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POST-TRAUMATIC NEUROMA OF THE MENTAL FORAMEN AREA – CASE REPORT

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Abstract

The article presents a case of a patient in which an asymptomatic intraosseous tumor of the mental nerve area was removed. The result of histopathologic examination confirmed the initial diagnosis of post-traumatic neuroma.

Key words: post-traumatic neuroma, mental nerve, mental foramen, mandible

Post-traumatic neuroma is a benign tumor, consisted of proliferation of injured nerve elements (1). It occurs around the proximal endings of peripheral nerves, more often in the soft tissues than in bone (2, 3, 4). Its macroscopic image shows as a lesion up to 2cm, usually oval, hard and fibrous with low vascular nature, connected to the nerve.

Such tumors develop slowly, often after surgeries such as tooth extraction, orthognatic procedures, removal of parotid glands or Crile's surgery (1). Its development usually occurs from 1 to 12 months after the trauma, and their significant growth is observed after 2 to 3 years (5). Final diagnosis is based on histopathologic examination with additional immunohistochemical analysis to confirm the presence of S-100 protein (4).

The article describes a case of a patient with a tumor in the area of mental nerve foramen, found by accident during radiological examination, in which the histopathologic examination revealed a post-traumatic neuroma.

Case report.

A 56-year-old patient was referred to the Department of Oral Surgery, Medical University of Lodz for a consult and further treatment of the lesion in mandible, in the area of previously extracted teeth 45 and 46. The lesion was found by accident during radiological examination performed before the planned prosthetic treatment.

Clinical examination showed no pathological changes of the mucosa of alveolar part of the mandible, no distension or deflection of the bone (fig. 1). Extra oral examination showed no enlargement of submandibular, submental or cervical lymph nodes. Whereas the OPG and periapical x-ray showed oval space of higher density of approximately 17 mm in diameter, well marked, with osteosclerotic sheath, in the area of teeth 45 and 46 (fig. 2 and 3).

Patient reported no pain, medical history revealed no systemic illness, allergies or medications.

Surgery was planned for enucleating the lesion in local anesthesia, with antibiotic prophylaxis and histopathologic examination. The patient was informed about the possible complications especially the oedema, pain, postoperative bleeding and neuropraxia of the mental nerve. After obtaining the written consent, the surgery was scheduled. Patient was referred for scaling before the surgery.

In mental nerve block with 2ml 2% lidocaine with noradrenaline, angular mucoperiosteal flap was cut and prepared in the area of tooth 44 and on the rim of alveolar

part of the mandible, in the area of teeth 45 and 46. Bone was removed from the vestibular side, allowing for visualizing the lesion (fig. 4).

During the surgery the lesion of soft, fibrous consistency, of 10mm in diameter, attached to the mental foramen, was enucleated. Due to lack of technical possibility of dissecting the mental nerve from the tumor, the lesion was enucleated from the mandible along with small fragment of the nerve (fig. 5, 6). The resulting bony cavity was rinsed with 0,02% chlorhexidine solution; the wound was sutured with 3-0 monofilament sutures (fig. 7). Antibiotic prophylaxis was prolonged consisting of 1 tablet of Clindamycin MIP 0,6 every 12 hours for next 4 days, and in case of pain – ketoprofen. The enucleated lesion was sent for histopathologic examination.

The follow-up visit showed uneventful healing and no oedema (fig. 8). Patient reported no pain and neurapraxia of the lip and chin on the right side. In the 7th day after the surgery, the sutures were removed (fig. 9). The neurapraxia remained stable, although the patient reported occasional passing of electric like feeling in the area. The result of histopathologic examination confirmed the initial diagnosis of post-traumatic neuroma. The result was verified with the immunohistochemical analysis to confirm the presence of S-100 protein.

Neurovit in the dose of 1 tablet every 8 hours was prescribed to the patient. In case of the neurapraxia not resolving during 3 months from the surgery, the patient will be scheduled for physiotherapy consisting of electrostimulation of the mental nerve.

Next follow-up was conducted a month after the surgery – the neurapraxia persisted, but its range was smaller (fig. 10).

Discussion.

In the research of Thomas C. Sist et alia, 77 percent of 31 cases of diagnosed neuromas occurred in patients of above 40 years old, and only 1 patient was younger than 20. The most common location was the mental nerve, lower lip and tongue [2]. Other common oral cavity locations were hard palate (2, 6, 7), mandibular foramen (4, 8) or oral cavity floor (6). Peszkowski et alia, among 45 of studied cases, described only 11 as intraosseous, only 4 of which were associated with previous extraction (6). Their research corresponds with our case, where the lesion developed in the location of previously extracted tooth and in a patient in 6th decade of life.

Foltan et alia distinguished 5 phases of post-traumatic neuroma development: injury to the nerve and surrounding tissues, simultaneous proliferation of the nerve and reparative cells, contraction of the wound and scar, defensive reaction of the nervous fibers to the contraction and achieving balance between regeneration and damage to the nerve. With regard to this hypothesis, the best way to prevent the development of post-traumatic neuroma, could be avoiding the major contraction of the wound by using biomaterials (1). In described patient no such thing was done after extraction.

Post-traumatic neuroma can cause pain (2, 3, 5, 6, 7, 9), neurapraxia (8) or oedema (7, 9). Distal injury of the nerve along the damaged axons causes release of inflammatory mediators such as prostaglandins, bradykinin, serotonin, $TNF\alpha$, $IL-1\beta$, $IL-6$ and others. They ease the nerve regeneration, but also by releasing to the nociceptors, is the reason for presence of pain in patients (3).

Pain must not be present in every case (2, 4, 5, 6) that is why large part of post-traumatic neuromas is diagnosed on an x-ray by accident (6). Sist et alia claim that pain appeared only in a quarter of their patients and described it as hyperaesthesia, but also as constant, excruciating pain (2). Occurrence of pain can be fostered by superficial location of the lesion, location in moving tissue, compression of the neuroma, ischaemia of the nervous tissue (2, 5, 6).

Our patient did not report any pain or other unpleasant sensations in the area innervated by the damaged nerve after extraction of the teeth, which is probably caused by early detection of the lesion and fast implementation of the treatment.

The method of choice is surgical treatment; unfortunately it usually results in only short period of relief of pain or its not resolving and often relapse are observed (2, 5, 6, 10). Occurrence of paresthaesia, as in our patient, is also very common result (4, 10).

References

1. Foltan R., Klíma K., Spackova J., Sedy J.: Mechanism of traumatic neuroma development. *Medical Hypotheses* 2008; 71: 572–576
2. Sist, T., Greene G., Bufsalo N.: Traumatic neuroma of the oral cavity. *Oral Surg.* 1981; 4: 394-402
3. Vora A., Bodell S., Loescher A., Smith K., Robinson P., Boissonade F.: Inflammatory cell accumulation in traumatic neuromas of the human lingual nerve. *Archives of oral biology* 2007; 52: 74 – 82
4. Ngamsom S., Nakamur S., Kabasawa Y., Harada H., Tohyama R., Kurabayashi T.: Imaging findings of intraosseous traumatic neuroma of the mandible. *Oral Radiol* 2018; 34:257–261
5. Rajput K., Reddy S., Shankar H.: Painful Neuromas. *Clin J Pain* 2012; 28:639–645
6. Peszkowski M., Larsson A.: Extraosseous and Intraosseous Oral Traumatic Neuromas and Their Association With Tooth Extraction. *J Oral Maxillofac Surg.* 1990; 48:963-967
7. Eguchi T., Ishida R., Ara H., Hamada Y., Kanai I.: A diffuse traumatic neuroma in the palate: a case report. *Eguchi et al. Journal of Medical Case Reports* 2016; 10:116
8. García I., Galiano A., Gutiérrez R., Moreno J.: Traumatic neuroma of the inferior alveolar nerve: A case report. *Med Oral Patol Oral Cir Bucal.* 2008; 13: 186-188
9. Lopes M., Vargas P., Almeida O., Takahama A., León J.: Oral traumatic neuroma with mature ganglion cells: A case report and review of the literature. *Journal of Oral and Maxillo Facial Pathology* 2009; 13: 67-69
10. Jhong-Rui Y., Chih-Jen W., Wen-Bin K., Yin-Lai W.: Traumatic Neuroma of Bilateral Mental Nerve : A Case Report with Literature Review. *Taiwan J Oral Maxillofac Surg.* 2010; 21:252-260

Fig. 1 Preoperative condition.

Fig. 2 Preoperative OPG.

Fig. 3 Preoperative X-ray.

Fig. 4 Intra-operative exposure of the lesion.

Fig. 5 Enucleated lesion.

Fig. 6 Condition after enucleation of the wound.

Fig. 7 Suturing of the wound.

Fig. 8 Follow-up – 1st day post the surgery.

Fig. 9 Removal of the sutures in the 7th day post the surgery.

Fig. 10 1 month post the surgery.



Fig. 1 Preoperative condition.



Fig. 2 Preoperative OPG.

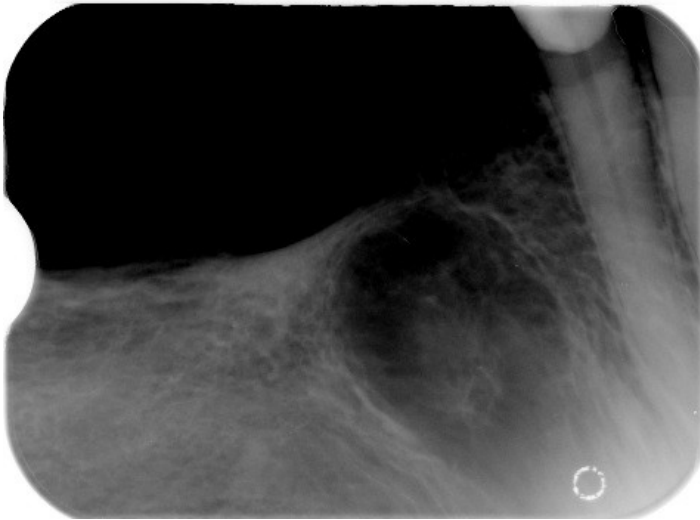


Fig. 3 Preoperative X-ray.

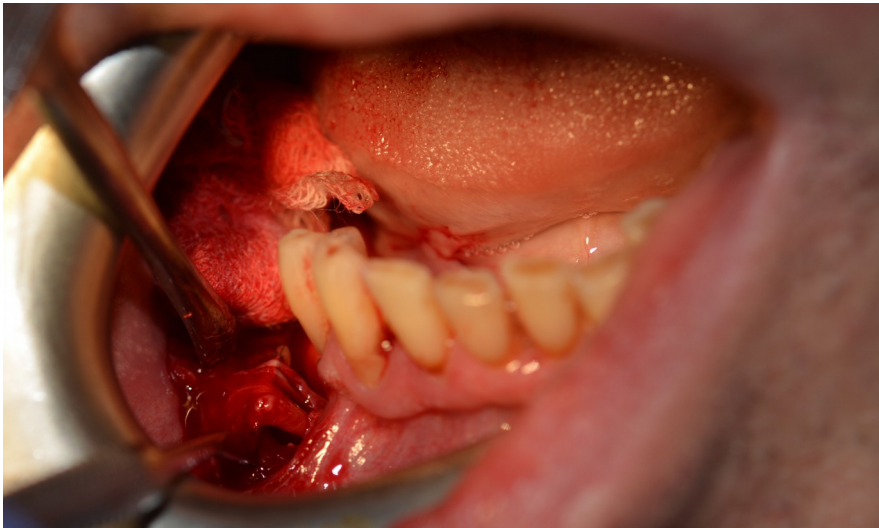


Fig. 4 Intra-operative exposure of the lesion.



Fig. 5 Enucleated lesion.



Fig. 6 Condition after enucleation of the wound.



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