

## **Management of Invasive Cervical Resorption – A Case Report**

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### **Abstract**

Invasive cervical resorption (ICR) may occur as a consequence of trauma, orthodontic treatment, intracoronal bleaching, and surgical procedures and may lead to the progressive and destructive loss of tooth structure. This is a case report of management of invasive cervical resorption (Heithersay’s class III) with tooth 21 secondary to trauma. Root canal treatment with tooth 21 was performed and the surgical management of invasive cervical resorption was done. Resin-modified glass ionomer cement was used to fill the resorptive defect. Follow-up was done which showed no further progress of resorptive defect. RMGIC being biocompatible material is useful in management of invasive cervical resorption.

### **Keywords**

Invasive cervical resorption, Heithersay’s class III, RMGIC

### **Introduction**

Root resorption is the loss of dental hard tissues as a result of odontoclastic action. It is classified by its location in relation to the root surface i.e. internal or external resorption.(1)

External resorption is further classified into external surface resorption, external inflammatory resorption, external replacement resorption, external cervical resorption and transient apical breakdown.(2) External cervical resorption (ECR) usually begins on the cervical region of the root surface of the teeth. Root resorption of permanent tooth can lead to irreversible damage and/or eventual tooth loss. Cervical root

resorption can occur because of trauma, orthodontic tooth movement, periodontal root planning, bruxism, intracoronal tooth bleaching.(1)

Heithersay G.S. preferred the term 'invasive cervical resorption' for external cervical resorption. He has given a clinical classification of invasive cervical resorption depending on the amount of destruction. The basic treatment modalities include the complete removal of resorptive tissue with spoon shaped excavator or with bur at slow speed. Once sound dentinal margins are achieved, the defect can be restored by appropriate restorative material like glass-ionomer cement, composite resin, amalgam or MTA. (3)

This paper reports a case of heithersay's class III invasive cervical resorption managed successfully by using RMGIC and surgical flap reflection.

### **Case report**

A 25 year old male patient reported to the outpatient department of Conservative Dentistry & Endodontics with chief complain of blackish discoloration and bleeding from gums associated with

tooth 21. No episode of pain was reported by the patient in tooth 21. Patient reported history of trauma to anterior front region of jaw 6 years back. Past dental history revealed that patient had undergone root canal treatment with tooth 11& 12 two years back because of pain associated with teeth. Also he reported history of emergency root canal opening with tooth 21 because of associated pain one year back after which patient discontinued the treatment. The medical history was non-contributory. On clinical examination temporary filling was seen with tooth 21 palatally. (Fig.1a) Secondary caries were seen on mesio-palatal aspect of tooth 21. (Fig.1b) On removal of secondary caries & temporary filling, a soft tissue overgrowth was seen in a defect on mesio-palatal aspect of tooth 21.(Fig.1d) A periodontal pocket of 6 mm was located mesially with tooth 21.(Fig.1c) There was bleeding on probing associated with tooth 21. Radiographic examination revealed horizontal bone loss and external cervical resorption on mesio-palatal aspect of tooth 21. No peri-radicular lesion was seen on IOPAR radiograph with tooth 21.(Fig.1e)

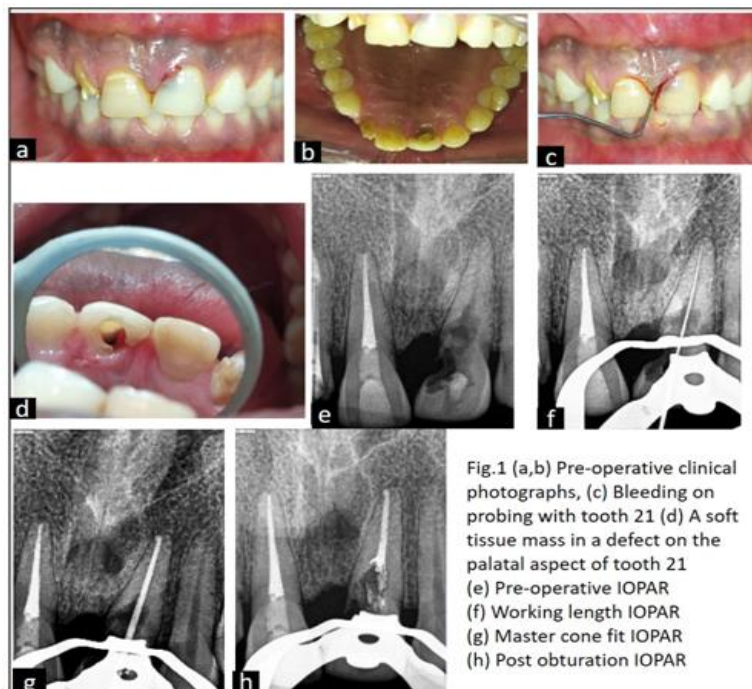


Fig.1 (a,b) Pre-operative clinical photographs, (c) Bleeding on probing with tooth 21 (d) A soft tissue mass in a defect on the palatal aspect of tooth 21 (e) Pre-operative IOPAR (f) Working length IOPAR (g) Master cone fit IOPAR (h) Post obturation IOPAR

Based on patients past dental history and thorough clinical and radiographic evaluation, a diagnosis of invasive cervical resorption (Heithersay's class III) secondary to trauma with tooth 21 was made. Treatment plan was decided as completion of RCT with tooth 21 and as the resorptive defect was located below the cervical third of crown, surgical reflection of flap followed by selective curettage and filling of defect using RMGIC. The same treatment plan was discussed with the patient and a written informed consent was obtained before start of procedure.

In the subsequent appointments, oral prophylaxis was done. Temporary filling and secondary caries on mesio-palatal aspect of tooth 21 was removed using a stainless steel round bur. Under rubber dam isolation, working length was determined using hand K file and apex locator (Root ZX Mini) and was confirmed on a periapical radiograph.(Fig.1f) Cleaning and shaping was done using hand K files using step back technique till an ISO No. 60 K file (Mani,India). Irrigation was

done using 3% NaOCl (Prime,India) and normal saline. Master cone fit was confirmed on radiograph.(Fig.1g) Obturation was done using gutta percha by sectional method of obturation.(Fig.1h) The root canal opening was sealed with temporary restorative material(Cavit) and patient was recalled 1 week later.

In the second appointment, under local anesthesia, a sulcular incision was given and flap was raised. On raising the flap, resorption was confirmed on the palatal aspect of root.(Fig.2a) The defect was then debrided and curettage was done. Resorptive defect was filled with resin-modified glass ionomer filling material (RMGIC, GC Fuji). (Fig.2b) The flap was approximated and sutured with 3-0 mersilk suture.(Fig.2c) The post operative IOPA with tooth 21 was taken.(Fig.2d)

The patient was reviewed at every 3 months interval for 12 months when the upper left central incisor was found to be clinically asymptomatic and radiographic evidence showed no further signs of resorption of tooth 21.(Fig.2e & 2f)



Fig.2 (a) Surgical reflection of flap (b) RMGIC placed in resorptive defect (c) Placement of sutures (d) Post operative radiograph (e) Post operative clinical photograph (f) Follow up radiograph

## **Discussion**

Invasive cervical resorption in this case may have been induced by trauma to the tooth before 6 years. The resorption would have proceeded progressively if the treatment had not been initiated promptly. It is hypothesized that trauma to the root surface or the presence of natural cementum defects may predispose to resorption by altered host tissues modified by a bacterially driven stimulus of different origin. The treatment for invasive cervical resorption is aimed at debridement and restoration of the resorptive defect. A filling material should reinforce the lost tooth structure.(4,5)

A careful selection of a case is important to achieve a good prognosis. Heithersay recommended only treating defects categorized as classes 1 through 3. Because of the extensive nature of class 4 lesions, these cases have poor prognosis. In the present case, the resorptive defect was involving coronal dentin as well as coronal third of the root.(6)

Filling material for such resorptive lesions should reinforce the tooth structure. It should possess a coefficient of thermal expansion close to that of the tooth structure and should be biocompatible. Therefore in the present case, RMGIC was used for filling the defect as RMGIC has properties such as adhesion to tooth structure, esthetics, fluoride release, and rapid hardening by visible light. Also the development of subgingival plaque over RMGIC could be prevented by achieving a smooth finish of restoration. (1,4) RMGIC was well tolerated by periodontal tissues in the present case as subsequent gingival inflammation and bleeding on probing was not observed in follow-up visits.

## **Conclusion**

The use of RMGIC in resorptive lesions should be preferred as it not only restores the tooth but also

reinforces the lost tooth structure and is biocompatible in nature.

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