Altered sensation caused by peri-implantitis: a case report

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Frequently reported is a case wherein a lesion caused by periodontitis or periapical lesion in a natural tooth enlarged, invaded the inferior alveolar nerve canal, and induced paresthesia. Cases wherein paresthesia occurred because of peri-implantitis have been rarely reported.

The patient in this case report had experienced transient paresthesia after implant placement and recovered normal sensation 3 months later. Thirteen years later, this patient visited the authors' hospital with paresthesia in the same region because the peri-implantitis progressed to the apex of the implant. One week after removal of the implant, sense recovery and pain relief started, and 15 days after removal, the paresthesia and pain completely disappeared.

For patients who experience transient paresthesia and recovery owing to nerve damage caused by the placement of an implant in the mandibular molar or premolar area, or in patients in whom the implant is close to the inferior alveolar nerve canal or the mental nerve, the spread of inflammation caused by peri-implantitis can induce paresthesia. (Oral Surg Oral Med Oral Pathol Oral Radiol 2013;116:e9-e13)

Interest in and research on osseointegration of dental implants, which was started in the late 1960s,[1] have rapidly developed, and osseointegrating implants are now clinically widely accepted as a reliable method of restoration of masticatory function when applied to the edentulous areas of a person who has lost teeth. As the number of implant surgeries has rapidly increased, the incidence of surgery-related complications, such as nerve damage, has also increased.[2]

Restoration of edentulous areas using an implant still causes such problems as paresthesia and hypoesthesia, which may occur because of intraoperative damage to the inferior alveolar nerve or mental nerve. These problems may occur during the local anesthesia procedure, dissection of the flap, drilling, or placement of the implant fixture. Although dentists should be able to make proper treatments according to the degree and type of injury in the event of nerve damage, no standard guidelines on the treatment of paresthesia related to implant surgery have been established. Even as implant surgery is now widely performed, about 73% of dentists who have performed this surgery have patients who experienced postoperative paresthesia.[3]

Nerve damage causes tremendous suffering to the affected patient. It may cause hypoesthesia and anesthesia as well as paresthesia and pain. Sensory damage affects pronunciation and food intake, adversely affects the patient's quality of life, and influences his or her social life and psychological condition.[4,5] The incidence rate of transient hypoesthesia and anesthesia caused by implant surgery has been reported to be 0% to 43.5%,[6] and the incidence rate of permanent sensory damage, 0% to 13%.[7] Paresthesia, if it lasts for a long time, often leads to permanent deficit. A case wherein a patient, after sustaining injury of the inferior alveolar nerve, had paresthesia for the following 4 years and then recovered has been reported. According to the current literature, however, a prolonged state of paresthesia often leads to permanent deficit.[8]

This case report describes a patient who had implants placed about 13 years earlier, and showed paresthesia caused by nerve damage after the implant placement. The patient completely recovered sense at that time, but had paresthesia recur recently caused by peri-implantitis.

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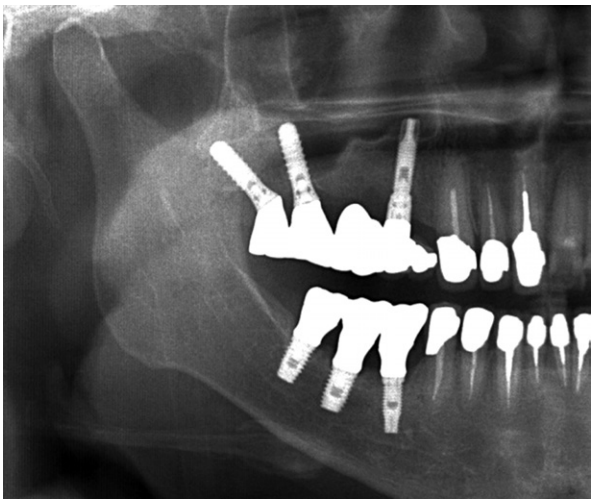

Fig. 1. A panoramic radiograph taken at a regular visit for follow-up, 7 years after the placement of the implant. Although it shows that the implant was placed close to the inferior alveolar nerve canal, the patient had no symptoms of paresthesia at that time. No particular radiolucent area was observed around the implant.

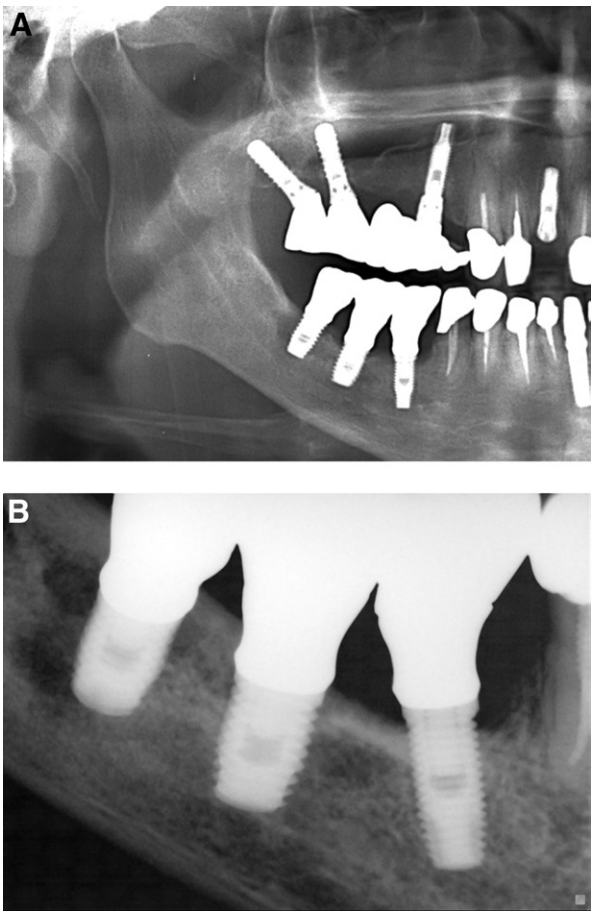

Fig. 2. Radiographic examination 13 years after the placement of the implant. **A,** A panoramic radiograph shows that loss of bone occurred in a wide range owing to the periimplantitis that occurred around the implant in the right mandibular second molar area. It shows that the loss of bone is particularly severe in the area around the fixture. **B,** Periapical radiograph shows that the radiolucent area has extended to the apex of the implant.

CLINICAL REPORT

Patient information

A 73-year-old female patient visited the Department of Dentistry, Korea University Medical Center in November 2010 with pus and pain in the implant site, and paresthesia on the facial aspect of her right mandible. Her medical records showed that she had been receiving treatment for hypertension for the past 20 years, and had received prosthetic restoration treatment by having 3 dental implants (RESTORE Implant System, Keystone Dental, Burlington, MA) placed in her right mandibular molar region 13 years earlier in 1998 at the Department of Dentistry, Korea University Medical Center.

At that time, the implants were placed close to the inferior alveolar nerve canal. Three days after implant placement, the patient started complaining of paresthesia. She was regularly given dexamethasone (a type of corticosteroid) and nonsteroidal anti-inflammatory drugs (NSAIDs), and she recovered from her paresthesia 3 months later.

Clinical oral examination and treatment planning

Clinical and radiographic examinations were performed. The clinical intraoral examination showed an abscess around the implant site in the right mandibular second molar tooth region, and gingival inflammation. The probing pocket depth was 6 mm. Neurosensory testing with a dental-probe tip showed altered sensation in the lower lip and chin area (right side). There was also a difference between the left and right side of the chin area in the 2-point discrimination test. Panoramic and periapical radiography showed a radiolucent zone because of severe bone resorption around the implant and the placement of the implant close to the inferior alveolar nerve canal (Figures 1 and 2). The patient complained of swelling and pus that had started several weeks earlier.

Pus was collected, and a laboratory test using pus culture was also performed. As the laboratory test showed only microorganisms related to general inflammation, the possibility of specific infection, such as actinomycosis, was ruled out. Although the possibility of osteomyelitis could not be ruled out, the implants had been placed in the patient 13 years earlier, and there was no recent surgical treatment near the implant sites. The patient had no history of radiation therapy or