Increasing the Success of Root Tip Resection With Intra-operative Ozone Therapy

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Introduction

There is growing interest in the use of ozone in oral healthcare. Consumer demands for this strong oxidant may increase as the general public becomes increasingly aware of its therapeutic capacity and the non-invasive manner in which it can be administered. During the past decade it has been demonstrated that the application of ozone in chronic infectious diseases, vasculopathies, orthopedics and in dentistry (caries-, endodontic-, periodontic-therapy) has reached good results by using the ozone therapy [1, 2, 3, 5]. OzonyTron® is one of the newest devices for the generation of ozone. Multiple microbiological and the biochemical studies justified that there are no doubts about the effectiveness of ozone with bacteria reduction.

Purpose

The aim of this study was to show if there is an effect on the intra-ossaer bacteria-reduction, the postoperative pain-reduction and the better long-term healing-results verified by clinical and X-ray control.

Material and Methods

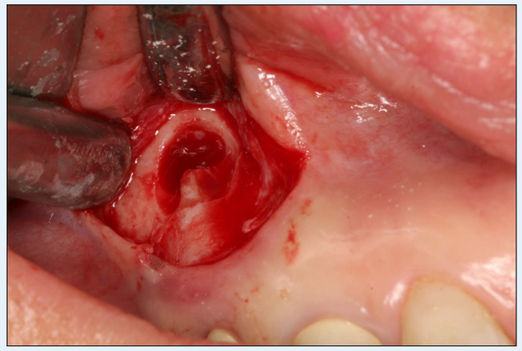
A total number of 30 patients who had the indication for a root tip resection were operated. On 15 patients the intra-operative root tip-resection site was disinfected by using the OzonyTron® device for 60 seconds (Mymed Company, Mylius medizinische Electronic GmbH, Germany). 15 patients had a conventional root tip resection without a special disinfection. A bacteria screening was done before and after ozone therapy, to show the bacteria-reduction effect. A pain screening was performed one and seven days after operation. Also an X-ray control was done directly post operative an after 3 months to show the healing success.

Clinical procedure:

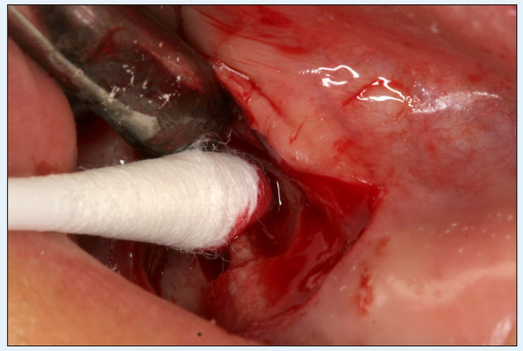
- X-ray control
- Root tip preparation
- Microbiological screening
- Root tip resection
- Ozone therapy with OzonyTron® device for 60 seconds.
- Microbiological screening
- Wound closure
- Pain screening 1st and 7th post operative day (scale 0-10)
- X-ray control directly post op
- X-ray control after 3 Mon. post op.

Tooth 14 before root tip resection

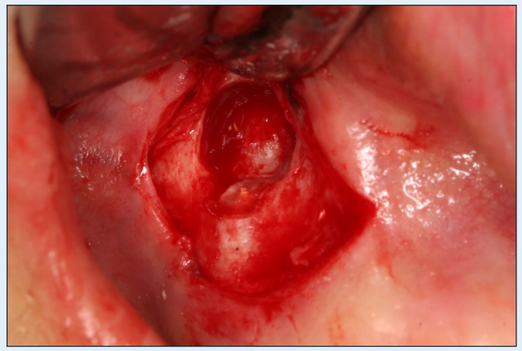
Tooth 14 three months after root tip resection



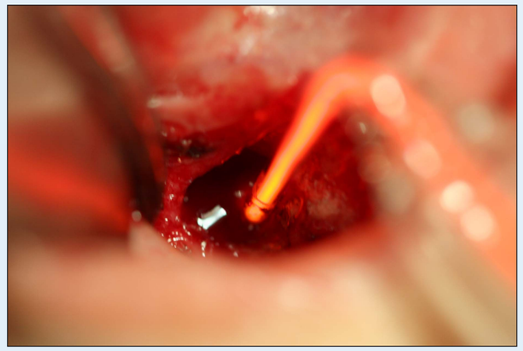
Preparation of the root tip



Microbiological sreening before resection

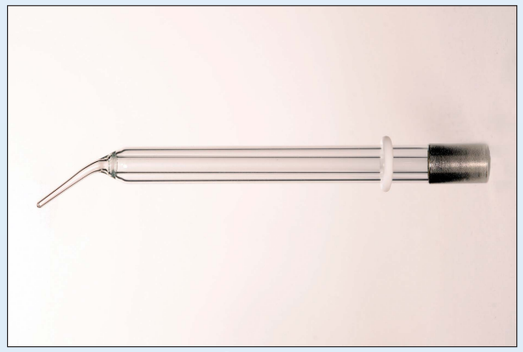


After root tip resection



Intraoperative ozone therapy

OzonyTron® X 3 device



OzonyTron® periodontal probe

Results

The results showed a stronger pain reduction (table 1), a significant bacteria reduction (table 2) and a good X-ray controlled healing of all ozone therapy treated root tip resection sites compared to the 15 control group patients without ozone therapy during root tip resection. Almost no microorganisms were detected after being treated with ozone therapy for 60 seconds.

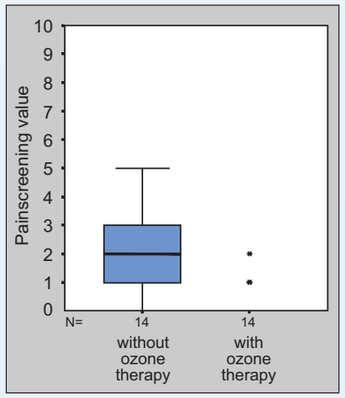


Table 1: Pain reduction under ozone therapy

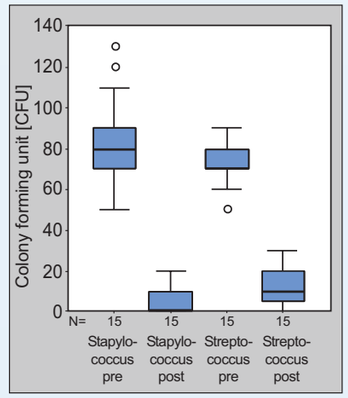


Table 2: Bacteria reduction under ozone therapy

Conclusion

Although more clinical research has to be done, many different approaches are so promising, or already established, that hopefully the use of ozone therapy becomes a standard treatment for disinfection of an operation site in dentistry [2, 3, 4]. These results suggest that ozone therapy should be useful in reducing the infections caused by oral microorganisms, so that a success increase in root tip resection treatment should be gained.

Literature

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