

## Original Research Article

# Comparative study of intralesional injection of triamcinolone versus placental extract in cases of oral submucous fibrosis

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## ABSTRACT

**Background:** Oral submucous fibrosis (OSMF) is a common premalignant condition caused by chewing arecanut, betel quid and gutkha with tobacco. One of the important therapeutic modalities is intralesional injection therapy. The most commonly used intralesional agents are placental extract, corticosteroids and hyaluronidase.

**Methods:** Patients of OSMF (30) were randomly allocated and 15 patients were given 1 ml placental extract submucosally in each retromolar trigon weekly for 8 weeks and 15 patients were injected with 40 mg/ml of triamcinolone submucosally on each side weekly for 8 weeks. The mouth opening was measured as the inter-incisor distance by Vernier calliper at maximal active mouth opening by patient at initial visit and every follow up visit and recorded. Treatment outcome was evaluated on the basis of improvement in trismus, oral mucosal pattern and reduction in burning sensation.

**Results:** Out of 30 patients, 27 were males and 3 females. 16 patients (53.33%) were in the age group of 21-30 years. Most of patients in our study had complain of reduced mouth opening and inability to take spicy food which is 93.33% of cases followed by burning sensation in mouth 90%, oral ulceration 83.33%, dryness of mouth 30%, difficulty/pain in swallowing 13.33% and halitosis 2%. 60% of patients mouth opening was improved >10 mm with triamcinolone while in placental extract 26.6%. Symptomatic relief were obtained more with injection placental extract.

**Conclusions:** Triamcinolone injection has more improvement in mouth opening compared to placental extract. It was observed that injection placental extract gives good symptomatic relief in the major symptoms like burning sensation in mouth, inability to take spicy food, oral ulceration compared to injection triamcinolone.

**Keywords:** Oral submucous fibrosis, Triamcinolone acetate, Placental extract injection, Reduced mouth opening

## INTRODUCTION

Oral sub mucous fibrosis (OSMF) is a chronic, premalignant condition of the oral mucosa which was first described by Schwartz defined OSMF as, “an insidious, chronic disease affecting any part of the oral cavity and sometimes the pharynx.”<sup>1,2</sup> Although occasionally preceded by and/or associated with vesicle formation, it is always associated with juxta-epithelial

inflammatory reaction followed by fibro-elastic change of the lamina propria, with epithelial atrophy leading stiffness of the oral mucosa and causing trismus and inability to eat”.<sup>3,4</sup> OSMF is a potentially malignant disease of the oral cavity associated with areca nut chewing.<sup>5</sup>

The management of OSMF has been a subject of controversy.<sup>6</sup> Several therapeutic and surgical methods

have been tried in the treatment of OSMF. These treatment modalities include antioxidants, iron supplements, curcumin, steroids, placental extract, fibrinolytic agents and also include surgical elimination of the fibrotic bands.

The main goal of the treatment of OSMF is to reduce trismus and burning sensation. One of the important therapeutic modalities is intralesional injection therapy. The most commonly used intralesional agents are placental extract, corticosteroids and hyaluronidase. The mechanism of action and therapeutic efficacy vary from one drug to another and their combinations used.<sup>1</sup> We embarked on this study to compare the therapeutic efficacy of two drug regimens namely intralesional injection triamcinolone v/s placental extract for the treatment of OSMF. Placental extract contains growth factors and anti-inflammatory agents and also has antiplatelet activity.<sup>7</sup> Its use is based on the method of "tissue therapy" introduced by Filatov in 1933 and later in 1953.<sup>8</sup> Triamcinolone acetate suppresses immune system by reducing activity and volume of lymphatic system.<sup>9,10</sup> It heals inflammatory mucosal lesions that are responsive to steroids. Decreases inflammation by suppressing the migration of polymorphonuclear leukocytes and by reversing capillary permeability.

**METHODS**

This is a longitudinal study carried out in the Department of ENT at Smt S.C.L. Hospital, Saraspur, Ahmedabad, from December 2016 to December 2018.

All patients diagnosed clinically with OSMF were included in our study. Patients who were currently smoking or tobacco chewing were excluded from our study. The data collected was stored in Microsoft Excel sheets and descriptive analysis was done (average, percentage).

Diagnosis of OSMF was based on palpation of fibrous bands along with other clinical features like intolerance to spicy food, burning sensation in the mouth, presence of vesicles, blanching and stiffness of the oral mucosa and progressive inability to open the mouth.

All the patients divide into various grades as per Lai et al according to mouth opening.<sup>11</sup> grade 1: mouth opening 35 mm or more, grade 2: mouth opening between 30 mm to 35 mm, grade 3: mouth opening 20 mm to 30 mm and grade 4: mouth opening less than 20 mm.

Routine blood investigations like haemoglobin and serum B12 were taken. The mouth opening was measured as the inter-incisor distance by Vernier calliper at maximal active mouth opening by patient at initial visit and every follow up visit and recorded.

The patients were randomly divided into two treatment categories. 15 patients were injected 1 ml of placental

extract submucosally in each retromolar trigon weekly for 8 weeks and 15 patients were injected 40 mg/ml of triamcinolone submucosally on each side weekly for 8 weeks.

The micronutrients were given for eight weeks. The submucosal injections were given weekly for eight weeks and the patients were followed up weekly for eight weeks. All the patients were followed up for longer periods when possible. The submucosal injections were injected with a 26-gauge needle insulin syringe (grade 1 to 3) and with 25 gauge spinal needle (grade 4).

**RESULTS**

Out of these thirty patients, 76% of the patients were less than 30 years of age.

Twenty percent of the patients were in the age range of 31-40, and the rest of the 3.33% patients were above the age of 40 years (Table 1).

**Table 1: Age incidence (n=30).**

Age (year)	Number of patients	Percentage
11-20	7	23.33
21-30	16	53.33
31-40	6	20.00
41-50	1	3.33
<b>Total</b>	<b>30</b>	<b>100</b>

**Table 2: Sex incidence (n=30).**

Sex	Number of patients	Percentage
<b>Male</b>	<b>27</b>	<b>90</b>
<b>Female</b>	<b>3</b>	<b>10</b>

27 of all the patients presenting with OSMF in this study are males, the rest 3 being females (Table 2). The high percentage of males may be because males have taken up addiction habits more than females in the society. It was also seen that males were more addicted to gutkha and areca nut with lime, while females were more addicted to betel quid and gutkha.

Most of the patients of OSMF present with inability to take spicy food and complain of reduced mouth opening followed by burning sensation in oral cavity, recurrent oral ulcer and dryness in mouth (Table 3).

Most of the patients present with the complaint of difficulty in opening the mouth (93.33%) and inability to take spicy food (93.33%) followed by burning in the mouth (90%). The next most frequent complaint was oral ulcers (83.33%) and dryness of mouth (30%). Fewer patients presented with halitosis, difficulty in swallowing.

The most common addiction in the region is gutkha consisting 50% of cases. It is followed by gutkha mixed

with arecanut and tobacco (masala) chewing, comprising of 40% of the patients, only areca nut and tobacco (pan masala) (6.6%) and arecanut (3.3%). Smoking has not been included in the classification, as it has been shown that it is not very significant in the pathogenesis of OSMF though it has been shown to increase the carcinogenic potential of OSMF (Table 4).

**Table 3: Presenting symptoms (n=30).**

Symptoms	Number of patients	Percentage
Reduced mouth opening	28	93.33
Inability to take spicy food	28	93.33
Burning in mouth	27	90
Oral ulcers	25	83.33
Dryness of mouth	9	30
Difficulty/pain in swallowing	4	13.33
Halitosis	2	6.6
Altered taste	0	-

Approximately 35% of the patients chewing ‘gutkha’ had mouth opening less than 20 mm, which is highly

significant. The category of patients who used ‘gutkha’ with others showed the highest rate (58%), followed by the group chewing areca nut with tobacco and gutkha. Out of the ten patients chewing areca nut, none had mouth opening less than 20 mm. The category of patients chewing other agents along with betel quid also did not show marked decreased mouth opening (Table 5).

In the recent years there is an increase in the consumption of gutkha, pan masala, which was commercially introduced in the 1970's, marketed in various brands in attractive packages and is readily available throughout the region. As mentioned on the packaging, each pouch contains 4-5 grams of material, composing of a dried mixture of areca nut (70-80% dry weight), catechu (10%), lime (1%), menthol, sandal oil and undissolved flavouring agents, with or without tobacco, known carcinogens have also been extracted from the pouches.

The factors responsible for the increased severity and early onset in persons chewing gutkha are the absence of betel leaf and its carotenes, which have been shown to be protective, and the much higher dry weight of areca nut in pan masala and gutkha. Also pan masala is chewed by a comparatively younger age group and is associated with OSMF changes earlier than areca nut/ betel quid chewing.

**Table 4: Habits in detail with severity of OSMF (n=30).**

Habits	Grade 1 >35 mm	Grade 2 30-35 mm	Grade 3 20-30 mm	Grade 4 <20 mm	N	%
Gutkha chewing	-	3	6	6	15	50
Areca nut chewing	-	1	-	-	1	3.33
Areca nut + tobacco (pan masala)	1	-	-	1	2	6.6
Gutkha + areca nut + tobacco (masala)	-	-	2	10	12	40
Total (no.)	1	4	8	17	-	-
(%)	3.3	13.33	26.66	56.66	-	100

**Table 5: Patients having mouth opening <20 mm compared with addiction (n=30).**

Addiction	Inter incisor distance <20 mm	%
Gutkha chewing	6	35.29
Areca nut chewing	0	-
Areca nut + tobacco chewing (pan masala)	1	5.88
Gutkha + areca nut + tobacco (masala)	10	58.82
Total	17	100

**Table 6: Mouth opening at presentation (n=30).**

Mouth opening(mm) grade	Number of patients	Percentage
Grade 1 (>35 mm)	1	3.33
Grade 2 (30-35 mm)	4	13.33
Grade 3 (20-30 mm)	8	26.63
Grade 4 (<20 mm)	17	56.66
Total	30	100.00

**Table 7: Results in mouth opening with both treatment regimen (n=30).**

Type of modality	Mouth opening		
	>10 mm	5-10 mm	<5 mm
<b>Triamcinolone acetonide</b>	9	6	0
<b>Improvement in % (triamcinolone)</b>	60	40	-
<b>Placental extract</b>	4	8	3
<b>Improvement in % (placental extract)</b>	26.66	53.33	20

**Table 8: Symptomatic improvement after treatment (%).**

Symptoms	Triamcinolone acetonide			Total (100%)	Placental extract			Total (100%)
	Good	Fair	Poor		Good	Fair	Poor	
<b>Burning sensation</b>	7	6	0	13	13	2	0	15
<b>Inability to take spicy food</b>	5	8	0	13	11	4	0	15
<b>Oral ulcers</b>	3	8	0	11	10	4	0	14
<b>Dryness of mouth</b>	4	3	0	7	2	0	0	2
<b>halitosis</b>	0	0	0	0	2	0	0	2
<b>Difficulty in swallowing</b>	1	1	0	2	2	0	0	2

Most of the patients had mouth opening in less than 20 mm (56.67% patients). Only eight patients (26.67%) in this study had mouth opening in range from 20-30mm and 4 (13.33%) patient had mouth opening from 30-35mm and only 1 (3.33%) patient had mouth opening greater than 35 mm (Table 6).

60% of patients improved their mouth opening by >10 mm at the end of treatment of submucosal injection of triamcinolone acetonide and 26.66% of improvement from injection placental extract. 40% of patient improved their mouth opening 5-10 mm from triamcinolone and 53.33% from placental extract and less than 5% improvement of reduced mouth opening was seen in placental extract only (Table 7). Triamcinolone injection has more improvement in mouth opening compared to placental extract.

At the end of weekly intralesional injection for 8 weeks symptomatic relief is categorized in the good, fair and poor according to patients' satisfactions (Table 8). Follow up were done of patients for various symptoms as shown in table good symptomatic relief from injection placental extract compared to injection triamcinolone. It was observed that injection placental extract gives good

symptomatic relief in the major symptoms like burning sensation in mouth, inability to take spicy food oral ulceration compared to injection triamcinolone.

## DISCUSSION

OSMF has a reported prevalence of 0.2-0.5 in India, more than 2.5 million individuals are estimated to suffer from this condition.<sup>2</sup> The young are more commonly affected, with several investigators showing that the proportion of young people affected are increasing, mostly because of the increase in the use of gutkha by them at a younger age. Increasing number of children may be affected in the future as children are taking up the habit schools by watching peer groups. The previous studies have also shown male preponderance.<sup>4</sup> In the recent years there is an increase in the consumption of gutkha, pan masala, which was commercially introduced in the 1970's, marketed in various brands in attractive packages and is readily available throughout the region. As mentioned on the packaging, each pouch contains 4-5 grams of material, composing of a dried mixture of areca nut (70-80% dry weight), catechu (10%), lime (1%), menthol, sandal oil and undissolved flavouring agents., with or without tobacco, known carcinogens have also been extracted from the pouches.

**Table 9: A comparison of results in mouth opening with other study.**

Study	Year	Number of patient	Improvement in mouth opening (mm)
<b>Naik et al (group A triamcinolone and group B placental extract)<sup>12</sup></b>	2012	60	19.7 mm in group A 17.97 mm in group B
<b>James et al (1500 IU hyaluronidase+1.5 dexamethasone+0.5 lignocaine)<sup>13</sup></b>	2014	28	6±2 mm (4 weeks follow up)
<b>Present study (group A triamcinolone and group B placental extract)</b>	2019	30	11.06±3.4 mm in group A 9.2±5.2 mm in group B

Table 9 compares the results of various previous studies. As can be seen in the table, intra-lesional triamcinolone injection significantly improves the mouth opening post operatively and upto 4 weeks of follow up.

## CONCLUSION

Injection triamcinolone effectively alleviate reduced mouth opening than injection placental extract with physiotherapy. Injection placental extract gives more symptomatic relief than injection triamcinolone in symptoms like burning sensations in mouth, inability to take spicy food and oral ulcerations. Physiotherapy is essential along with intralesional injections for better symptomatic relief and to improve reduced mouth opening.

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