

Ozone Oil – The Effective Concoctions

Dr. M. K Sunil¹

Professor and Head

Dept of Oral Medicine and Radiology

Teerthanker Mahaveer Dental College and Research Centre, Moradabad

Dr. Surangama Lehri²

MDS

Dept of Oral Medicine and Radiology

Teerthanker Mahaveer Dental College and Research Centre,
Moradabad

Dr. Chhavi Srivastava³

PG Student

Dept of Oral Medicine and Radiology

Teerthanker Mahaveer Dental College and Research Centre,
Moradabad

Address for Correspondence

Dr. M. K Sunil

Professor and Head

Dept of Oral Medicine and Radiology

Teerthanker Mahaveer Dental College and Research Centre, Moradabad

Abstract:- Temporomandibular joint pain issues are the most common chronic orofacial pain conditions that dentists and other medical practitioners must treat. The causes of temporomandibular disorders include a multitude of predisposing, activating, and perpetuating variables as well as muscular hyperactivity, trauma, mental stress, and malocclusion. It is possible to use an effective non-pharmacological treatment method known as ozone oil therapy to treat temporomandibular joint pain disorder. You may use ozone in the form of petrol, water, or oil. It has anti-inflammatory and analgesic effects because of its ability to oxidise double bond compounds such as arachidonic acid and its derivatives that are present at the inflammatory sites and so resolve pH. It has analgesic qualities, which lessen pain, due to its ability to oxidise albuminolysis byproducts and act on nerve terminals in inflamed tissue.

I. INTRODUCTION

Discovered in mid- nineteenth century, Ozone is a molecule consisting of three atoms of oxygen in a dynamically unstable structure due to the presence of mesomeric states. However, it was in 1840, when Christian Friedrich Schonbein formulated ozone from oxygen molecule for the first time. He was also the one who introduced the world with the term “OZEIN” for ozone, meaning odor. [1]Ozone has been used as a therapeutic agent since decades with consistent results and minimal side effects.

The most prevalent chronic orofacial pain diseases that dentists and other healthcare professionals must deal with are known as temporomandibular joint pain disorders. Temporomandibular disorders are influenced by a variety of

causes, including muscle hyperactivity, trauma, mental stress, and malocclusion in addition to a number of predisposing, activating, and perpetuating factors. [2]

Hence, in order to offer these patients the optimal therapy, it is essential to have a thorough grasp of the Temporomandibular Joint, the illness process, and diagnostic examinations. Reducing pain and restoring normal function and lifestyle are the management objectives for all individuals with TMDs. Orthopedic stable, intraoral appliances, behavioural therapy, pharmacological, and non-pharmacological treatment modalities are just a few of the wide range of therapeutic modalities for the management of people with temporomandibular joint disorders that have been suggested in the available literature.

Ozone Oil Treatment is a relatively similar non-pharmacological treatment option that can be employed and is successful in treating Temporomandibular Joint Pain Disorder. Gas, water, and oil are all forms of ozone that can be employed. [3] Due to its capacity to oxidise double bond molecules like arachidonic acid and its derivatives present at the inflammatory sites and so resolve pH, it exerts anti-inflammatory and analgesic actions. Its capacity to oxidise albuminolysis byproducts and act on nerve terminals in inflamed tissue gives it analgesic properties, which reduce pain. [4,7]

Because of the above mentioned therapeutic actions of ozone oil, the present study aimed to evaluate and compare the efficacy of Ozonated Sesame Oil and Ozonated Olive Oil in management of Temporomandibular Joint (TMJ) Pain Disorders.

II. MATERIALS AND METHODOLOGY

In this innovative study, 30 patients clinically diagnosed with Temporomandibular Joint Disorders (musculoskeletal type), based on Research Diagnostic Criteria were randomly selected from the out-patient department of Oral Medicine and Radiology, Teerthanker Mahaveer Dental College and Research Centre, Moradabad.

These patients were then divided into two groups with 15 patients in each group: patients in GROUP A were managed by application of Ozonated Olive Oil and subjects in GROUP B were subjected to Ozonated Sesame Oil.

Each subject underwent Temporomandibular joint examination before initiation of the treatment. While commencing the therapeutic management using ozone oil, patients were explained about the application of the oil through demonstrations. All the subjects were well informed and consent forms were taken. Both the Ozonated Olive Oil and Ozonated Sesame Oil were dispatched in 5ml plastic bottles. Patients were advised to apply it with gentle stroke over the affected area for three times a day. Each patient was

evaluated once for four consecutive weeks followed by 5th follow up visit.

Results were tabulated and sent for statistical analysis.

III. RESULTS AND DISCUSSION

The masticatory muscle, the temporomandibular joint, and other oro-facial tissues are all impacted by TMDs. It comprises a range of treatment techniques, such as conservative, physical, pharmaceutical, and other forms of cure.[5,6]

The department of OMDR, TMDCRC, conducted the current investigation. According to the literature that is currently accessible, very few research have been done to assess the effectiveness of Ozone Oil therapy (Olive Oil and Sesame Oil) in treating temporomandibular joint disease.

When two groups in the temporalis muscle were compared in the current investigation, it was found that the right side's p values were 0.794 and 0.249, which were non-significant during the first visit but significant at the follow-up. (table 1)

Table 1: Two Groups in the Temporalis Muscle Were Observed In Multiple Visit

		Visit I	Visit II	Visit III	Visit IV	Visit V
Temporalis - Right	Group I	0.43±1.06	0.36±0.85	0.30±0.70	0.20±0.48	0.13±0.34
	Group II	0.36±0.96	0.23±0.62	0.20±0.55	0.06±0.25	0.00±0.00
	P value	0.794 (NS)	0.482 (NS)	0.542 (NS)	0.187 (NS)	0.039 (Sig)
Temporalis –Left	Group I	0.40±0.93	0.33±0.75	0.30±0.70	0.16±0.37	0.13±0.34
	Group II	0.73±1.25	0.50±0.86	0.36±0.66	0.20±0.40	0.00±0.00
	P value	0.249 (NS)	0.429 (NS)	0.708 (NS)	0.744 (NS)	0.039 (Sig)

The fifth visit of therapy revealed a significant reduction in the degrees of soreness on the left side of the muscle with a p value of 0.039, which is consistent with research conducted by Arora et al. in 2014, which found superior efficacy of OZ oil in reducing temporalis muscle tenderness.[8, 9]

On the other hand, the mean on the left side of the masseter muscle was 1.031±32 in the first visit and gradually decreased to 0.160±37 in group I subjects, while in the group II, the mean was found to be 1.101±32 and 0.030±18 in the first and fifth visits, respectively, and was found to be statistically significant with a p value of 0.001.

Similarly, it was discovered that during the first sessions of therapy, the tenderness score of the right masseter muscle between groups I and II revealed p values of 0.146 and 0.846, which was statistically non-significant.(table 2)

However, in both therapy groups, a statistically significant improvement was seen in the subsequent visits with a p value of 0.019, which was consistent with research conducted by Arora et al. in 2001 and Lehri S et al in 2020.[5,9]

Table 2: Two Groups In The Masseter Muscle Were Observed In Multiple Visit

		Visit I	Visit II	Visit III	Visit IV	Visit V
Masster-Right	Group I	0.93±1.28	0.80±1.12	0.63±0.88	0.40±0.56	0.16±0.37
	Group II	1.43±1.47	0.90±0.95	0.53±0.57	0.30±0.46	0.00±0.00
	P value	0.146 (NS)	0.713(NS)	0.606(NS)	0.457 (NS)	0.019 (Sig)
Masseter-Left	Group I	1.03±1.32	0.86±1.13	0.70±0.91	0.43±0.56	0.16±0.37
	Group II	1.10±1.32	0.76±0.93	0.43±0.56	0.30±0.46	0.03±0.18
	P value	0.846(NS)	0.711 (NS)	0.180 (NS)	0.325 (NS)	0.019 (Sig)

In the current investigation, it was discovered that group I had mean scores of tenderness in the trapezius muscle that were 0.200±76 and 0.030±18 on the first and fifth visits, respectively. Similar to group I, group II saw a reduction in the variable from 0.200±76 to 0.000±00 with a p value of 0.321, which is non-significant on the right side.

On the left side, it indicated that the first visit and fifth visit were respectively 0.100±54 and 0.030±18. Similar results were found in group II, where 0.300±91 was lowered to 0.000±00 and was on-significant with a p value of 0.321.

The authors attributed the effectiveness of ozone oil to its anti-inflammatory and analgesic effects. The variation in efficacy of Ozonated Olive Oil and Ozonated Sesame Oil is because of their variation in consistency, penetration etc. Owing to its thick consistency, ability to penetrate muscles and heat releasing action, results obtained in patients subjected to Ozonated Sesame Oil therapy are found to be better when compared to patients in other study group.[9,10]

IV. CONCLUSION

Masticatory and auxiliary muscle pain and tenderness over the TMJ can be treated non-invasively using ozone oil. Our study found that OZ (sesame oil and seasame oil) had a notable impact, demonstrating that it is a unique strategy that is simple to implement and might be utilised as a home treatment for musculoskeletal conditions affecting the temporomandibular joint.

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