Surgical Treatment of Neuralgia as a Result of Ossification of the Mental Orifice

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Summary

A case of a patient with osteoma of the lower jaw is presented. Osteoma caused compression of the mental nerve and neuralgiform pain. During an intraoral examination, osseous deformity of the mandibula was not found. Diagnosis was confirmed by X-ray, which showed enostosis or a central osteoma. The presentation describes the surgical technique of external decompression by which the nerve epineural integument is released from the pressure caused by the benign osseous formation. Six months after the surgery the patient had no symptoms and had normal sensibility in the lower jaw and no irregularities.

Key words: *osteoma, neuralgia.*

Acta Stomat Croat
2004; 101-103

CASE REPORT
Received: May 14, 2003

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Introduction

Osteoma of the jaw appears as a benign, slow-growing, circumscribed growth of new bone (1). It emerges by proliferation of compact or calcificated bone. By localization they are devided into central and peripheral, and into osteomas of the soft tissues (2). It may grow out of the inner surface of the cortical bone as *enostosis* or a central osteoma. A central osteoma may be diffuse and circumscribed. It spreads into osseous spongiosa and may be diagnosed by radiological analysis (3). Compared to central osteoma, *exostosis* or peripheral osteoma develops from the cortical surface. It may appear after trauma or after mechanical irritation. Areas of exostosis may appear on muscular insertions and on the bone joint. Sometimes they appear in the central region of the hard palate as *torus palatinus* and as *torus mandibularis* on the lingual side of mandibula in the premolar and molar region. Osteoma may appear in all groups and more often in the lower jaw (1, 4). The third type of osteoma is osteoma of soft tissues (tongue, oral epithelium, cheeks, skin). This is a benign and slow-growing formation, diffused and slightly differentiated, ranging in from 0.5mm to 2 mm. It is also called miliary osteoma. By its occurrence it may be primary, which is very rare. Virchow described it first, in 1864. Secondary or metastatic is more frequent and develops as a result of a chronic inflammation process (3). Syndrome,

which is denoted by emerging of multiple osteomas, is called Gardner syndrome (5).

The therapy is indicated in cases when the osteoma causes neuralgiform pain during pressure on nerve fibers, and causes surface ulceration (as a consequence of mechanical irritation) or cosmetic problem (6).

Of all operations on peripheral nerves, anastomosis, decompressions and nerve graftings are the only ones possible.

Decompression may be external or internal. External decompression is a method of careful microdissection and releasing the epineural nerve membrane from the scar tissue, extraneous objects, bone or tooth fragments. It is indicated in case of injury or nerve ischemia and when external source of nerve irritation is suspected. The method of internal decompression and nerve grafting method are used in cases of incomplete reversion of normal sensor nerve function with paresthesia and paroxysmal pain. (7).

Common postoperative complications are paresthesia lasting for two months and mucous membrane edema and adjoining tissues (8).

Case analysis

A 47 year-old man, came to the Department of Oral Surgery, School of Dental Medicine University of Zagreb because of irratiated and paroxysmal, neuralgiform pain on the right side of the lower jaw. Intraoral examination established that the patient had an full upper dentures and lower partial dentures, and that teeth 3, 4, and 5 in the lower right quadrant were intact. The prostheses were 5 to 6 years old, and aesthetically and functionally adequate. Palpably there were no signs of osseous deformity of the mandibular corpus and the mouth mucous membrane was intact. X-ray results (through orthopantomograph) confirmed diffuse shadows over the mandibular bone in the area of the mental orifice which correspond to reinforced, sclerotic bone (calcification). It was of diffuse type, with no sharp restriction toward the surrounding bone, located below the right lower premolars and region of the first lower molar. It also covered the mental orifice (Figure1).

From the case history it was etablished that the first neuralgiform pain had occured eight to seven years earlier, and had intensified over the past five to six years. Pain starts in the area of the mental orifice in the lower jaw and spreads behind towards the auricular region, up to the temporal and frontal region and down towards the neck and mediastinum. The patient was examined by a general practitioner, neurologist, neurosurgeon and internist. During an attack of pain and tachycardia he was admitted to the Emergency. He was also examined by a dentist who recommended tooth extraction, after which the pain disappeared. A month after the tooth extraction the pain again intensified. The patient was then examined by an oral surgeon and the first procedure of osteoma extirpation and decompression of the *nervus alveolaris inferior* was done. After the procedure, the pain disappeared, but paresthesia of the lower alveolar nerve lasted for two months, after which sensibility returned.

A year ago pain intensified to the point of intolerability. On the basis of a clinical examination and X-ray report the diagnosis was: reccurence of osteoma of the lower jaw, central type, which was confirmed by a histopathological report. The surgical procedure was performed in which the tumor tissue was removed with the external decompression of the mental nerve.

Surgical procedure

The procedure was performed under local anesthesia (anesthesia of *nervus alveolaris inferior*). An incision was made on the upper edge of the mandibula through the gingival papilla of the rest of the teeth with two disburdened cuts. The changed osseous tissue and mental orifice with *nervus mentalis* was thus exposed (Figure 2). By hammer and chisel a part of the osseous mass to the mandibular channel was removed. The *nervus alveolaris inferior* in the channel was exposed, and the rest of the nonsharp bordered hyperplastic osseous mass was removed with a steel drill and by bone gnaw (Figure 3). After the procedure, the patient had paresthesia of the inervated area of *nervus mentalis* which lasted seven days, and mucous membrane edema of the remaining soft tissue. After six months, the X-ray showed that the osteoma was entirely removed with no signs of reccurence (Figure 4). The patient has no sub-

jective difficulties, pain was completely gone, and paresthesia lasted for two months, after which sensibility completely returned.

Discussion and conclusion

Neuralgia of the *nervus trigeminus* is a very unpleasant disorder. The main symptom is paroxysmal, unilateral pain, restricted by distribution of the *nervus trigeminus*, without neurological incident of the enfolded nerve. Symptomatic neuralgia, unlike idiopathic, is a type of neuralgia in which we can discover the cause, as was shown in this case. Differentially diagnostically in clinical practice if is always necessary to eliminate odontogenic pain as a possible cause (caries, pulpitis, periapical processes, behindhand roots, retained and impacted tooth), and then suspect a possible cause which seriously endanger the patient's life and then to determine the treatment (benign and malignant neoplasm, systemic disease) (9).

Finally we can conclude that osteoma is a possible cause of neuralgiform pain and that the intensity of such pain may increase cardiological disturbance. It is therefore necessary to completely remove it (10). Osteoma relapse, demonstrated in this case and by some other authors, may also represent the first clinical sign of Gardner syndrome. In clinical diagnosis Gardner syndrome incorporate multiple jaw osteomas, epidermoid cysts and adenopolyposis of the small intestine (FAP). Early detection and diagnosis of this syndrome enables successful treatment. Dentists and oral surgeons have a very important role in this process (11, 12). With regard to the central type of osteoma, CT radiological diagnostics should be included because of the more qualitative presentation of the tumor mass toward surrounding vital structures (i.e. mandibular channel, soft tissues), and the possibility of more accurate three-dimensional presentation of tumor mass invasion (13). In the case of relapse it is necessary to perform laboratory tests to eliminate disorders on the systemic level (calcium and phosphorus metabolism, alkaline phosphatase) (14). Osteomas, which do not cause functional or cosmetic disturbance, do not need surgical treatment, but only clinical and radiographic control (15).