

ORIGINAL ARTICLE

Efficacy of Hyaluronidase in Management of OSMF- A Clinical Study

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ABSTRACT:

Background: Oral submucous fibrosis (OSF) is a premalignant disorder associated with the chewing of areca nut (betel nut). The present study was conducted to assess the effectiveness of Hyaluronidase OSMF. **Materials & Methods:** The present study was conducted on 48 patients of OSMF of both genders (males- 32, females- 16). General information such as name, age, gender etc. was recorded. Patients were put on 1500 IU of Hyaluronidase. In all patients, mouth opening was measured before and after treatment. Pain was measured on VAS before and after treatment. **Results:** Out of 48 patients, male were 36 and females were 12. Mouth opening before treatment was 26.8 mm, at 1 month was 35.2 mm and at 3 months was 40.6 mm. The difference was significant ($P < 0.05$). Mean burning sensation on VAS score was 7.2 before treatment, 5.4 at 1 month and 2.3 at 3 months. The difference was significant ($P < 0.05$). **Conclusion:** Authors found significant improvement in mouth opening and reduction in burning sensation with hyaluronidase.

Key words: Burning, Hyaluronidase, OSMF

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This article may be cited as: Kumari A, Roy S. Efficacy of Hyaluronidase in Management of OSMF- A Clinical Study. J Adv Med Dent Scie Res 2016;4(6):299-301.

INTRODUCTION

OSMF is a potentially malignant disease of the oral cavity. It is defined as insidious, chronic disease that affects any part of the oral cavity and sometimes the pharynx. Although occasionally preceded by, or associated with, formation of vesicles, it is always associated with a juxtaepithelial inflammatory reaction followed by fibroelastic change of the lamina propria and epithelial atrophy that leads to stiffness of the oral mucosa and causes trismus and an inability to eat.¹

It causes significant morbidity (in terms of loss of mouth function as tissues become rigid and mouth opening becomes difficult) and mortality (when transformation into squamous cell carcinoma occurs). The introduction of chewing tobacco containing areca nut into the market has been associated with a sharp increase in the frequency of OSMF. It is very common in Southeast Asia but has started to spread to Europe and North America.²

At first, OSMF was thought to be idiopathic, but it was later suggested to be multifactorial in origin. OSMF can lead to squamous cell carcinoma, a risk that is further increased by concomitant tobacco consumption. OSMF is a diagnosis based on clinical symptoms and confirmation by histopathology. Hypovascularity leading to blanching of the oral mucosa, staining of teeth and gingiva, and trismus are major symptoms. Major constituents of betel quid are

arecoline from betel nuts and copper, which are responsible for fibroblast dysfunction and fibrosis. A variety of extracellular and intracellular signaling pathways might be involved.³

The management of OSMF can be divided into 3 broad groups: medical treatments, physical, and surgical. Hyaluronidase acts by breaking down hyaluronic acid, the ground substance of connective tissue, thereby decreasing the viscosity of intracellular cement substance.⁴ The present study was conducted to assess the effectiveness of Hyaluronidase OSMF.

MATERIALS & METHODS

The present study was conducted in the Department of Oral pathology. It comprised of 48 patients of OSMF of both genders (males- 32, females- 16). Institutional clearance was obtained prior to the study. All patients were informed regarding the study and written consent was taken.

General information such as name, age, gender etc. was recorded. Patients were put on 1500 IU of Hyaluronidase. In all patients, mouth opening was measured before and after treatment. Pain was measured on VAS before and after treatment. Results were subjected to statistical analysis. P value less than 0.05 was considered significant.

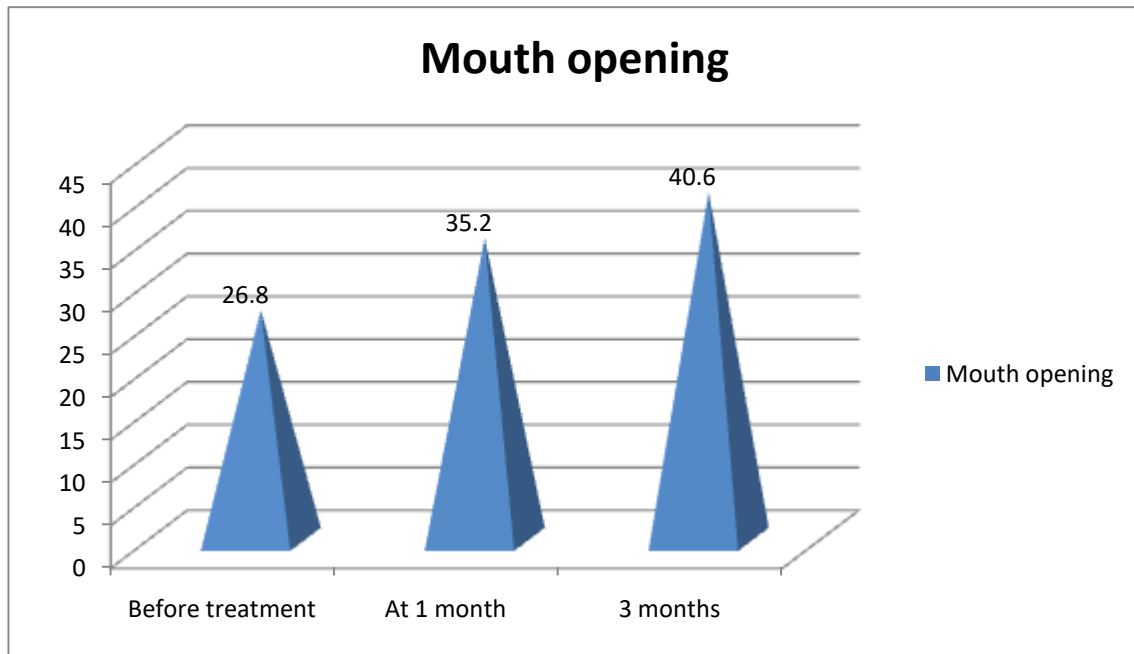
RESULTS

Table I Distribution of patients

Total- 48		
Gender	Male	Female
Number	36	12

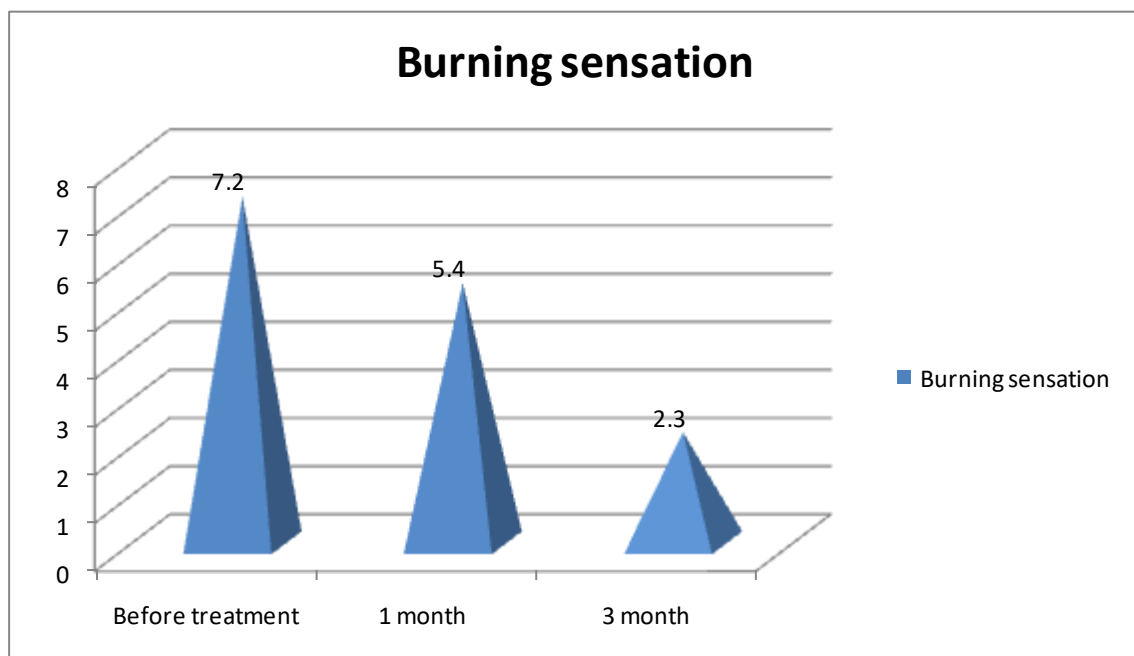
Table I shows that out of 48 patients, male were 36 and females were 12.

Graph I Mouth opening before and after treatment



Graph I shows that the mouth opening before treatment was 26.8 mm, at 1 month was 35.2 mm and at 3 months was 40.6 mm. The difference was significant ($P < 0.05$).

Graph II Burning sensation before treatment and after treatment



Graph II shows that mean burning sensation on VAS score was 7.2 before treatment, 5.4 at 1 month and 2.3 at 3 months. The difference was significant ($P < 0.05$).

DISCUSSION

Oral submucous fibrosis (OSF) is a premalignant disorder associated with the chewing of areca nut (betel nut). Approximately 600 million persons are betel chewing, with a hot spot throughout the Western Pacific basin and South Asia. This makes betel the fourth most-consumed drug after nicotine, ethanol, and caffeine. Betel is composed of the areca nut (*Areca catechu*), the fresh leaf of betel pepper (*Piper betle*), spices, and calcium hydroxide (lime).⁵ Pan masala is a quid of piper betel leaf. Mawa is a mixture of tobacco, lime, and areca nut. Chewing tobacco or guthka became very popular, and betel chewers often also used guthka. However, guthka has recently been officially banned from the Indian market, but chewing tobacco-containing betel quid has become one of the most popular habits in South Asia.⁶

Intralesional injections of drugs like dexamethasone, triamcinolone, hyaluronidase and placental extract have shown relief from the symptoms and improvement in the mouth opening in patients with OSMF. The present study was conducted to assess the effectiveness of Hyaluronidase OSMF.

We observed that out of 48 patients, male were 36 and females were 12. The mouth opening before treatment was 26.8 mm, at 1 month was 35.2 mm and at 3 months was 40.6 mm. Rattan et al.⁷ in their study found significant improvement in mouth opening before, at 1 month and at 3 months of interval.

We assessed burning sensation in patients. The mean burning sensation on VAS score was 7.2 before treatment, 5.4 at 1 month and 2.3 at 3 months. Kakkar et al.⁸ evaluated the efficacy of hyaluronidase and dexamethasone combination in the treatment of OSMF and observed reduction in burning sensation.

It has been found that hyaluronidase causes breakage and dissolution of fibrous bands thus providing relief from the condition. It is suggested that hyaluronidase may be capable of providing better results in patients with restricted mouth opening.⁸ Studies reveal that hyaluronidase attacks quickly on collagen from OSMF patients than on normal collagen. Hyaluronidase degrades the hyaluronic acid matrix, lowers the thickness of intracellular cemental substances as well as activating definite plasmatic mechanisms. As a result, acquittal of trismus may be expected through softening and diminishing of fibrous tissue.⁹

Khare et al.¹⁰ conducted a study on 84 oral submucous fibrosis patients. In group 1, intralesional dexamethasone and hyaluronidase was used and in group 2, intralesional triamcinolone acetonide and hyaluronidase was used.

The efficacy was assessed by comparing improvement in mouth opening with the help of Vernier caliper and relief of burning mouth sensation was assessed with the help of visual analog scale (VAS). There was improvement in the burning sensation and in mouth opening in both groups, however, the combination of triamcinolone acetonide and hyaluronidase gave better results as compared to that of dexamethasone and hyaluronidase.

CONCLUSION

Authors found significant improvement in mouth opening and reduction in burning sensation with hyaluronidase.

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Source of support: Nil

Conflict of interest: None declared

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