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Surgical Management Of Symptomatic Molars Due To Overfilled Gutta Percha: A Case Series

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Abstract : *The Presence Of Foreign Material In Large Quantities In The Periapical Tissues Causes Persistence Of Breakdown Products And That Persistence Is Fueled By The Toxicity Of The Engulfed Material.Root Canal Failure Following Gutta Percha Overfilling Can Be Managed By Nonsurgical Method Or Periradicular Surgery.This Case Series Presents The Successful Surgical Treatment Of A Symptomatic Teeth Due To Overfilling With A Mineral Trioxide Aggregate Apical Plug.*

Keywords-*Extrusion,Gutta Percha, Mandibular Molar,MTA, Periradicular Surgery.*

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I. INTRODUCTION

The Success Of Root Canal Treatment Depends On Complete Debridement And Obturation Of The Root Canal System..Ideally,The Filling Material Should Reach Upto Apex Of Root Without Extending Into Periapical Tissues.

Overfilled Root Canals Occur Due To Faulty Working Length,Faulty Instrumentation Through Apical Foramen,Incompletely Formed Root Apex Or Due To Some Inflammatory Root Resorption[1]. The Obturation Material Might Act As A Foreign Body Causing Mechanical Or Chemical Irritations Of Periradicular Tissues, Which May Lead To Treatment Failure.In Cases Where Overfilled Teeth Are In Connection With Anatomically Important Structures, Such As Nerves, Blood Vessels, Or Sinus Space, The Consequences Can Be Severe,Clinical Symptoms Such As Pain ,Swelling,Paresthesia May Appear[2].

The Aim Of Endodontic Surgery Is To Remove Periapical Pathosis And Restore Both Health And Function Of Tooth Peridontium.This Includes Root End Resection,Curettage,Root End Preparation And Root End Sealing With A Filling Material.Amongst Various Root End Filling Material, Mineral Trioxide Aggregate(MTA) Due To Its Biocompatibility And Superior Sealing Ability[3],Is The Material Of Choice For Filling.

This Case Series Describes Treatment Procedure For Mandibular Molars With Overfilling Of Gutta Percha Which Were Successfully Treated By Periradicular Surgery And Root End Filling With MTA..

II. MATERIALS AND METHOD

2.1 Case Report 1

A 18year Old Female Reported In Department Of Conservative And Endodontics,Sharda University,Greater Noida,U.P,India With The Complaint Of Pain Associated With Left Mandibular First Molar With History Of Root Canal Treatment With The Same Tooth. On Clinical Examination,Tooth 36 Was Temporary Restored With ZOE Cement. On Percussion The Tooth 36 Was Tender.

On Radiographic Examination, There Was A Big Periapical Radiolucency In Relation To Mesial Root Associated With Extrusion Of 2-3 Mm Of Gutta Percha And Sealer(Fig.1).

Orthograde Treatment Was Tried To No Avail.Having Informed The Patient About The Overfilling Of The Root Canal, We Decided, With The Patients Consent, To Proceed Retrograde Removal Of Extruded GP And Apicoectomy.Routine Blood Investigations Were Done And Vitals Were Recorded.

Under Local Anesthesia, A Horizontal Sulcular Incision Including Dental Papilla From Mesial Line Angle Of 34 Upto The Mesial Line Angle Of 37 Was Made. Two Vertical Releasing Incision Extending From The Depth Of Vestibular Sulcus Was Placed To The Sulcular Incision, One Along The Mesial Line Angle Of Tooth 34 And Another Along The Mesial Line Angle Of Tooth 37.Using A Gentle Rocking Motion, A Full Thickness Mucoperiostal Flap Was Reflected Beginning From The Vertical Releasing Incision At The Junction Of The Submucosa And The Attached Gingival(Fig.2).

After Flap Retraction, The Osseous Tissue Was Removed With Round Carbide Bur Using A Gentle Brushstroke Action And A Window Was Created To Access The Apical Third Of Mesial Root(Fig.3). After Accessing The Apical 1/3rd Of Mesial Root, Periapical Curettage Was Done, Extruding Filling Material Was Removed And 2-3 Mm Of Root Was Resected.Root End Preparation Was Done With Ultrasonic Tip And MTA Was Used As Root End Filling Material.Flaps Were Then Approximated And Sutured Back To Their Original Position(Fig.4).

A 7-Day Course Of Amoxicillin 500 Mg, 3 Times A Day, Was Prescribed Along With Chlorhexidine Mouthwash . Patient Was Recalled After One Week For Review. Patient Was Asymptomatic During Recall During Which Suture Were Removed. Patient Was Evaluated For Three Month After Surgery And It Showed Uneventful Healing Of The Respected Area After Which Prosthesis In Form Of Porcelain Jacket Crown Was Given(Fig.5).

2.2 Case Report 2

A 35 Year Old Female Reported With Chief Complaint Of Pain In Left Lower Back Region.

On Eliciting History, It Was Revealed That The Patient Underwent Root Canal Treatment Of Tooth 36 Two Week Back**.**On Clinical Examination, Tooth 36 Was Temporary Restored With ZOE Cement.On Percussion The Tooth 36 Was Tender. On Radiographic Examination,There Was Extrusion Of 5-6 Mm Of Gutta Percha And Sealer From Mesial Root And Associated With Small Size Periapical Radiolucenc(Fig.6). Surgical Intervention Was Decided Upon,Including The Removal Of Excess Gutta Percha,Apicoectomy Of Teeth And Retrograde Filling With MTA(Fig.7,8). After 3months,Complete Healing Of The Area Was Observed(Fig.9).

III. FIGURES

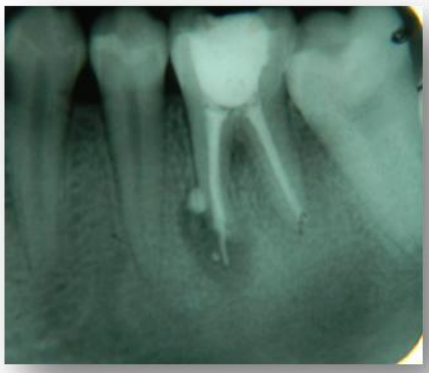

Fig.1

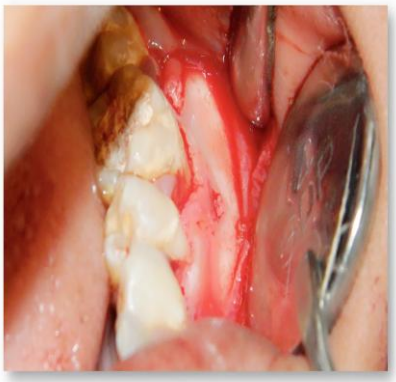

Fig.2

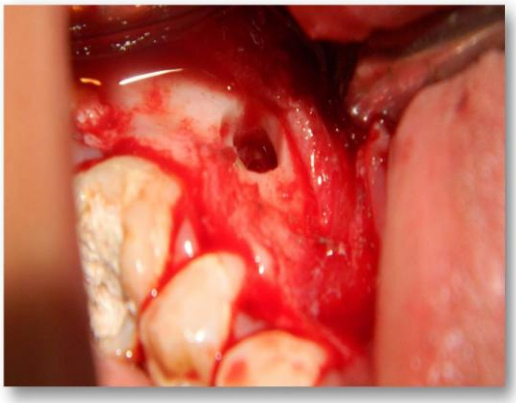

Fig.3

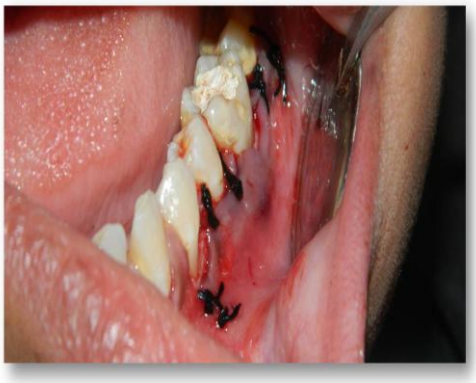

Fig.4

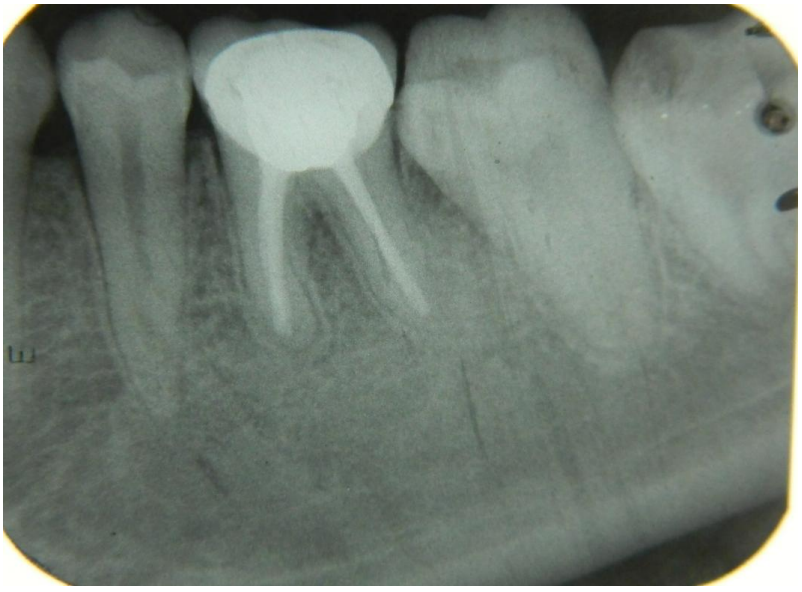

Fig.5

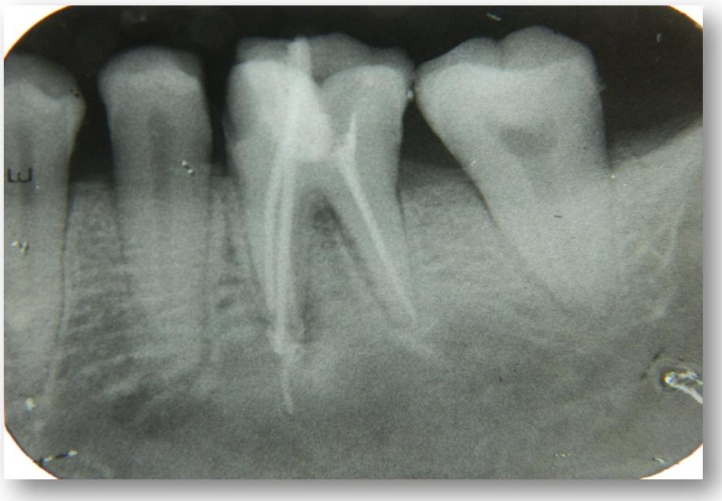

Fig.6

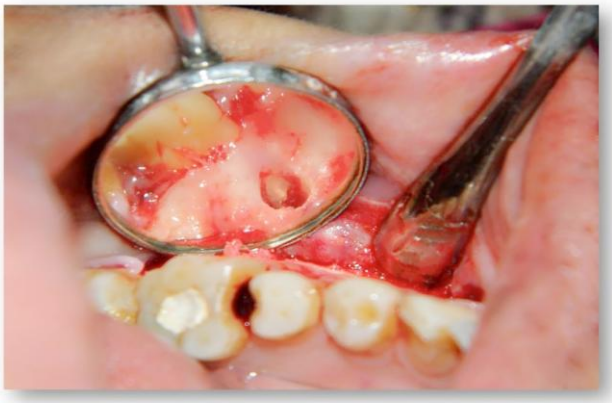

Fig.7

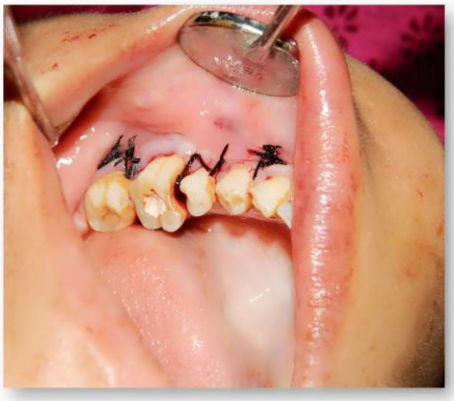

Fig.8

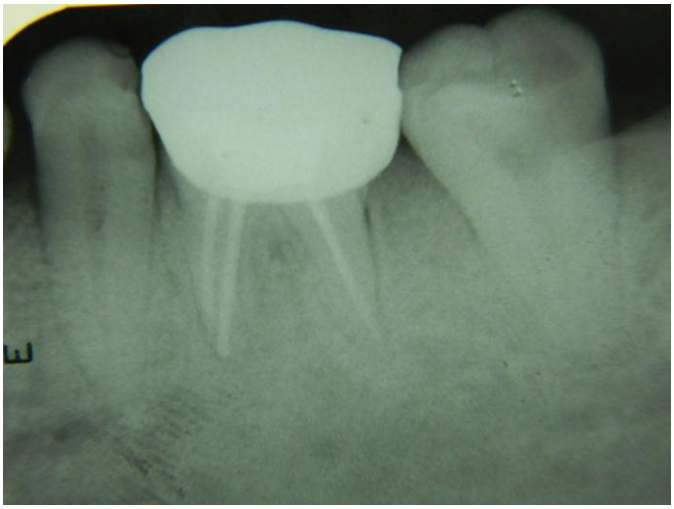

Fig.9

Fig 1: IOPAR Demonstrated Extruded Gutta Percha Wrt Tooth No. 36
Fig 2: After Reflection Of A Full-Thickness Flap
Fig 3: Window Preparation
Fig 4: Suture
Fig 5: Radiograph Taken 3 Months Showing Healing Of The Bony Lesion Along With Final Prosthesis
Fig 6: IOPAR Demonstrated Extruded Gutta Percha Wrt Tooth No. 36
Fig 7: After Apicoectomy And Retrograde Filling With MTA
Fig 8: Repositioned And Sutured Flap
Fig 9: Radiograph Taken 3 Months Showing Healing Of The Bony Lesion Along With Final Prosthesis

IV. DISCUSSION

It Is A Paradigm In Modern Endodontics That Instrumentation Beyond The Apical Foramen Should Be Avoided Because It Is So Often Associated With A Reduced Success Rate And Exposes The Patient To The Potential For Injury. Filling Material Extruded Into The Periapical Area Causes A Foreign Body Type Reaction In The Connective Tissue. To Be Precise, The Presence Of Microbial Infection Is The Primary

Cause Of Endodontic Failure But Foreign Body Reaction Can Aggravate And Sustain The Disease An Its Symptom[4].In The Present Case Series Patients Had Pain As Their Symptom Due To Overfilling.

Retreatment By Removal Of Gutta Percha Filling Using Hedstrom Files And Solvents Such As Chloroform Or Xylene May Be Considered Only In Case Of Poorly Condensed Gutta Percha Fillings. In Case Of Overextended Obturation With Good Adaptation Of Gutta Percha Cones, If The Same Method Is Used, Gutta Percha Fragments Often Remain In The Periapical Tissue[5]. The Complexity Of The Canal Anatomy Does Not Allow 100% Success In Nonsurgical Endodontic Therapy.That Is Why Surgical Approach Was Chosen In Present Case Series.

Various Materials Have Been Used As Root-End Filling Materials Over The Past Few Years: Amalgam, Gold Foil, Zinc Oxide Eugenol Cements, Diaket (ESPE Gmbh, Seefeld,Germany), Glass Ionomer Cements, Composite Resins, Intermediate Restorative Material (Caulk/Dentsply, Milford, DE), Supereba (Bosworth, Skokie, IL), And Mineral Trioxide Aggregate (MTA; Proroot MTA; Dentsply, Tulsa, OK).Although None Of These Satisfy All The Requirements Of An Ideal Repair Material, MTA Has Been The Material Of Choice For Root-End Filling. MTA Demonstrates Superior Biocompatibility Compared With Other Materials And Promotes Tissue Regeneration When Placed In Contact With The Periradicular Tissues.

Only A Small Number Of Studies Have Published Data On Periradicular Surgery In Molars[6],[7],[8]. Except For One Study (Testori *Et Al*. 1999), The Reported Success Rates Of These Studies, Including The Present One, Are High Approaching Or Exceeding 90%.

V. CONCLUSION

Periradicular Surgery Can Be The Treatment Of Choice To Manage Endodontic Failures Associated With Overfilled Gutta Percha.MTA Can Be Used As As Potentially Successful Agent For Sealing Resected Root End. Obturation Mishaps Can Be Prevented By Having Adequate Knowledge Of Endodontic Anatomy And Identification Of The Sensitive Neural Structures Of The Jaws,Usage Of Inert Obturation Materials That Are Well Tolerated By The Body And By Multiple Confirmations Of Working Length And Taking Serious Precaution Against Overinstrumentation.

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