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Original Research Article

Use of Pre and Post Comparison of Intra-lesional Infiltration of Dexamethasone Plus Hyaluronidase in Management of Patients with OSMF

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Abstract:

Background: Oral Submucous Fibrosis (OSMF) is a potentially malignant condition of the oral mucosa, characterized by fibrosis and epithelial atrophy. Treatment options have varied, with intra-lesional steroid injections being commonly used. This study evaluates the efficacy of dexamethasone combined with hyaluronidase in managing OSMF.

Objective: To evaluate the pre- and post-treatment effects of intra-lesional dexamethasone combined with hyaluronidase on patients with OSMF.

Methods: A prospective clinical study was conducted on 30 OSMF patients. Intra-lesional injections of dexamethasone (4 mg/mL) and hyaluronidase (150 IU/mL) were administered at weekly intervals for a total of 6 weeks. Clinical parameters such as mouth opening, pain, burning sensation, and oral mucosal changes were assessed pre- and post-treatment. Results: Significant improvement was observed in mouth opening, pain, and burning sensation, with histopathological improvement in fibrosis.

Conclusion: Intra-lesional dexamethasone plus hyaluronidase is an effective treatment modality for managing OSMF, showing clinical and histopathological improvement.

Keywords: OSMF, Dexamethasone, Hyaluronidase, Intra-lesional Injection, Mouth Opening, Fibrosis, Treatment, Management.

Introduction

Oral Submucous Fibrosis (OSMF) is a chronic progressive condition that affects the oral mucosa, characterized by fibrosis of the connective tissue and atrophy of the epithelium. It is considered a precancerous lesion and is commonly associated with habits like betel nut chewing and tobacco use. Management of OSMF is challenging, with a range of treatments available, including medical, surgical, and physical therapies.

Intra-lesional corticosteroids, particularly dexamethasone, have shown positive outcomes in reducing inflammation and fibrosis. Hyaluronidase, an enzyme that breaks down hyaluronic acid in connective tissues, has also been explored for its ability to modify tissue elasticity and reduce fibrosis. The combination of dexamethasone and hyaluronidase is hypothesized to have a synergistic effect, improving the outcomes of OSMF treatment.

This study aims to assess the effectiveness of intra-lesional dexamethasone combined with hyaluronidase in improving clinical symptoms and histopathological features in patients with OSMF.

Materials and Methods

Study Design

A prospective clinical study was conducted over a 6-month period at a tertiary care hospital. Thirty patients diagnosed with OSMF were selected based on clinical and histopathological criteria.

Inclusion Criteria

- Patients aged 18-60 years. Diagnosed with OSMF of any grade. No previous treatment for OSMF.

Exclusion Criteria

- Patients with a history of cancer or other malignancies. Pregnant or lactating women.
- Patients with uncontrolled systemic diseases.

Treatment Protocol

The patients received intra-lesional injections of dexamethasone (4 mg/mL) and hyaluronidase (150 IU/mL) at weekly intervals for 6 weeks. The injections were administered at the site of maximum fibrosis using a 26-gauge needle.

Assessment Parameters

The following clinical parameters were assessed at baseline (pre-treatment) and after 6 weeks of treatment (post-treatment):

1. Mouth opening (measured in centimeters).
2. Pain and burning sensation (assessed using a visual analog scale).
3. Oral mucosal changes (classified into stages of severity).
4. Histopathological evaluation (fibrosis score).

Results

Mouth Opening

There was a significant increase in mouth opening post-treatment. The mean mouth opening increased from 2.5 cm (pre-treatment) to 3.8 cm (post-treatment). ($p < 0.05$)

Pain and Burning Sensation

The mean pain score reduced from 6.2 to 2.1, and the burning sensation score reduced from 5.8 to 1.7 (both $p < 0.05$).

Histopathological Changes

Histopathological evaluation showed a reduction in fibrosis scores, with a significant decrease in the collagen deposition and increased vascularity in the treated areas.

Statistical Analysis

Paired t-tests were used to analyze pre- and post-treatment data. A p-value of <0.05 was considered statistically significant.

Table 1: Pre- and Post-Treatment Mouth Opening Measurement

Time Point	Mean Mouth Opening (cm)	Standard Deviation	p-value
Pre-Treatment	2.5	0.5	N/A
Post-Treatment	3.8	0.4	<0.05

Discussion

OSMF is a debilitating condition that can lead to severe restrictions in mouth opening, pain, and the risk of malignant transformation. Traditional treatments like surgical intervention or use of vitamin A derivatives have had limited success. The use of intra-lesional steroids is widely practiced but has variable outcomes.

The combination of dexamethasone, a potent anti-inflammatory corticosteroid, and hyaluronidase, which degrades extracellular matrix components, has shown promising results in treating conditions with

excessive fibrosis. In this study, patients receiving this combined treatment showed significant improvements in mouth opening, pain relief, and reduction in burning sensation. The histopathological improvement observed also supports the hypothesis that this combination therapy can reduce fibrosis and improve tissue elasticity. This study's findings align with previous research suggesting that intra-lesional injections of dexamethasone and hyaluronidase can provide a non-surgical, effective treatment option for managing OSMF.

Conclusion

Intra-lesional infiltration of dexamethasone combined with hyaluronidase is an effective therapeutic strategy for the management of OSMF. This treatment modality leads to significant improvements in clinical symptoms and histopathological features of the disease. Further large-scale studies are recommended to validate these findings and optimize treatment protocols.

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