod.* 2012;2(1):38-41.
[13 Sunandan Mittal, Tarun Kumar, Vishal Aggarwal, Ramta Bansal, Dilpreet Kaur. Endodontic stabilizers for treating mid rootfractures. *Journal of Interdisciplinary Dentistry.* 2011;1(2): 108-11.
[14] Maniatopoulos C, Piller RM & Smith DC. Evaluation of the retention of endodontic implant. *J of Prosthetic Dent.* 1988;59:438-46.

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FINANCIAL OR OTHER COMPETING INTERESTS: None.

Date of Submission: **Mar 17, 2014**
Date of Peer Review: **Jul 05, 2014**
Date of Acceptance: **Jul 19, 2014**
Date of Publishing: **Dec 05, 2014**