

JAW CYSTS AND GUIDED BONE REGENERATION (a late complication after enucleation)

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SUMMARY

Maxillary jaw bone possesses a high regenerative capacity. Yet sometimes the defects enucleation of jaw cysts leaves may regenerate only partially or not at all. For this reason some researchers advise treatment of the residual cavities after cystectomy using bone regeneration stimulation methods. We report a case of an atypical complication after enucleation of a maxillary cyst manifesting itself eight years after the initial treatment. The symptoms the patient reported were at first periodic sweating on the left sides of face and head. This was followed by a piercing pain in the left palpebral fissure radiating to the middle of the palate and felt in the left cheekbone, left eye and left supraorbital ridge. The patient has a history of maxillary cysts recurring three times and of three operations she had 20, 12 and 8 years previously. The multiple recurrences of the cysts after their enucleation indicates poor regenerative capacity of the body which resulted in the formation of cicatricial tissue. It is most probably this tissue that was responsible for the disruption of the nerve conduction capacity which can account for the reported symptoms. We filled the cavity with bone graft material which boosted the bone structure regeneration. Although maxillary jaws possess high regenerative capacity we advise the use of guided bone regeneration in cases of large bone defects that usually occur after enucleation of jaw cysts.

Key words: radicular maxillary cyst, complication, Frey's syndrome, guided bone regeneration, neuralgia.

INTRODUCTION

Odontogenic cysts constitute a considerable share in the jaw bones disorders. The cystic lesions are the major factor causing jaw destruction: they are quite common in the practice of oral and maxillofacial surgeons [1, 2]. The radicular cysts are the most common type of jaw cysts [1]. Their development and growth can be quite destructive to the bone tissue, a process whose mechanism is of great interest.

Healthy bone regeneration is a ceaseless process

with constant remodeling which allows an optimal adaptation of bone microstructure to the individual needs of the body. Bone resorption is realised by osteoclasts; physiologically, it is associated and usually balanced with osteogenesis, an osteoblast-mediated process.

Maxillary cysts constitute a considerable percentage of odontogenic jaw cysts [9]. Bone defects with variable size arise after their enucleation; a treatment of the cysts aims at full recovery of the anatomy and function of the damaged region. The postoperative regeneration of bone defects of the maxillary jaw in most cases is complete with histologically mature functionally viable bone [5, 6, 10]. This is possible because of the great regenerative capacity of the defects themselves which usually are relatively small polygonal cavities replete with blood vessels.

There are several types of bone defects whose healing runs the wrong course in the separate phases of regeneration and results in the formation of cicatricial tissue. The implicated factors are associated with the size of defect, with the presence of devitalised teeth, and with the proximity to the nasal and sinus cavities which are the sources of infection in the postoperative cavity [8]. These factors are known to reduce the regeneration capacity of the bone tissue.

Guided bone regeneration has established itself as a predictable, efficacious method for controlling the reparative osteogenesis [3, 4, 11]. The efficiency of this method however is contradictory [7].

The aim of the present article is to report a case of delayed complication occurring 8 years after the performed cystectomy of the maxilla. We could not find a similar report in the available literature.

CASE REPORT

A 49-year-old female patient, Zh. P. D., from Plovdiv, Bulgaria made a visit to the Oral surgery for examination in December 2007.

Physical examination: The patient reported of periodic sweating of the left sides of head and face going on for one year. For 2 months before the visit she also complained of pain in the left palpebral fissure lasting 2

to 3 seconds. Later she felt lighter but continuous pain originating in the middle of the palate and incorporating the left cheek bone, the left eye and left supraorbital ridge. The sweating usually started during the pain attack. The patient was admitted to the Department of Neurology with a diagnosis of neuralgia n. trigemini sin. but the treatment failed to assuage the pain.

She had a history of a surgery 20 years before admission for a cyst in the maxillary jaw in teeth 21 and 22. Because the cysts recurred she had a repeated operation 12 years before that. Because of a third recurrence 8 years ago she received a surgical treatment again: this time the patient had her devitalised teeth 21 and 22 extracted. The patient had no more complaints associated with the maxillary jaw and teeth after the last operation.

Dental status: Reconstructed dentition of maxillary jaw with a bridge prosthesis. On the left half of her hard palate we felt a section with soft consistency. On puncture, we entered deep but found no liquid collection.

Form the laboratory studies: X-ray of the palate with bite (Fig.1), computed tomography of maxillary jaw (Fig.2), focal diagnostics; we found destruction of the upper jaw bone and palate bone 2 cm in diameter without any evidence of an active focus.

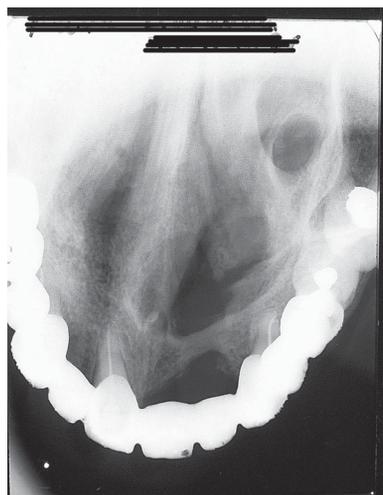


Fig. 1.



Fig. 2.

The patient was operated on. We removed the solid elastic tissue that had fused the palate and ingrown with the gums (Fig.3). The resulting defect was filled with bone graft material for a guided bone regeneration (Fig.4). The healing process was uneventful.

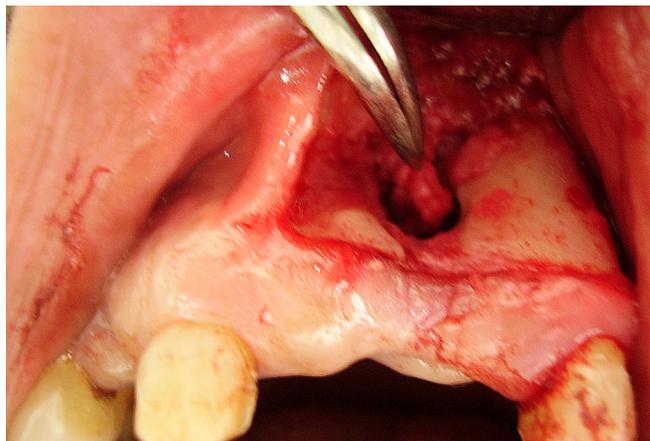


Fig. 3.

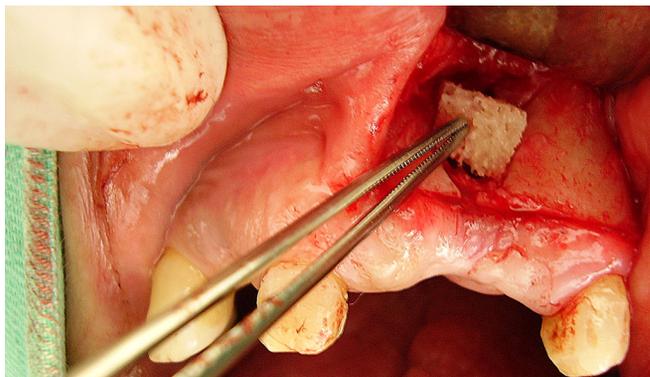


Fig. 4.

Histologic finding: N B-08-578,579 of 07.04.2008. Cicatrix.

The pain in the left eye and cheek bone and the sweating of the left sides of the head and the face were gone.

At the control examination one year later the patient had no complaints. The x-ray showed a complete bone regeneration.

DISCUSSION

Bone regeneration after enucleation of jaw cysts is usually complete. Assessment of the process of healing after jaw cysts have been surgically removed is most commonly done using orthopantomography. This method is based on the subjective evaluation on the part of the dentist of change in bone density. In our case, previous x-ray studies did not show any essential pathologic changes. A number of studies deal with the spontaneous osteogenesis of bone defects postoperatively as jaw bones possess a high capacity of regeneration [5, 7]. Yet there are some factors

that can affect negatively the reparative osteogenesis. These are devitalised teeth, size of cysts, and proximity to nasal and sinus cavities [8]. In the present case the devitalised teeth were extracted after the third recurrence of the cyst. The proximity of the defect to the nasal and sinus cavities and the enlarged cavity after the third enucleation have disrupted the osteogenesis and inhibited the regeneration of the bone. There was no ossification. This was the reason why the cicatricial tissue formed. It is most probably this tissue that was responsible for the nerve conduction disruption, which also may explain the reported symptoms of pain and sweating. We filled the cavity with bone graft material which proved to be effective and the bone regenerated successfully.

CONCLUSIONS

The maxillary jaw has a great capacity for regeneration and yet we advise the use of guided bone regeneration in cases of large bone defects that usually occur after enucleation of jaw cysts.

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