

The importance of clinical features and computed tomographic findings in numb chin syndrome

A report of two cases

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Numb chin syndrome (NCS) is a rare condition that is the result of mental nerve neuropathy, which is a sensory neuropathy. The symptoms of NCS include numbness of the skin of the lips and chin, the gingiva and the teeth, most often due to metastasis of a primary malignancy of the mandible.¹⁻⁵ Other causes of NCS are dental infection, facial trauma, osteomyelitis, sickle cell anemia, diabetes mellitus and HIV infection.

There are numerous reports of NCS in the medical literature and only a few in the dental literature.^{1,3-5} Most dentists are not aware of NCS and its clinical manifestations. In patients with NCS and accompanying tooth pain, dentists may unknowingly perform unnecessary and useless endodontic therapy

ABSTRACT

Background. Dentists need to be aware of the relationship between malignancies and paresthesia or complete loss of sensation in a jaw segment. In particular, dentists should be aware of numb chin syndrome (NCS) and its clinical manifestations, as well as the limitations of using panoramic radiographs to detect the causative malignancy.

Case Descriptions. The authors report two cases of paresthesia in the mental region. No lesions were readily apparent on the patients' panoramic radiographs. To exclude the presence of disease in the mandible that could have been responsible for the NCS, the authors obtained computed tomographic (CT) images. They identified metastases to the mandible from primary malignant tumors elsewhere in the body.

Clinical Implications. To prevent misdiagnosis of NCS, dentists need to be aware of the clinical manifestations of NCS, the need for CT imaging, the shortcomings of panoramic radiographs and the value of obtaining detailed and accurate medical and dental histories from patients.

Key Words. Numb chin syndrome; paresthesia; panoramic radiograph; metastasis; malignancy; jaws.

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to treat the painful teeth. Dentists should be able to recognize the clinical manifestations of NCS, such as paresthesia and gingival or tooth pain. They also should be aware that NCS can be the result of metastasis of a primary tumor to the mandible that cannot be identified on panoramic radiographs but that can be identified on computed tomographic (CT) images. Thus, CT images are an important tool that can be used to assess patients who exhibit the clinical manifestations of NCS.

We present two cases that highlight the need for CT imaging, the shortcomings of panoramic radiographs and the need for dentists to investigate the status of a patient's cancer and the clinical manifestations of NCS.

CASE REPORTS

Case 1. In early 2003, a private practitioner referred a 69-year-old man with chief complaints of paresthesia and pain in the left mental region to our dental hospital at Kyushu Dental College, Kitakyushu, Fukuoka, Japan. In 2000, the patient's prostate cancer had been diagnosed and treated with local excision and hormone treatment. He subsequently was seen in the urology department of another hospital and was prescribed the chemotherapeutic agent estramustine to treat his prostate cancer. The patient also reported that he had received a diagnosis of having no particular brain pathology after having undergone brain surgery in 2007.

In the patient's initial 2003 visit to the dental hospital, he reported that paresthesia and pain began about two weeks earlier and the severity had been increasing. With respect to the degree of the paresthesia, the patient gave a score of 3 for both touch (as assessed by using a small brush) and pain (as assessed by using a safety pin stick) sensation in the left mental region and a score of 10 for both on the unaffected right side. We used 10-point scales to assess touch and pain in which 1 represented no pain and no feeling of touch, respectively, and 10 represented the most pain and the most touch sensation, respectively. Lip movement and taste sensation were normal.

We suspected that the patient had NCS and obtained a panoramic radiograph. On the radiograph, we noted generalized horizontal bone loss and obvious bony defects that suggested severe periodontal disease (Figure 1A). Consequently, the uniform destruction and widening of the periodontal ligament space, the periapical radi-

olucency with poorly defined borders and the thinning of the lower cortical border of the mandible could have been overlooked easily because the findings were unclear or had been dismissed as further evidence of periodontal disease instead of suggesting that malignant disease is present (Figure 1A).

To exclude the presence of bone lesions in the mandible that could have been responsible for NCS, the patient underwent CT scanning (Figures 1B and 1C). On the CT images, we saw the typical findings of metastasis to the mandible from prostate cancer. These findings included osteoblastic changes in the left side of the mandible (Figure 1B) and destruction of cortical bone (Figure 1C). The patient underwent technetium Tc 99m methylene diphosphonate nuclear medicine bone scanning at about the same time. The results showed an increased uptake of technetium Tc 99m methylene diphosphonate in the left side of the mandible, a right rib and the spine (Figure 1D). We biopsied the lesions in the left side of the mandible and, on the basis of the results, made a diagnosis of prostate cancer (which was a recurrence of the prostate cancer the patient had had in 2000). The patient's prostate specific antigen (PSA) level could not be obtained in our hospital. He was treated with chemotherapy and hormone treatment at another hospital, and he died a year later.

Case 2. In early 2008, a 79-year-old woman with a chief complaint of paresthesia of the left mental region—including the lips but without pain—visited our dental hospital. The paresthesia had begun about one week earlier and had been increasing. With respect to the degree of paresthesia, the electric detection threshold, as determined by means of electric stimulators, was twice as high for the left mental region as it was for the right. Lip movement and taste sensation were normal. The patient had undergone chemotherapy for multiple myeloma in 2000.

On the basis of the patient's medical and dental histories and our clinical findings, we suspected that she had NCS. We obtained a panoramic radiograph that showed asymmetry in the radiographic appearance of the left and the right sides of the mandible and thinning of the lower cortical border of the mandible (Figure 2A, page

ABBREVIATION KEY. **CT:** Computed tomographic. **NCS:** Numb chin syndrome. **PSA:** Prostate specific antigen.

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