International Journal of Health Sciences and Research
www.ijhsr.org ISSN: 2249-9571

Case Report

Non-surgical Removal of Overextended Gutta-Percha in Endodontic Retreatment Cases

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Received: 16/10/2015 *Revised: 30/10/2015* *Accepted: 30/10/2015*

ABSTRACT

Overextended gutta percha could cause an inflammatory reaction in periapical tissue. Though the root canal filling materials are well tolerated by periapical tissue but a high failure rate is associated with the overfilled toot. CASE1 a new, unused and autoclaved H-file was used to remove the overextended gutta percha fragment. The file was carefully inserted into the canal to engage the broken gutta percha point coronally. CASE2 A similar approach was followed using an H-file to retrieved the broken gutta percha point from periapical area.

Keywords: Gutta-percha, periapical, inflammation, retreatment.

INTRODUCTION

Complete removal of the root canal filling is the prerequisite for the success of retreatment procedure in a failed root canal treated tooth. [1] Hedstrom files (H-file) and gutta percha (GP) solvents such as chloroform can easily remove gutta percha in the root canal. [2] With overextended root canal fillings, GP fragments often remain in the periapical tissue and may cause mechanical irritation and inflammation in the periapical tissues, thereby leading to endodontic failure. [3,4] This case report describes a non-surgical technique for management of overextended gutta percha.

CASE REPORT

Case Report 1: A 45 years old female patient reported to the Department of Conservative Dentistry and Endodontics, Post Graduate Institute of Dental Sciences, Rohtak with a chief complaint of mild pain with respect to lower right back tooth. Past dental history revealed that the patient had undergone endodontic treatment in tooth number 34 two months back. Radiographic examination revealed an incomplete root canal treatment with a gutta percha cone lying in the periapical area (figure 1A). Also, widening of periodontal ligament was seen associated with 34.

A new, unused and autoclaved H-file was used to remove the overextended gutta percha fragment. The file was carefully inserted into the canal to engage the broken gutta percha point coronally. The length of the H-file approaching the fragment was confirmed radiographically (figure 1B). The instrument was made to engage the gutta-percha fragment using a clockwise rotational movement 0.5 to 1.0 mm beyond the apical foramen (figure 1C).

The file was then slowly and firmly withdrawn without any rotational movement. If the file lost its grip, the procedure was repeated using a size larger H-file. The instrument was not allowed to engage the dentinal walls during removal and the movement was between the gutta-percha and canal walls, not between the instrument and the gutta-percha. The overextended gutta percha filling were successfully retrieved. On twelve months follow up visit patient was clinically as well as radiographically asymptomatic.

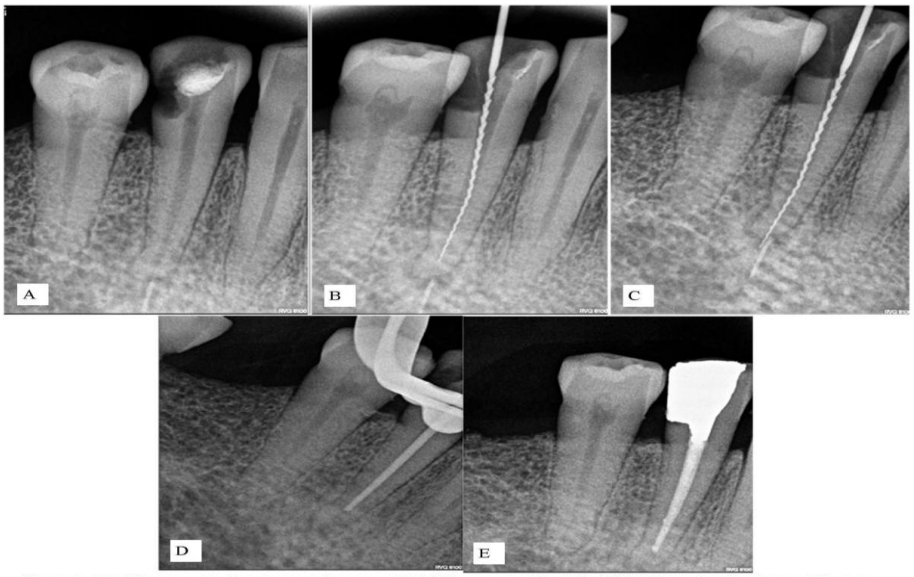

Figure 1: (A) GP seen extruding beyond the apex. (B) H-file approaching GP. (C) H-File extending beyond the apex to engage the extruded GP. (D) Master cone Radiograph. (E) 12 months Post-operative Radiograph.

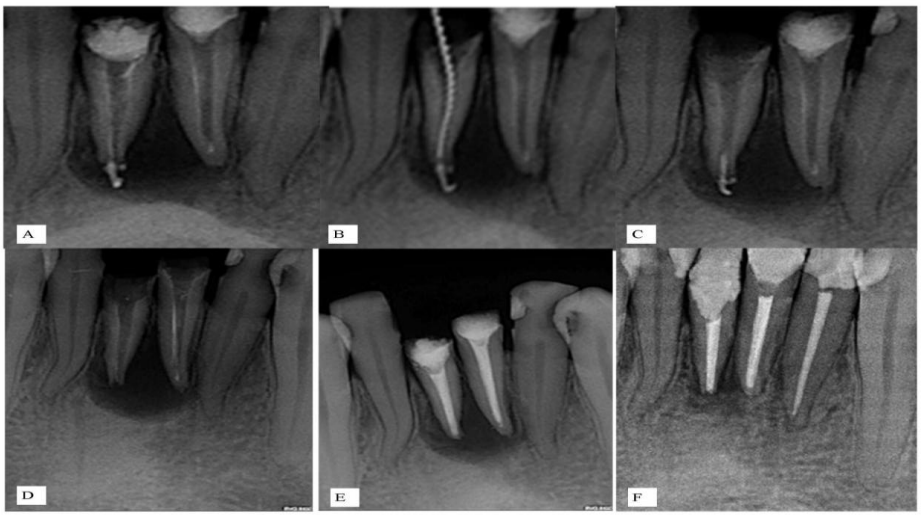

Figure2: (A) GP seen extruded beyond the apex. (B) H-file seen approaching the extruded GP. (C) GP pulled inside the canal. (D) GP removed . (E) Immediate Post-Operative. (F) 12 months Follow-up

CASE REPORT 2: A 20 year old male was referred by a private dentist. The patient visited the dentist with a chief complaint of pain and tooth mobility in lower front tooth. There was a history of failed root canal treatment. An attempt on the part of the treating dentist to remove the GP filling led to overextrusion of gutta-percha fragment beyond the apex. Clinically, teeth were grade 3 mobile and there was little crown structure remaining. Radiographic examination revealed an incomplete root canal treatment with an overextended gutta percha into the periapical tissues of tooth 31 (figure 2A). A large periapical radiolucency was found

associated with the roots of both the central incisors.

A similar approach was followed using an H-file to retrieved the broken gutta percha point from periapical area as described for case 1 (figure 2B, 2C). A 12-months post-operative radiograph showed a 90% healing of periapical lesion (figure 2F). The patient was clinically asymptomatic.

DISCUSSION

Gutta percha is an inert material and is well tolerated by periapical tissues. [3] This usually does not affect the healing process of periapical tissues. [3] However, the overextended filling material can cause inflammatory reaction due to the mechanical irritation caused by overfilled material, thus decreasing the success rate of endodontic treatment. [4] In a 10 year clinical follow up study in 775 endodontically treated teeth Souza et al found high success rate where the obturation material was filled 1 mm short of the radiographic apex. [5] Sjogren et al also found high success rate in teeth where filling was 0-2 mm short of the radiographic apex. [6]

Both the cases described here presented to us with an over extended GP into the periapical area. Clinically, patients were symptomatic and had abnormal radiolucent periapical changes. This technique described here to retrieve the gutta-percha from the periapex works well in most of the cases [7] but care should be taken not to force the instrument. Inadvertent forcing of the instrument may result into instrument fracture or further extrusion of gutta percha. [8] Gutta percha solvents should not be used to soften the overextended fragment, because this can result in non-engagement of overextended fragment by H-file and thus hindering in its retrieval. [8]

Generally surgical technique is indicated to remove the overextended material but this technique is conservative, safe, is easy and quick to perform.

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How to cite this article: Gupta S, Dhiman M, Mehta M. Non-surgical removal of overextended gutta-percha in endodontic retreatment cases. Int J Health Sci Res. 2015; 5(11):389-391.

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