

# DYSAESTHESIA FOLLOWING ENDODONTIC TREATMENT IN A HAEMOPHILIA A PATIENT: A CASE REPORT

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## ABSTRACT

A case of dysaesthesia of the inferior dental nerve following over-extension of root canal filling material in close proximity to the inferior alveolar canal in a Haemophilic A patient is presented. In view of the medical condition of the patient, surgical intervention was contraindicated. Endodontic retreatment failed to remove the over-extended root filling while extraction of the tooth resulted in its partial removal. A follow-up visit after three months revealed a decrease in the area of dysaesthesia.

## INTRODUCTION

Over-extension of instruments or filling materials beyond the apical end of the root canal during root canal treatment has been shown to cause deleterious reactions. Sometimes the reaction is mild and the inflammation transitory, but it can also be serious, causing damage to surrounding nerves with permanent annoying or disabling problems. The commonest problem associated with such cases is dysaesthesia. Dysaesthesia is defined as impairment of sensation which includes anaesthesia and paraesthesia. Anaesthesia is the loss of feeling or sensation while paraesthesia is a morbid, perverted or altered sensation. When the over-extension of the root filling occurs in a lower posterior tooth lying close to the inferior alveolar canal, an unpleasant sequel would be paraesthesia of the lower lip and the mental region. The degree of damage depends on the type of root filling material used. If the root filling material is a resorbable type, such as iodoform paste, the complaint of the patient would be completely eliminated within 1 to 10 days. However, overfilling of the non-resorbable type of root filling material leads to a more permanent complication.<sup>1</sup> Various authors have described cases of paraesthesia following endodontic treatment with N2 paste<sup>2</sup>. Foreman and Rood<sup>3</sup> reported a case involving the use of Treatment SPAD in which paraesthesia was encountered after endodontic treatment. The complication was attributed to the toxic effect of

paraformaldehyde which was present in these materials.<sup>4</sup> Other materials which have been reported to cause paraesthesia include AH-26, Hydron, Diaket A, Ribbler's paste and Endoseal. The management of these complications is mainly surgical. However, in a patient suffering from a coagulation disorder such as Haemophilia, surgical intervention such as sagittal or buccal split of the mandible may not be the treatment of choice.

In this report a case of dysaesthesia following root canal treatment of a lower molar tooth in a Haemophilia A patient is described.

## CASE REPORT

A 24-year-old Chinese male patient was referred to the Oral and Maxillofacial Surgery Department of the Faculty of Dentistry, University of Malaya complaining of pain on the lower left first molar tooth and persistent bleeding from the adjacent gingiva. He suffered from Haemophilia A which was discovered about 5 years ago after experiencing a bleeding nose. His elder brother was also a haemophilic, while his two sisters were unaffected (Fig. 1).

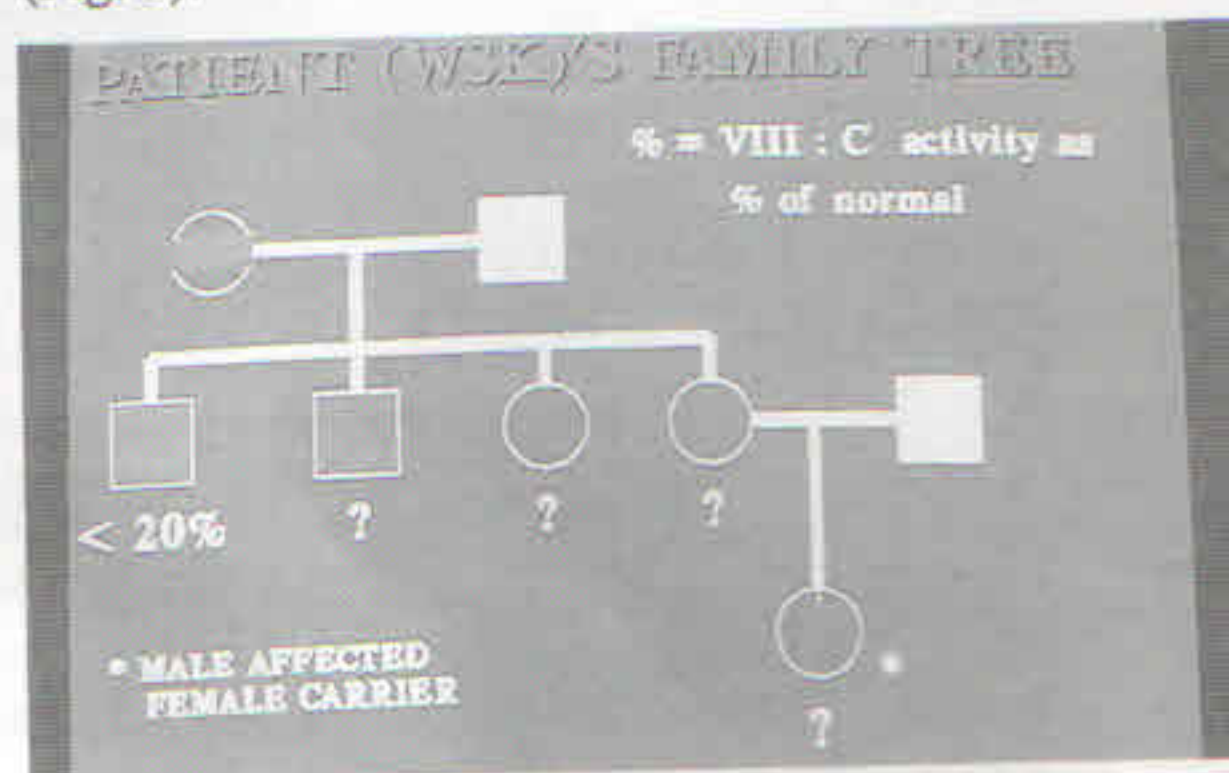


Fig. 1: Diagram shows the coagulation activity of the Haemophilia A patient and his family members.

VIII represents factor VIII

C represents coagulation activity

% = VIII : C activity as % of normal

? = % unknown

□ = unaffected male

□ = affected male

⊖ = carrier female

○ = unaffected female

Clinical examination revealed a large, loose Class II amalgam restoration on the lower left first molar tooth which was traumatising the gingiva on mastication. Bleeding was present at the site of complaint. The periapical radiograph of the tooth indicated that there was an area of radiolucency at the bifurcation of the roots. Haematological investigations carried out on the patient showed that

there was prolonged activated partial thromboplastin time which was 51.2 secs (normal 30-40 secs) and reduced Factor VIII coagulant activity of less than 20%. The prothrombin time and bleeding time were normal. The platelet count was also normal (354 x E9/L). At the request of the patient, the tooth was extracted under local anaesthesia after his blood factor VIII level was raised. The healing of the socket wound was uneventful.

Further investigations revealed that he had dysaesthesia of his lower right lip for the past six years. This condition occurred following root canal treatment of the lower right first molar by a private practitioner. Clinically, the numbness extended from the body of the right mandibular area to slightly over the midline of the lower lip on the left side (Fig. 2). Inferiorly, it covered part of the submandibular and anterior triangle of the neck. Superiorly, the right cheek was not affected. This area of numbness could be determined by the application of the von Frey hairs on the skin.<sup>5</sup> The light touch sensory test was carried out in a quiet room with the patient and examiner relaxed and comfortable. This test was performed with the patient's eyes closed and detection of a stimulus was indicated by the patient raising a finger. The maximum force applied by the von Frey hair was governed by the point at which it bent (approximately 2g (20 mN) for the facial skin) and this could be adjusted by reducing the length of the hair in small steps (the shorter the hair, the greater the force). This force was achieved in this case by using a short length of prolene suture material attached to the end of a rod with quick-setting epoxy adhesive. Stimuli were applied at random within the test areas. An area of anaesthesia and paraesthesia were mapped out by applying the stimulus within this area and then moving it outwards in small steps until a sensation was felt. The region was then outlined and recorded.

Intraorally, there was a large occusal amalgam restoration on the endodontically treated lower right first molar tooth. The adjacent teeth and teeth in the lower opposite quadrant were vital. The periapical radiograph of the tooth revealed a radiopaque root

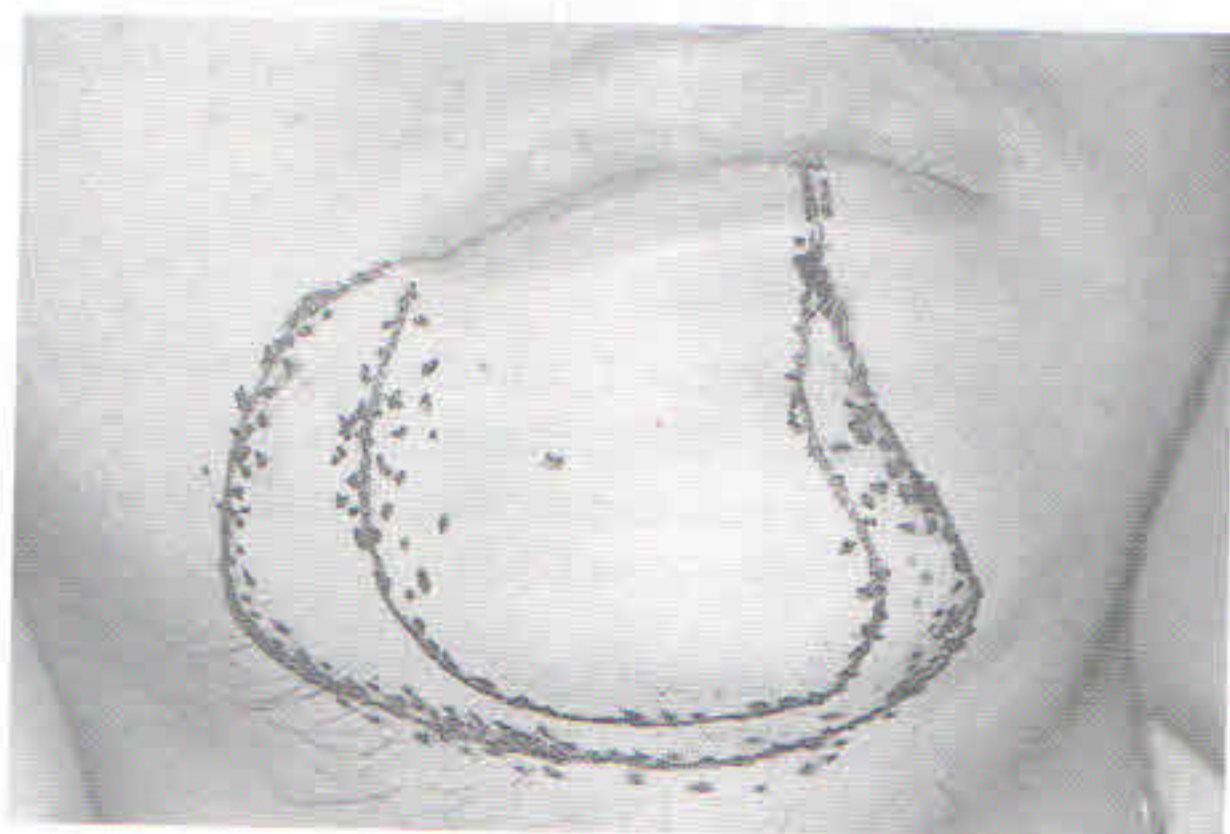


Fig. 2: Area of dysaesthesia marked on the patient's face before treatment. The inner area indicated anaesthesia while the surrounding outer area indicated paraesthesia.

filling material in the distal canal and a further root filling material perforating through the furcation area extending 10mm beyond the latter. The apical 3mm of the root filling appeared to penetrate into the inferior dental canal (Fig. 3). In addition, a separated instrument of 3mm in length was seen in the inferior dental canal lying close to the root filling. A further separated instrument of 2mm in length was also evident in the mesial canal. Although in a healthy patient, surgical intervention to remove the excess root filling would be the treatment of choice, similar treatment could not be applied here. Surgical procedure would be lethal. Therefore endodontic retreatment was attempted. The patient was planned for medical and dental management.

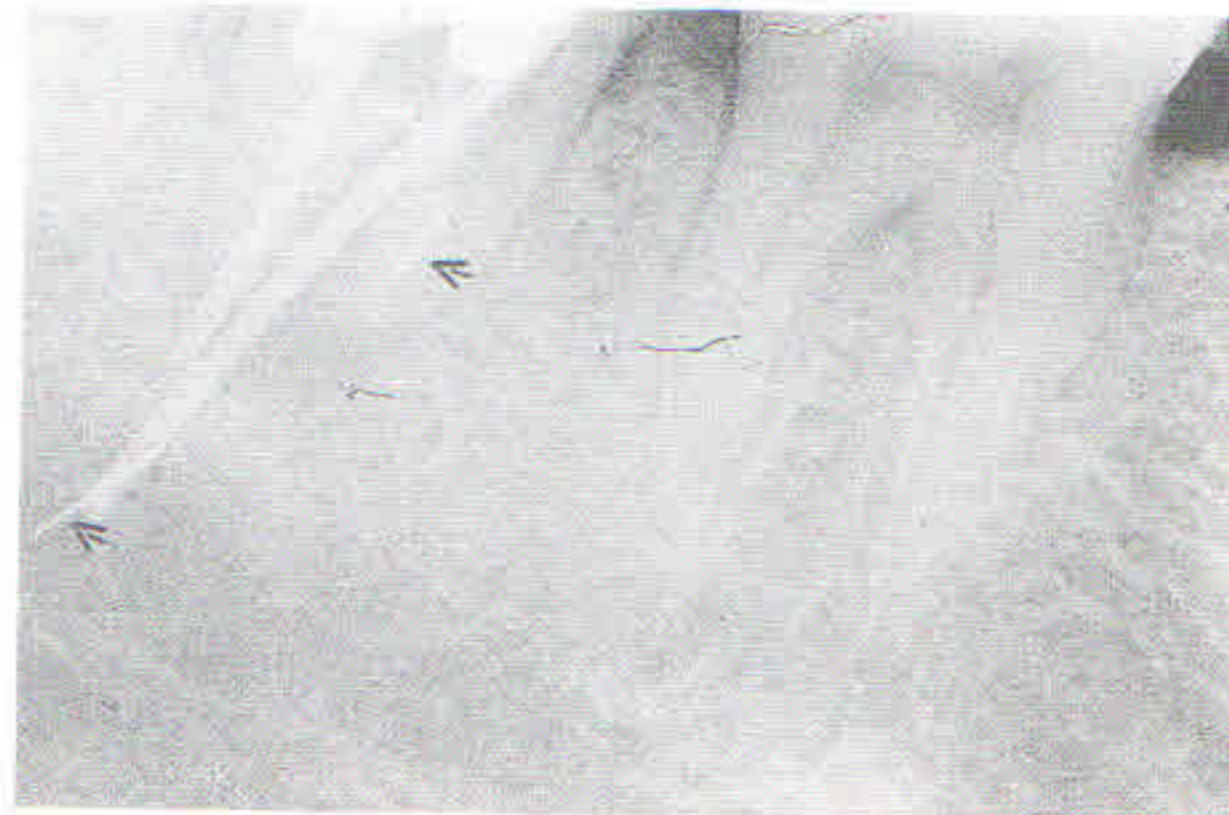


Fig. 3: Periapical radiograph of lower right second molar showing the relationship of the extracted root filling to the inferior dental canal. Arrows show separated instrument present in the mesial canal and the inferior dental canal.

Medically, the patient was managed with the replacement therapy of human freeze-dried Factor VIII concentrate. Eight vials of Factor VIII were given intravenously in order to increase the Factor VIII level to more than 50%. The drug, 1-desamino-8-d-arginine (DDAVP), was not used as it was not available.<sup>6</sup>

Endodontic retreatment was carried out using local anaesthesia. Access was gained by using a round bur in a high speed handpiece. The root filling material was found to be gutta percha which was successfully removed from the mesial root using a Hedstroem file and ultrasonic irrigation. However, attempt to remove the gutta percha from the furcation area was unsuccessful as it broke into smaller fragments, leaving the extruded end still embedded in the bone and inferior dental canal. Bleeding from the periapical tissue was persistent and this precluded a clear view of the entire canal. In view of the difficulty encountered, extraction of the tooth was performed. However, due to the extreme brittleness of the gutta percha, 5mm of the apical end of the latter separated from the root on extraction and was left embedded in the bone with the apical 3mm remaining in the inferior dental canal. Despite several attempts, the authors were unable to retrieve the separated gutta percha and the separated instrument (Fig. 4). Due to the close proximity of the gutta

percha to the inferior dental nerve, it was decided to leave the separated gutta percha behind. The broken instrument was left in situ since clinically it could not be seen. The wound was then sutured. Post-operatively, 6 vials of Factor VIII were given 12 hours later and repeated as necessary. Transnexam acid, ampicillin and neurobion were prescribed for the first post-operative week. The patient rested in the ward for 3 days and took only soft diet. The socket healed with no complication. Post-operatively, on the first day there was immediate reduction in the area of dysaesthesia as shown (Fig. 5). One week later, it was observed that dysaesthesia had decreased slightly. Review of the patient after three months revealed no further improvement.

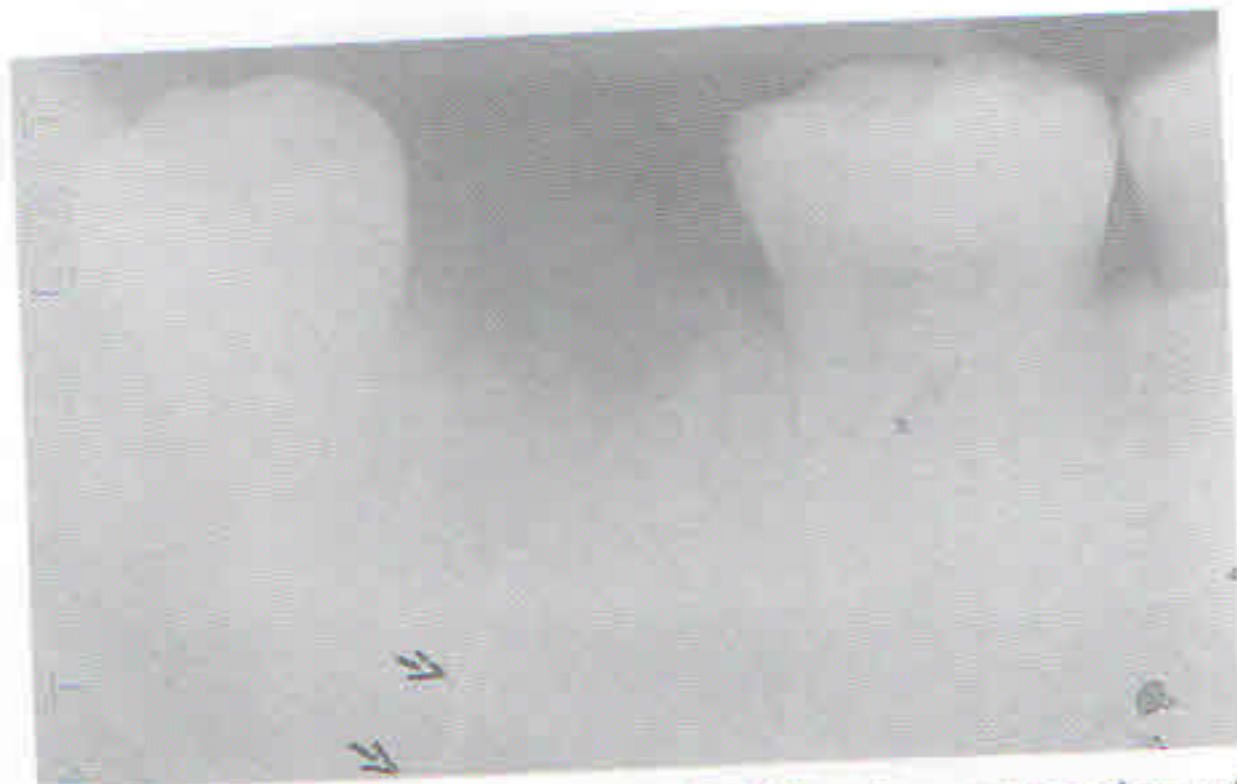


Fig. 4: Periapical radiograph following extraction of lower right second molar showing the embedded root filling material and the separated instrument lying in the inferior dental canal (arrows).

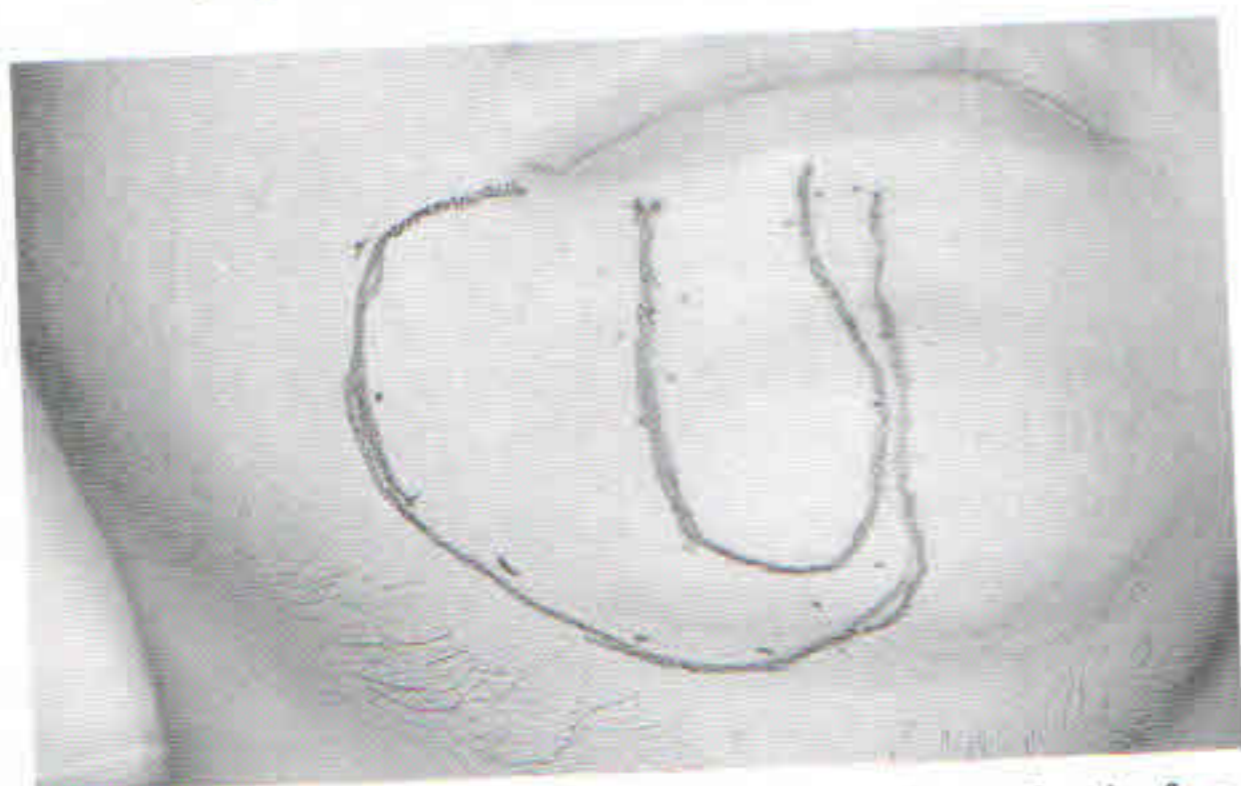


Fig. 5 Area of dysaesthesia marked on the patient's face after extraction. The area of dysaesthesia was considerably reduced compared to pre-treatment condition.

## DISCUSSION

Hemophilia A is the most common of the coagulation disorder due to hereditary deficiency. It is sex-linked but 33% of the patients have no family history perhaps due to spontaneous mutation.<sup>7</sup> The incidence of haemophilia A is in the order of 1 per 10,000 population. If the coagulation factor activity is between 5-20% of normal, it is considered a mild disease with the clinical manifestation of post traumatic bleeding. Haemophilia A is distinguished from Von Willebrand's disease by history and laboratory testing. For example, the latter has prolonged bleeding time. Following bleeding, the

replacement therapy usually used for the patient is Factor VIII concentrate, plasma cryo-precipitate, while fresh frozen plasma is rarely used. For major surgery, the Factor VIII level should be 100% and maintained above 60% until healing has occurred. Although endodontic treatment would be preferred to extraction in a haemophiliac patient, complication such as bleeding from canal following endodontic instrumentation may occur and pose serious problems. In lower molar endodontics, because of the close proximity of the inferior dental nerve, the latter may be injured during the administration of the local anaesthesia, during instrumentation, following seepage of excess irritant medicament from the root canal or as a result of excess root filling material which has passed through the apices. The root filling material may cause pressure on the nerve in the inferior dental canal or produce a neurotoxic effect on the nerve trunk. Rowe<sup>8</sup> stated that paraesthesia of the lower lip due either to damage from root canal instruments or from overfilling the root canal may be temporary or permanent. It is reported that the effect of mechanical pressure is perceived immediately, whereas the effect of chemical irritation may take several days to appear. If surgical removal is necessary, the operative procedures involved may also inflict further damage on the neurovascular bundle. In view of this possibility and the resultant bleeding complication, surgery was not performed on this patient. Gumru and Yalcin<sup>9</sup> suggested that immediate surgical treatment should be considered if the paraesthesia was due to direct damage by instrument and local compression by the filling material, as sensory loss rapidly improved when surgical decompression was performed. The nerve regeneration is facilitated by the physical decompression of the nerve.<sup>10</sup>

This case report indicated that the patient had the sensory disturbance immediately following endodontic treatment. It is possible that the dysaesthesia therefore resulted from direct damage by instrumentation and local compression by the filling material and the separated instrument. The rapid improvement one day following surgery was most likely due to the decompression of the nerve by extraction, but the residual dysaesthesia which remained later could perhaps be removed completely with further surgical intervention.

## REFERENCES

1. Erisen R, Yucel T, Kucukay S. Endomethasone root canal filling material in the mandibular canal – a case report. Oral Surg Oral Med Oral Pathol 1989; 68:343-345.
2. Ostravik D, Brodin P, Niom EA. Paraesthesia following endodontic treatment: survey of the literature and report of a case. Int Endod J 1983; 16:167-172.
3. Foreman GH, Rood JP. Successful retrieval of endodontic material from the inferior alveolar

nerve. J Dent 1977; 5:47-50.

4. Foreman PC. Adverse tissue reactions following the use of SPAD. Int Endod J 1982; 15:184-186.

5. Robinson PP, Smith KG, Johnson PP, Coppin DA. Equipment and methods for simple sensory testing. Br J Oral and Maxillofac Surg 1992; 30:387-389.

6. Eastman JR, Nowakowski AR, Triplett DA, DDAVP: review of indications for its use in the treatment of factor VIII deficiency and report of a case. Oral Surg Oral Med Oral Pathol 1983; 56:246-251.

7. Hoffbrand AV, Pettit JE. Essential Haematology. 1st ed. Oxford: Blackwell Scientific Publications, 1980; 196-210.

8. Rowe AHR. Damage to the inferior dental nerve during or following endodontic treatment. Br Dent J 1983; 153:306-307.

9. Gumru OZ, Yalcin S. Surgical treatment of paraesthesia following over-extension of root canal filling material: A case report. J Nihon Univ Sch Dent 1991; 33:49-53.

10. Merrill RG. Decompression for inferior alveolar nerve injury. J Oral Surg 1964; 22:291-300.

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