Ozone Therapy in Extractive Surgery on Patients Treated With Bisphosphonates

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It is certain that oral extractive surgery is a remarkable trigger to avascular osteonecrosis of the jaw in patients treated with pyrophosphate analogous. This acquisition limits the use of endo-oral surgery in those patients, even when they have already developed the lesions. In this study, we present the results obtained in a group of 15 patients deriving from a 33-patient cluster with osteonecrosis of the jaw in treatment at our department with a new protocol based on ozone therapy. The object of this article is to demonstrate how dental extraction becomes possible in a patient with avascular bisphosphonate-related jaw osteonecrosis or in those who simply received pyrophosphate analogous when proper treatment with ozone therapy has been done.

Key Words: Extractive surgery, ONJ, bisphosphonates, ozone therapy

The first reviews on bisphosphonate-related osteonecrosis of the jaw (ONJ) have been published by Marx in 2003 with a 36-case study.[1] Since then, further information on the features of such pathology was found in studies by Ruggiero[2] and Bagan[3] in conjunction with other case reports and case series.[4–7] Although ONJ is considered to be a side effect rarely found in association with bisphosphonate therapy, an inquiry by Durie et al[8] assessed its incidence on 1203 patients treated with intravenous bisphosphonates affected by myeloma (904) or mammary carcinoma (299), and noticing its presence on 12.8% of myeloma-affected and 12% of carcinoma-affected patients; notwithstanding, an accurate epidemiologic assessment of ONJ incidence is far from being reached. It must be said that a valid and universally accepted therapeutic strategy has not been achieved by far.[9,10]

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The authors, who in a previous paper had introduced a new therapeutic approach based on ozone therapy,[11] in this research show how it is possible to perform, without any further complications, dental extractions on the same patients who took part in the previously mentioned study, thus empirically validating the effectiveness of such treatment.

Materials and Methods

The authors show the outcome after clinical evaluation of the lesion caused by extractive surgery on a sample of 15 patients deriving from a 33-patient cluster in treatment with bisphosphonates.

This group of patients belongs to an experimental program on using ozone therapy for treating ONJs and has been in care at the Department of Maxillo-Facial Surgery, ''Umberto I'' University Hospital, Rome, between February 2005 and February 2007.

The patients, six male and nine female, mean age 64 years (age range, 46–79 years), were further ranked as lesion-affected (13) or lesion-free (two).

Twenty extractions were performed, and no complications have been reported. All patients underwent a pre- and post surgical ozone therapy cycle in conjunction with -lactams (7 days before and 7 after the operation) (Fig 1) as reported in our previous paper.[12]

OrtoPanThomography x-rays and dental computed tomography scans were performed on all

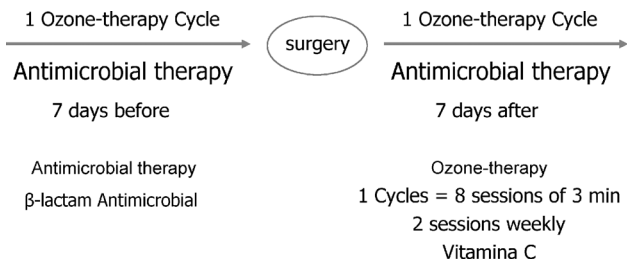

Fig 1 The ozone therapy protocol for tooth extraction in patients affected by osteonecrosis of the jaw.

Fig 2 76-year-old patient with osteonecrosis of the jaw; a detail of the superior arch.

Fig 4 Patient after 8 months, thanks to ozone therapy, extractive surgery is well tolerated by the patient avoiding complications plus the site of the lesion is completely clean.

patients before the surgery in search of otherwise nondetectable cysts and/or other lesions.

Discussion

It has already been pointed out how, in 70% to 80% of cases, bisphosphonate-induced ONJ begins with failed healing or a delay in the healing process in the maxilla or lower jaw after an extraction or any other surgical operation in the oral cavity.[2,11–14]

It is therefore advisable to plan any kind of endo-oral surgery before any bisphosphonate intake, making sure that no areas are still healing at the time of drug administration. This is important to prevent any situations that might bring about osteonecrosis occurrence and, in case the lesion has already appeared, to avoid surgery unless absolutely necessary. A further extraction could represent the starting point of a new osteonecrotic focus or promote the spread of the primitive lesion. At our department, a new therapeutic approach is currently under experimentation; it uses ozone therapy in addition to the surgical/clinical therapies already described in the literature. According to our experience, benefit and effectiveness of ozone, i.e., stimulation and preservation of the endogenous antioxidant systems and enhancement of fibroblastic and angiogenetic acivities,[15] are not found exclusively on a local, site-related basis, but also on the close proximities, thus amplifying the functionality of healthy bone tissue. This brings about good bone functionality to the extent that traumas related to extractive surgery can be tolerated better by patients, avoiding unpleasant complications (Figs 2–5). Moreover, extractive surgery aimed at improving oral cavity conditions allows better and more accurate

Fig 3 Pantomography shows complete involvement of the jaw.

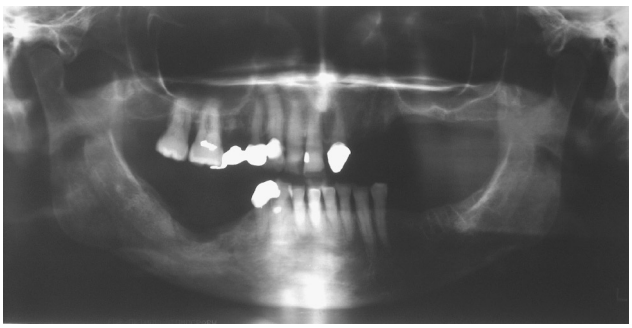

Fig 5 On pantomography image, it is possible to see the absence of any osteonecrosis site even after extractive surgery.

oral hygiene, thus reducing the possibility of superinfections, against which most of the therapeutic treatments are aimed.

CONCLUSIONS

According to our experience, extractive surgery in ONJ-affected patients is possible in all cases, after at least one prior ozone therapy cycle, according to our therapeutic approach. However, because prevention is always the best form of protection, we suggest that all patients about to be treated with bisphosphonates undergo dental examinations and that at least 2 months pass before administering such drugs. We would like to reassure specialists, once the lesion has occurred, extraction is still possible—safely and clinically backed—thus improving oral hygiene and becoming a key part of the treatment itself.

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