



**Japan Association
of Microscopic Dentistry**

The 20th Annual Meeting & Scientific Session President's Award Commemorative Lecture

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Calcium hydroxide paste was extruded from the apical foramen into the mandibular canal : A case report

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Calcium hydroxide is used as an intracanal medicament because of its bactericidal effect, promotion of hard tissue formation, suppression of exudate, and dissolution of organic matter. It has been reported that calcium hydroxide paste can overflow into the maxillary sinus, mandibular canal, arteries, and mucosa, causing physical and chemical damage and various symptoms in cases of uncompleted root apex, perforations in the root canal, or when the root apex is close to anatomical structures such as the maxillary sinus or mandibular canal. When calcium hydroxide paste is extruded from an apical foramen into the mandibular canal, calcium hydroxide paste is often removed by surgical intervention. Last year, I reported a case in the tooth was saved by removing as much calcium hydroxide paste as possible via the apical foramen. For this, I received the President's Award at the 19th Annual Meeting of the Japan Association of Microscopic Dentistry. This presentation will include the progress of one year since the presentation.

Case

Patient: 24 years old female

The main complaint is hard to open mouth and has lost sense of the left lower lip.

Clinical history:

The patient underwent pulpectomy of mandibular left second molar (37) in a familiar doctor. A calcium hydroxide paste was medicated using the needle provided. As the patient had trismus and paralysis of gingiva and lip, so she was referred to our clinic at oral surgeon on 23 days after treatment and had a medical examination.

Current condition:

There was anesthesia in the left lower lip and left chin area. The amount quantity of opening was 20mm (painless), 40mm (left masseter muscle pain). There are no symptoms in 37. The image of the cone beam computed tomography (CBCT) showed that the apex of 37 was in contact with the mandibular canal and that the mandibular canal from the mandibular foramen to the mental foramen was radiopacity.

Diagnosis:

37 Chronic root apex periodontitis. Left mandibular osteomyelitis. Foreign body stray in the left mandibular canal. Anesthesia of the left trigeminal nerve III branch.

Treatment :

37 carried out root canal treatment. The root apex was enlarged larger than usual. The apical enlargement size was #70 for the distal canal and #30 for the mesiobuccal canal. The calcium hydroxide preparations in the mandibular canal were removed by irrigation via 37 apical foramen. Washing was done with saline solution. The root canal obturation was done with MTA at 8 months into treatment. The full cast crown was placed 6 months after the root canal obturation. The medication was given an analgesic anti-inflammatory drug and an antibiotic for two months and vitamin B12 medication for 6 months. The anesthesia of the chin area was reduced 2 years after the root canal filling with MTA. The patient is aware of a 40% improvement in left lower lip paresthesia.

Discussion:

The anesthesia in this case was caused by a large amount of calcium hydroxide paste extruding from the apex of 37 into the mandibular canal. The apex of 37 was in contact with the mandibular canal and had a rough trabecular bone, so the calcium hydroxide paste overflowed into the mandibular canal due to extrusion pressure during application.

The treatment of overflow into the mandibular canal is a surgical removal. However, there is no guarantee of full recovery of sensation after surgical treatment. Surgical treatment may carry the risk of secondary nerve damage. Therefore, surgical treatment was not performed, and the extravasation was removed via the root apex as far as possible.

Using a microscope, the calcium hydroxide paste was removed from 37 root foramen, a safe procedure that preserved the teeth and improved masticatory function. When using the calcium hydroxide paste, it is important to check the root anatomy and confine it within the root canal.