Literature Abstracts

Bda Rosa MR, Ribeiro AL, de Menezes SA, Pinheiro JJ, Alves-Junior SM. Solitary giant neurofibroma of the mental nerve: a trauma-related lesion? J Craniofac Surg. 2013 May;24(3):e247-51. [Medline: 23714979] [doi: 10.1097/SCS.0b013e3182869f03]

Neurofibroma is a benign neoplasm derived from peripheral nerves whose aetiology is still unclear. It may present as a solitary lesion or be associated with other diseases such as neurofibromatosis type I and II syndrome.

Authors aim to report an extremely rare case of a solitary giant neurofibroma of the mental nerve whose aetiology was related to a local trauma. A 14-year-old female patient presented an extensive left facial mass with a size of $7 \times 5 \times 4$ cm, located between the teeth 33 and 37 in the mandible region. It has begun to grow 3 months after a local trauma. Imaging studies were suggestive of a soft-tissue lesion, with minimal bone changes and maintaining the integrity of the mandibular canal and mental foramen. Histopathological tests showed spindle cells with undulated and hyperchromatic nuclei, and sparse cytoplasm in a stroma composed of dense fibrous connective tissue. Immunohistochemistry revealed positive expression for the proteins S-100 and vimentin, confirming the diagnosis of neurofibroma.

The patient underwent surgical removal of the lesion by intraoral approach and evolved with an excellent cosmetic result and no signs of recurrence after 2 years of follow up.

It was reported a rare case of solitary giant neurofibroma whose aetiology was related to a local trauma. This is the first report of a mental nerve neurofibroma. Although the aetiology remains unclear, authors suggest the investigation of local trauma as a possible aetiological factor for solitary neurofibromas of the jaw.

Dos Santos PL, Gaujac C, Shinohara EH, Filho OM, Garcia-Junior IR. Incomplete mandibular fracture after lateralization of the inferior alveolar nerve for implant placement. J Craniofac Surg. 2013 May;24(3):e222-4. [Medline: 23714968] [doi: 10.1097/SCS.0b013e318286992e]

The present case describes an inferior alveolar nerve lateralization for implant placement that caused mandible fracture a few days after surgery.

In this case, a 56-year-old female patient who had a severely atrophied jaw and showing bone height less

than 7 mm from the bone crest and the mandibular canal was submitted to surgery lateralization of the inferior alveolar nerve conducted with piezzo. Even with all postoperative care, the patient suffered an incomplete fracture of the mandible a few days after lateralization of the inferior alveolar nerve for implant placement. The patient was treated with soft diet and medications for pain and antibiotics, besides removing the implant associated with the fracture.

It is suggested that this procedure may be conducted in 2 operative periods: firstly, the lateralization of the inferior alveolar; and secondly, after a period of 3 months, the implant placement in a situation of more bone stability.

Chou HY, Satpute D, Müftü A, Mukundan S, Müftü S. Influence of mastication and edentulism on mandibular bone density. Comput Methods Biomech Biomed Engin. 2013 May 20. [Epub ahead of print] [Medline: 23682930]

The aim of this study was to demonstrate that external loading due to daily activities, including mastication, speech and involuntary open-close cycles of the jaw contributes to the internal architecture of the mandible. A bone remodelling algorithm that regulates the bone density as a function of stress and loading cycles is incorporated into finite element analysis.

Authors constructed three-dimensional computational model on the basis of computerised tomography (CT) images of a human mandible. Masticatory muscle activation involved during clenching is modelled by static analysis using linear optimisation. Other loading conditions are approximated by imposing mandibular flexure. The simulations predict that mandibular bone density distribution results in a tubular structure similar to what is observed in the CT images. Such bone architecture is known to provide the bone optimum strength to resist bending and torsion during mastication while reducing the bone mass. The remodelling algorithm is used to simulate the influence of edentulism on mandibular bone loss.

It is shown that depending on the location and number of missing teeth, up to one-third of the mandibular bone mass can be lost due to lack of adequate mechanical stimulation.

Lechner J, von Baehr V. RANTES and fibroblast growth factor 2 in jawbone cavitations: triggers for systemic disease? Int J Gen Med. 2013 Apr 22;6:277-90. Print 2013. [Medline: 23637551] [doi: 10.2147/IJGM.S43852] [FREE Full Text]

Jawbone cavitations (JC) are hollow dead spaces in

jawbones with dying or dead bone marrow. These areas are defined as fatty degenerative osteonecrosis of the jawbone or neuralgia-inducing cavitation osteonecrosis and may produce facial pain. These afflictions have been linked to the immune system and chronic illnesses. Surgical debridement of JC is reported to lead to an improvement in immunological complaints, such as rheumatic, allergic, and other inflammatory diseases (ID). Little is known about the underlying cause/effect relationship.

JC bone samples were analyzed to assess the expression and quantification of immune modulators that can play a role in the pathogenesis of IDs. The study supports a potential mechanism where JC is a mediating link in IDs. Samples of fatty softened bone taken from JCs were extracted from 31 patients. The specimens were analyzed by bead-based multiplex technology and tested for seven immune messengers.

In a result regulated upon activation, normal T-cell expressed, and secreted (RANTES) and fibroblast growth factor (FGF)-2 were found at high levels in the JCs tested. Other cytokines could not be detected at excessive levels.

The study confirms that JC is able to produce inflammatory messengers, primarily RANTES, and, secondarily, FGF-2. Both are implicated in many serious illnesses. The excessive levels of RANTES/FGF-2 in JC patients with amyotrophic lateral sclerosis, multiple sclerosis, rheumatoid arthritis, and breast cancer are compared to levels published in medical journals. Levels detected in JCs are higher than in the serum and cerebrospinal fluid of amyotrophic lateral sclerosis and multiple sclerosis patients and four-fold higher than in breast cancer tissue.

This study suggests that JC might serve as a fundamental cause of IDs, through RANTES/FGF-2 production. Thus, JC and implicated immune messengers represent an integrative aspect of IDs and serve as a possible cause. Removing JCs may be a key to reversing IDs. There is a need to raise awareness about JC throughout medicine and dentistry.

Tsao C, Darby I, Ebeling PR, Walsh K, O'Brien-Simpson N, Reynolds E, Borromeo G. Oral Health Risk Factors for Bisphosphonate-Associated Jaw Osteonecrosis. J Oral Maxillofac Surg. 2013 Apr 11. [Epub ahead of print]. [Medline: [23582590](#)] [doi: [10.1016/j.joms.2013.02.016](#)]

The purpose of this study was to investigate the role of oral health, including periodontitis, as a risk factor for bisphosphonate-associated jaw osteonecrosis (ONJ). This cross-sectional study compared cases with an ONJ history to controls. All had a history of bisphosphonate

treatment for malignancy. Participants underwent oral examination, gingival crevicular fluid (GCF) sampling, and phlebotomy. Serum was analyzed for biochemical parameters, bone markers, and immunoglobulin G titers against 4 periodontitis-associated bacteria. Cytokine levels were determined in GCF using a multiplex assay. Results showed that caries development was comparable between groups. Periodontitis was significantly associated with ONJ using the US National Center for Health Statistics periodontitis definition ($P = .002$), at least 1 site with a probing depth of at least 4 mm ($P = .003$), and the percentage of sites per participant with a probing depth of 4 to 5 mm ($P = .044$). Immunoglobulin G titer against *Porphyromonas gingivalis* and GCF interleukin-1 β level were also significantly associated with ONJ ($P = .018$ and $P = .044$, respectively). Authors concluded that in participants with a history of bisphosphonate treatment for malignancy, periodontitis was associated with ONJ when measured using clinical parameters, serum immunoglobulin G titers against *P. gingivalis*, and GCF interleukin-1 β levels, suggesting that periodontitis and associated bacteria are potentially important in ONJ pathophysiology.

Hazani R, Rao A, Ford R, Yaremchuk MJ, Wilhelmi BJ. The safe zone for placement of chin implants. Plast Reconstr Surg. 2013 Apr;131(4):869-72. [Medline: [23542258](#)] [doi: [10.1097/PRS.0b013e3182818e6c](#)]

Alloplastic chin augmentation requires the surgeon to predict the location of the mental foramen and the origin of the mentalis muscle to avoid the postoperative sequelae lower lip parasthesia, lower lip incompetence, or chin ptosis. The authors define a safe zone of dissection along the inferior border of the mandible for placement of alloplastic chin implants.

Fourteen fresh cadaveric hemifaces were dissected with the aid of loupe magnification. Previously described anatomic landmarks were used to identify the origin of the mentalis muscle and the location of the mental foramen along the alveolar ridge of the mandible. Vertical distances were then measured from the mandibular border to the inferior aspect of the mentalis muscle origin and the lower edge of the mental foramen to construct the zone of safe dissection.

The mentalis was identified as a fan-shaped muscle originating from the alveolar process below the incisors roots and inserting into the chin just below the labiomental sulcus. The mental foramen was located most commonly below the roots of the first and second premolars or in the space between the roots. The mentalis origin and the mental foramen were 1.8 ± 0.3 cm and 1.5 ± 0.2 cm cephalad to the inferior edge of the mandible, respectively. These distances define

the borders of a safe zone above the mandibular border. A safe zone of dissection for alloplastic chin augmentation is identified. This study is applicable to implant placement through a submental or an intraoral incision. This safe zone is also useful for reconstructive or orthognathic mandible procedures.

Thumbigere-Math V, Gopalakrishnan R, Michalowicz BS. Teriparatide therapy for bisphosphonate-related osteonecrosis of the jaw: a case report and narrative review. Northwest Dent. 2013 Jan-Feb;92(1):12-8. [Medline: [23516715](#)]

Bisphosphonates (BP), potent antiresorptive agents, play a key role in managing osteolytic bone disorders

including osteoporosis, Paget's disease, bone metastasis, and multiple myeloma. However, their long-term administration is associated with increased risk for bisphosphonate-related osteonecrosis of the jaw (BRONJ) development. At present, there is no curative therapy for BRONJ, and patients are often treated palliatively with antibiotics, antimicrobial mouth rinses, and debridement of necrotic bone.

This article highlights a new treatment modality that may be beneficial to a subset of osteoporosis patients suffering from BRONJ. Here we report a BRONJ case that was initially unresponsive to conservative treatment, but subsequently responded to teriparatide (recombinant human PTH1-34) therapy.

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