

# Case Report: Chronic Non-healing Ulcer in The Buccal mucosa: A Novel Approach to its Management

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## Abstract

**Background:** Management of a case of chronic non-healing ulcer with ozone therapy.

**Case Presentation:** A 50 years old patient, an operated case of Squamous Cell Carcinoma buccal mucos undergone segmental mandibular resection with jaw reconstruction and free fibular flap. Post-operatively he developed chronic non-healing ulcer at the site of old tooth extraction. He was managed at our centre with Ozone therapy. He responded miraculously and recovered completely in 5 days. Now, after 11 months he is asymptomatic and his flap has been matured completely.

**Conclusion:** Post-Surgical non-healing ulcers inside mouth are very common. In this particular case we used ozone gas for killing the pathogenic organism inside the sinus and for healing of non-healing ulcer and patient respond miraculously. With this case we assume that ozone gargling can be used to sanitize oral mucosa quite effectively and it can be used in this current Covid -19 pandemic also.

**Keywords:** Non-healing ulcer• Squamous cell carcinoma• Ozone gas• Osteomyelitis Introduction

## Introduction

A 54 years old male presented to us with a complaint of Discharging Sinus oral cavity since more last 3-4 years. Patient's was an operated case of Carcinoma Oral Cavity (Operated) with free fibula reconstruction.

## History

Patient was an army personnel, first reported to his service hospital (November 2011) with complaints of Non-healing Ulcer at the site of old tooth extraction, that was done in 2009.

## Investigation

Biopsy was done in a civil hospital shows Tumour size 4\*3 cms depth – 1.2 cms well differentiated Squamous Cell Carcinoma. No invasion of underlying cortical bone or the skin. Total 32 nodes & margins negative. Stage of tumour T2N0M0.

Underwent segmental mandibular resection with adjacent Buccal Mucosa and supraomohyoid neck dissection left side with jaw reconstruction and free fibular flap on 7 March 2012 in his service hospital.

In March 2017, he first complained of purulent discharge from the mouth (Midline near frenula of tongue) off & on. On evaluation, he was found to have Osteomyelitis fibula with purulent collection of pus through discharging sinus. Exploration & debridement under general anesthesia was done on 26th October 2018.

He continued to remain symptomatic and re-surgery was planned. Excision of bony spike near mandible & removal of plate was done in 16

Nov 2018. Again, he remained symptomatic and purulent discharge continued.

## Examination

As we were not very versed with oral cavity examination because of lack of experience in this particular field and lack of equipment's, we started our treatment protocol based on his old medical records and physical findings mentioned by Reconstructive and Dental Surgeon.

On superficial examination, his tongue was looking dirty with foul-smelling discharge was seen coming out from left side of his mouth. There were multiple macular rashes were seen inside his mouth, particularly over his left side buccal mucosa. Discharge was dirty looking, yellow green in color.

His voice was clear and no other history of any systemic illness. His blood sugar level was well under control but overall, he looks distressed and exhausted.

## Treatment

He first reported to us in June 2019 with complained of purulent foul-smelling discharge from his oral cavity. At that time, he was on antibiotics since last 3 and a half month, but purulent discharge didn't stop. We are running a Physical Rehabilitation center and his mother-in-law used to come to us for Pain Management. During that time, we have treated a case of oral lichen planus with Ozone Gargling. We were not very versed with oral cavity examination and we were not having any equipment to exactly locate the source of purulent discharge but after patient's request, we explain him everything about our treatment protocol and after taking consent we started our management.

Initially we trained him how to do gargles with oxygen and told him not to aspirate the gas. After 10-15 gargles, he learned the art and we started gargles with Ozone gas.

A normal medical ozone generator produces ozone concentrations equivalent from 1 up to 100 mcg/mL but for medical purposes ozone concentrations from 10 up to 40 micrograms/ml is used. Indeed, ozone is carefully collected with a glass syringe in dosages ranging from 10 up to 40 µg/mL.

We started with 15-20 gargles of Ozone gas at 20 micrograms/mL, during each gargle we used to push 20-30 ml. of Ozone gas in his mouth. He holds the gas inside his mouth for 10-15 seconds and released it through his mouth and nose. To our great surprise, pus discharge was very less, even after first day of therapy. Patient didn't complain of any side effect of the gas. We repeated these cycles for 5 days. 3rd day onward discharge was almost nil and as per patient he observed swelling near graft was also reduced considerably. After 5th day of therapy, patient was asked to do follow up after one week.

During follow up visit he was totally asymptomatic and his facial swelling was also reduced significantly. Till date he is asymptomatic and not on any medication.

## Discussion

Ozone therapy is an alternative medical treatment that introduces ozone or ozonizes to the body. In order for ozone to be effective as a germicide, it must be present in a concentration far greater than that which can be safely tolerated by man and animals [1].

The use of ozone became a normal practice after the initial studies by Dr. H. H. Wolff (1979) in Germany. Ozone is a potent oxidant and an easy to use disinfectant, killing the microorganisms by means of oxidation of their

biological material. It can be used as a bactericidal agent under various forms, such as ozonized oil, ozonized water, ozonized saline solution, ozone associated with other substances, and most frequently as the gaseous mixture of O<sub>2</sub>/O<sub>3</sub> [2].

Maximum studies on oxygen-ozone therapy proved that ozone, when used in vitro, able to destroy all kinds of bacteria, gram negatives and gram positive. More, it has also been suggested that microorganism's sensitivity to antibiotics is increased when ozone is used and simultaneously bacterial sensitivity to the complement of immune system [3].

Much of the apprehension concerned to ozone therapy goes around the safety of blood ozonation. When accidentally inhaled in high concentration, ozone reacts with tissues lining the lungs and can cause bronchospasm and pulmonary oedema; however, this therapy never involves inhalation of ozone gas [4, 5]. It has been assumed that while peroxides (a product of ozone) are naturally produced inside phagocyte cells to kill the pathogens, outside the cell they may even damage involved tissue [6]. Ozone has been advocated for use in dentistry with preliminary evidence supporting its use [7]. Some reviews have even suggested use of ozone as potential treatment for herniated discs and diabetic neuropathy [8, 9]. There is some disagreement regarding its use by athletes in an attempt to improve performance; although its use is not forbidden in and of itself, it can be mixed with any banned substance for dosing prior to injection [10].

In summary, it's very high oxidation potential is the primary reason for ozone's capacity to kill viruses and bacteria, which arise in its turn directly from the structure of the ozone molecule.

### Future Trends

As we are well aware that Ozone therapy can kill all the types of pathogen very effectively and lots of countries are also using this gas in the treatment of novel coronavirus infection as a disinfectant. But, with due precautions it can be used as an effective way to eliminate oral and pharyngeal pathogens.

As the exact pathophysiology of Covid-19 is still not clear now and lots of people are dying, why can't be Ozone gargles can be used as a primary/precautionary treatment in susceptible population? We have unable try this therapy at our end, because we have no direct contact with the Covid-19 cases. But surely it can be combined with Sympatholytic (Propranolol) and Vitamin D3 supplements to give a rapid cure. Surely, we will survive this pandemic, but we have to learn the basics before next viral pandemic.

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