



Ozone Gas by Direct Injections Heals Chronic Anal Fissure — Case Report

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Abstract

Ozone therapy delivered by local injections, together with topically applied ozonated vegetable oil, to a woman with chronic, extremely painful, and swollen anal fissure provided rapid relief of symptoms. All symptoms were abated by 14 sessions. Full healing occurred, which to date has endured over 2 years. Ozone by injection may be a superior form of delivery of this healing gas than rectal insufflation for anal fissure. The treatment is inexpensive, relatively non-invasive, and can be performed without pain under local anesthesia.

Keywords Anal fissure · Ozone therapy · Wound healing · Anal infection · Ozonized oil

Introduction

Ozone (triatomic oxygen or O₃) is a metastable gas with a short half-life. It is a naturally occurring oxidant created in the atmosphere by UV-C irradiation and lightning. Medical ozone has been found highly useful in medicine and is generated by medical grade oxygen passing through a corona high arc discharge, similar to lightning in nature. Medical concentrations for therapy generally range from 1–5% ozone/99–95% oxygen gas, or 10–70 mcg/cc ozone. This mixture is called medical “ozone.”

Ozone therapy is a growing modality used by therapists around the world for physiological enhancement, immune modulation, oxygenation, infection, wound healing, circulatory disorders and more. Summaries on its use are readily available [1–4]. Among its beneficial effects are enhanced oxygen availability, modulation of inflammation, increase in vasodilating prostacyclin, direct germicidal effects, and promotion of wound healing. Ozone therapy stimulates collagen amount in wounds and increases levels of VEGF, TGF- β , and PDGF in wound exudates [5, 6]. Ozone cuts through biofilm [7].

Agosti’s group reported rapid (5 weeks) healing of a 2-month chronic open and purulent draining tibia/fibula

amputation (from trauma) site after standard drug and wound care resulted in only slow healing [8]. Borelli et al. reported on a case series of chronic extremity ulcers healing or improving after local injections of ozone [9]. Local ozone gas injections have been successfully used for lumbar disc herniation [10] and knee arthritis [11]. These all suggest a role for ozone in most any generalized local healing process.

Despite the latter, there is scant information in the medical literature on its use for anal fissure. This manuscript reports a case which rapidly improved and totally healed within 14 local treatments of ozone gas injection over 12 weeks after failed non-surgical conventional treatment.

Case

Patient WJ at time of presentation, 11 February 2020, was a 56-year-old woman. She had developed severe anal pain 3 months before, which was exacerbated greatly by a fall in the shower. She had been to colorectal surgeons with extreme pain, where a diagnosis of posterior midline anal fissure was made. She was prescribed diltiazem 2% cream. It helped some initially but after the fall, it only irritated her. Her surgeon recommended Botox, advising her of its limited success rate, and, if it failed, then to proceed to sphincter surgery with a warning of possible incontinence. She chose not to receive Botox and refused surgery, fearing the risk, however small, of fecal incontinence. On her own, she sought out ozone therapy.

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On presentation, she was unable to sit down due to pain. The fissure could not be identified clearly due to swelling and pain, which limited manipulation.

She requested local oxygen/ozone injections to the area based on her research of the therapy. Informed consent was obtained.

Ozone gas was obtained via a Longevity Resources Quantum 5 generator (Canada) by passing medical grade oxygen through the machine and collecting the resulting oxygen/ozone gas mixture through a syringe port into a syringe. All injections were at a concentration of 33 mcg/cc using a 27 gauge 1.5 inch needle.

The first injection consisted of 10 cc of gas into two intradermal sites (total 20 cc) on either side of the suspected fissure under 1% procaine (excipient free) local anesthesia. The needle was manipulated to reach the subdermal tissue under the fissure, which technique was continued in subsequent injections. Ozone concentration was verified by IKO ozone analyzer (Zotzmann and Stahl, GmbH, Germany). She was also provided ozonated vegetable oil to apply topically twice daily, shown to be valuable in wound healing [12].

She returned a week later markedly improved with intervals of very little pain and able to sit. The swelling had subsided enough to visualize the fissure and a second intradermal treatment was provided by injection covering the area on the anal verge on each side of the fissure (10 cc per side) including just under it. By the third visit, pain had subsided overall by 50% and a small painful white papule developed in the posterior aspect of the anal verge to the right of midline. The third treatment was directed toward this papule. Treatments continued twice weekly, a total of 20 cc of gas injected subdermally in the anus.

By the tenth treatment (5 weeks), pain was essentially gone with very minor “discomfort” left. Digital anal exam elicited little tenderness. The site visually appeared healed. By treatment 14, all pain and discomfort had abated. We agreed on three more ozone injections to assure success — a total of 17 injections. She messaged me a year later that she had no return of symptoms.

Discussion

Ozone has been previously used and reported regarding anal fissure with “disappointing” results [13]. However, the gas was delivered by rectal insufflation, not by direct injection. It is possible that rectal insufflation of ozone gas does not provide the immediate stimulatory effect to affected neighboring anal tissue that direct injections provide. Local injection will not only provide the stimulating effects of ozone within treated tissues, but it also leaves a reservoir of metabolically active and beneficial oxygen gas in the compromised and needy location. The therapy by the instant method used is

very inexpensive (syringe and needle costs) once a generator is procured.

The purpose of therapy was multifold. An anal fissure can be considered an open and contaminated wound, possibly with biofilm. Ozone’s vasodilation effects would be expected to stimulate better circulation, enhance oxygen delivery, immune modulation, and direct germicidal effects by the gas itself or its resulting reactive downstream metabolites called ozonides. Collectively, the decontamination of the wound and the generous oxygen surplus in the local tissues was expected to assist healing, as borne out in the medical literature. Ozone oil applied to the fissure would further assist in decontaminating the surface.

She had rapid improvement compared to the static severe pain and suffering for months before ozone injection therapy. The anal sphincter was relaxed enough by the fourth biweekly session to manually place pressure on it.

This is the first report of ozone for anal fissure by direct injection and is promising in that the results came quickly and appear to be permanent (more than 2 years). While “invasive” in the fact that it requires a needle, it does not involve an incision or cutting, which certainly carries risk. The case suggests that the “disappointing” results in the insufflation report might be improved by a change of delivery method.

References

1. Elvis AM, Ekta JS (2011) Ozone therapy: a clinical review. *J Nat Sci Biol Med* 2(1):66–70. <https://doi.org/10.4103/0976-9668.82319>
2. Rowen RJ (2019) Ozone and oxidation therapies as a solution to the emerging crisis in infectious disease management: a review of current knowledge and experience. *Med Gas Res.* 9(4):232–237. <https://doi.org/10.4103/2045-9912.273962>
3. Bocci V. *Ozone: a new medical drug*. Dordrecht: Springer; 2005. [Google Scholar]
4. Menendez, S., Weiser, M; *Advances of ozone therapy in medicine and dentistry*, Palcogra, Palacio de las Convenciones-Havana, Cuba, 2016. ISBN 978–0–692–78138–859999.
5. Zhang J, Guan M, Xie C, Luo X, Zhang Q, Xue Y (2014) Increased growth factors play a role in wound healing promoted by noninvasive oxygen-ozone therapy in diabetic patients with foot ulcers. *Oxid Med Cell Longev* 2014:8. <https://doi.org/10.1155/2014/273475.273475>
6. Kim HS, Noh SU, Han YW et al (2009) Therapeutic effects of topical application of ozone on acute cutaneous wound healing. *J Korean Med Sci* 24(3):368–374. <https://doi.org/10.3346/jkms.2009.24.3.368>
7. Bialoszewski D, Pietruczuk-Padzik A, Kalicinska A et al (2011) Activity of ozonated water and ozone against *Staphylococcus aureus* and *Pseudomonas aeruginosa* biofilms. *Med Sci Monit.* 17:BR339-344
8. Degli Agosti I, Ginelli E, Mazzacane B et al (2016) Effectiveness of a short-term treatment of oxygen-ozone therapy into healing in a posttraumatic wound. *Case Rep Med* 2016:9528572. <https://doi.org/10.1155/2016/9528572>

9. Borrelli E, De Monte A, Bocci V (2015) Oxygen ozone therapy in the integrated treatment of chronic ulcer: a case series report. *Int J Recent Sci Res* 6:4132–4136
10. Dall'Olio M, Princiotta C, Cirillo L et al (2014) Oxygen-ozone therapy for herniated lumbar disc in patients with subacute partial motor weakness due to nerve root compression. *Interv Neuroradiol.* 20(5):547–554. <https://doi.org/10.15274/INR-2014-10078>
11. Trevisani V, Udell J. American College of Rheumatology (ACR) 2015 Annual Meeting. Abstract 311. 2015 <https://www.rheumatology.org/About-Us/Newsroom/Press-Releases/ID/711> (accessed 28–1–2021)
12. Anzolin AP, da Silveira-Kaross NL, Bertol CD (2020) Ozonated oil in wound healing: what has already been proven? *Med Gas Res* 10(1):54–59. <https://doi.org/10.4103/2045-9912.279985>
13. Ozturk A, Atalay T, Cipe G, Luleci N (2017) Ozone treatment for chronic anal fistula: it is not promising. *Indian J Surg* 79(4):308–311. <https://doi.org/10.1007/s12262-016-1475-0>

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