

Surgical management of over-extended gutta-percha

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ABSTRACT

Overextended gutta percha could result in an inflammatory response in periapical tissues. Though the root canal filling materials are well tolerated by periapical tissue but a high failure rate is associated with the overextended filling materials. This case report illustrates surgical removal of extruded gutta-percha in a symptomatic tooth after radiographic tracing of the location of extruded gutta-percha.

Keywords: Gutta-percha, extrusion, periapical surgery

INTRODUCTION

Overfilling of root canals can occur due to inflammatory apical root resorption faulty working length estimation, and immature root apex [1]. Difficulty in obtaining an apical stop leads to overfilling. This may result in lower success rate of root canal treatment [1]. Treatment failures in cases of overfilled gutta-percha (GP) are due to factors such as persistent root canal infection, reinfection resulting from apical transportation of bacteria during over instrumentation and foreign body reaction elicited by the overfilled GP itself [2].

GP overfilling can be managed by surgical or non-surgical means. Periradicular surgery is indicated in case of significant overextension of filling material resulting in periradicularpathosis with symptoms, true periradicular cysts with completely enclosed epithelium-lined cavities which are not expected to resolve after nonsurgical dental treatment, persistent periradicularpathosis and correction of deficiencies in previous treatment[3]. Endodontic surgery aims to remove the periradicularpathosis and restore the periodontium to its normal health and function. This includes curettage of the periapical pathosis followed by root end resection, preparation and filling for apical sealing. This case report illustrates successful surgical management of overfilled GP.

CASE REPORT

A 28 years old male patient reported to the Department of Conservative Dentistry and Endodontics, Post Graduate Institute of Dental Sciences, Rohtak with a chief complaint of severe pain with respect to upper right back tooth after undergoing a root canal treatment at a private dental clinic 2 weeks back. Radiographic examination revealed extruded filling material lying in the periapical area with otherwise properly sealed canal and good coronal restoration. (figure 1). Also, widening of periodontal ligament was seen associated with 14. Intraoral examination revealed no swelling, redness or tooth mobility. Tooth was tender to percussion suggesting inflamed periodontium. No relevant medical history was reported.



Fig.1 Pre-operative radiograph showing over-extended gutta-percha

It was decided to surgically remove the extruded filling material as the tooth was sound with good root canal filling and adequate coronal restoration. Informed consent was obtained after explaining about the procedure, risks and alternate treatment options.

Following adequate local anaesthesia and surface disinfection of the surgical site, a full mucoperiosteal rectangular flap was elevated. Upon flap reflection, bone was completely sound. To exactly locate the area for drilling bone so as to reach the extruded GP with minimum loss to sound bone it was decided to radiographically verify the location of extruded GP. A shallow indentation was made in the bone using a bur rotating in a micromotor handpiece at the approximate location of the apex of 14. A small piece of GP was placed in the indentation and a radiograph was taken. The distance between the GP placed in the indentation and the extruded GP was measured on the radiograph. Thus, the location of extruded GP was mapped and bone was removed at that particular point. After removal of bone the extruded GP was seen (Fig. 2).

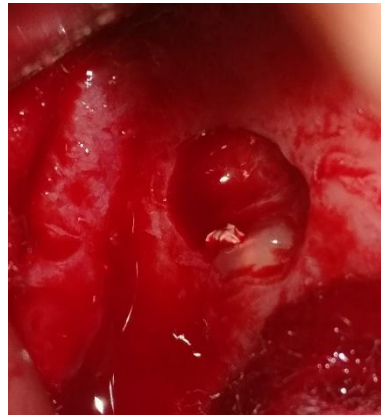


Fig. 2 extruded GP seen after bone cutting

The extruded GP was removed using a blade and the GP at root end was condensed properly followed by root capping using MTA (Angelus, Londrina, PR, Brazil). The flap was repositioned and sutured in place after taking a radiograph (Fig. 3). The patient was given the postoperative instructions. At one-week recall patient was completely asymptomatic.



Fig. 3 radiograph after GP removal

DISCUSSION

Gutta percha is an inert material and is generally well tolerated by periapical tissues[4]. 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[5]. 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 [6].

GP was retrieved surgically in this case. Surgical removal of GP does not disturb the coronal restoration and allows complete removal of extruded material. Also, it is less time consuming and minimizes the risk of instrument fracture and unnecessary irritation that can occur with non-surgical approach. Since the major cause of periapical lesions is an improper apical seal along with egress of microorganisms and their toxins, obtaining an apical seal with root end materials having good sealing ability is important [7]. Hence, root capping must employ a material promoting superior apical sealing in order to be successful and advantageous in the absence of root end procedures.

Surgical technique is an effective method to remove the overextended material.

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