

# Comparison of Surgical Excision versus Corticosteroid Therapy for the Treatment of Mucocele in Oral Cavity

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Received: October 2020

Accepted: October 2020

## ABSTRACT

**Background:** Mucocele is a clinical expression used to portray a swelling caused by pooling of saliva from a severed or blocked minor salivary gland duct. It is a self-limiting mucous containing cyst of salivary glands generally happening in the oral cavity, with relatively quick onset and with unpredictable size. This study carried out to compare the outcomes of using two treatment protocols (surgical excision versus corticosteroid therapy) for treatment of mucocele in oral cavity. **Methods:** This is a Comparative study conducted at Oral and Maxillofacial Surgery Department of Liaquat University of Medical & Health Sciences, Jamshoro/Hyderabad, Pakistan from March 2018 to February 2019. Total 58 patients were distributed into two groups (A & B), in Group A patients were treated surgically and in Group B with corticosteroid injections. All patients were re-examined on 3rd and 7th day to assess their responses and to provide 2nd & 3rd injection to them. **Results:** Males were in majority in both groups as compared to females. In group-A, mean age was 30.724+6.12 years and in group-B mean age was 2 27.137+6.90 years. In Group A moderate pain was found in majority of the cases 21(72.4%), followed by mild pain in 5(17.2%) patients and severe pain was in 3(10.3%) of the patients, while in Group B 6(20.7%) patients reported no pain, 20(69.0%) had mild pain and 3(10.3%) had moderate pain and no severe pain was found in any case. On day 3 and 7 pain and swelling were markedly decreased in both groups. **Conclusion:** Dexamethasone injection is a cost-effective, repeatable, simple and feasibly curative treatment method that can be a preferable choice for practitioners for management of mucocele of oral cavity.

**Keywords:** Oral Mucocele, Corticosteroid Therapy, Surgical Excision, Outcome

## INTRODUCTION

Mucocele is defined as mucus filled cyst that can appear in the oral cavity.<sup>[1]</sup> They present as fluctuant, bluish, non-tender sub mucosal swelling with a normal overlying mucosa.<sup>[2]</sup> Mucocele is the most common lesion of the oral mucosa, which results from the buildup of mucous discharge due to trauma and lip biting habits or alteration of minor salivary glands.<sup>[3]</sup> Two types of mucocele can emerge in oral cavity i.e extravasation and retention. Extravasation mucocele results from trauma to salivary gland duct and the consequent spillage into the soft tissue around the gland. Physical trauma causes leakage of salivary secretion into surrounding sub mucosal tissue. Retention mucocele appears due to decrease or absence of glandular secretion produced by blockage of the salivary gland ducts.<sup>[4,5]</sup> Clinically, it appears as a soft, discrete, nonpainful

swelling of the mucosa. The lesion has no sex predilection and occurs more frequently in children, adolescents, and young adults.<sup>4</sup> The lower lip is the most frequent site of involvement, but it can develop at virtually any location where minor salivary glands occur, including the soft palate, retromolar region, and buccal mucosa. Mucocele can arise within a few days after minor trauma, but then plateau in size. They can persist unchanged for months unless treated.<sup>[6]</sup> The diameter may range from a few millimeters to a few centimeters. If left without intervention, an episodic decrease and increase in size may be observed, based on rupture and subsequent mucin production.<sup>[7]</sup>

There are various treatment modalities which include surgery, laser ablation, cryosurgery, sclerotherapy, micromarsupialization, laser surgery, and intralesional injection of sclerosing agent or corticosteroid. Although surgery is widely used, it has several disadvantages such as lip disfigurement and damage to adjacent ducts with further development of satellite lesions.<sup>[8]</sup>

Considering this background, the present study was undertaken to evaluate the outcome of intralesional corticosteroid injection (dexamethasone) as a

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nonsurgical treatment procedure in managing oral mucoceles versus surgical removal of lesion.

### MATERIALS AND METHODS

This is comparative study conducted at Department of Oral & Maxillofacial surgery Institute of Dentistry Liaquat University of Medical and Health sciences Jamshoro Hyderabad from March 2018 to February 2019.

**Sample Size:** The sample size was calculated by using epi online calculator by taking the following parameters.

Sample size = 58 Patients

Group A = Surgical excision (29 Patients)

Group B = Corticosteroid therapy (29 Patients)

**Inclusion Criteria:**

- Either gender
- Patient age range from 10 to 45 years
- Patients diagnosed with mucocele on lower lip.

**Exclusion Criteria:**

- Immunocompromised patient.
- Pregnant patient.
- Mucocele with fibrous consistency.
- Mucocele with traumatized surface and pedunculated base.
- Mucocele with history of earlier surgical intervention.
- Mucocele found on palate, buccal mucosa, tongue, floor of mouth.

**Data Collection Procedure**

Patients fulfilling the inclusion criteria and those who were willing to participate were included in the study. An informed written consent was taken before enrollment. The demographic and clinical parameters like age, gender, pain, medical history, procedure of removal of mucocele were identified and recorded in proforma. The history, clinical examination and investigation was performed by principal investigator or supervisor. Preoperative assessment of pain using VAS from zero (no pain) to 10 (worst pain imaginable) associated with lower lip mucocele was performed. Patients were divided into Group A and Group B, in group A patients were treated surgically and in group B with corticosteroids injections. After selection of patient into either group, the standard protocol of preparation and draping was done and all surgeries were performed under the supervision of supervisor, under local anesthesia.

In group A, The surgical site was prepared by applying the local anesthesia using scalpel blade no. 15 by placing an incision circumferentially, then lesion was resected from the base, the surgical wound was left open without suture and topical anesthesia was prescribed to applied on the surgical

wound. Patients were recalled on 3<sup>rd</sup> and 7<sup>th</sup> day to check the wound healing.

In group B, 1 ml of 8mg/ml dexamethasone by insulin needle was injected into base of lesion to prevent any leakage and less discomfort and pain, no local anesthesia was given. Each patient received three consecutive shots with one week interval, all patients were reexamined on days 3<sup>rd</sup> and 7<sup>th</sup> day to evaluate their response and apply them 2nd and 3rd injections. Size of lesion was measured by means of a dental caliper.

**Data Analysis Procedure:**

The Data will be analyzed by statistical software package SPSS version-20. Qualitative variables will be expressed as absolute frequencies and percentages. Descriptive statistics including patient's age, gender, medical history, and procedure of removal of mucocele, intraoperative and postoperative complications were calculated by t-test. P value of less than 0.05 will be considered statistically significant.

### RESULTS

**Table 1: Patient distribution according to age**

Age	Mean + Std. Deviation	P-value
Group A	30.724+6.71	0.050
Group B	27.137+6.90	

Group A= Surgical excision

Group B= Corticosteroid therapy

**Table 2: Patient distribution according to gender.**

Gender	Study groups		P-value
	Group A	Group B	
Male	19 (65.5%)	21 (72.4%)	0.570
Female	10 (34.5%)	8 (27.6%)	
Total	29 (100.0%)	29 (100.0%)	

Group A= Surgical excision

Group B= Corticosteroid therapy

**Table 3: Patient distribution according to pain 3rd day.**

Pain day 3	Study groups		P-value
	Group A	Group B	
No pain	12 (41.4%)	18 (62.1%)	0.171
Mid	15 (51.7%)	8 (27.6%)	
Moderate	2 (6.9%)	3 (10.3%)	
Severe	0 (0.0%)	0 (0.0%)	
Total	29(100.0%)	29(100.0%)	

**Table 4: Patient distribution according to pain 7th day**

Pain day 7	Study groups		P-value
	Group A	Group B	
No pain	27 (93.1%)	27 (93.1%)	1.000
Mid	2 (6.9%)	2 (6.9%)	
Moderate	0 (0.0%)	0 (0.0%)	
Severe	0(0.0%)	0(0.0%)	
Total	29(100.0%)	29(100.0%)	

Total 58 patients were studied, and divided in two groups, mean age of group A was 30.724+6.12

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years and mean age of group B was 27.137±6.90 years, mean age was statistically significant among both groups. 0.050, results showed in [Table 1].

In group A males were 19 (65.5%) and females were 10 (34.5%), in group B males were 21 (72.4%) and females were 8 (27.6%), males were more in both groups as compared to females and findings were statistically insignificant p-value 0.570, results showed in [Table 2].

**Table 5: Patient distribution according to swelling 3rd day**

Swelling day 3 4-6mm	Study groups		P-value
	Group A	Group B	
Yes	15 (51.7%)	3 (10.3%)	0.001
No	14 (48.3%)	26 (89.7%)	
Total	29 (100.0%)	29 (100.0%)	

**Table 6: Patient distribution according to swelling 7th day**

Swelling day 7 7-9mm	Study groups		P-value
	Group A	Group B	
Yes	4 (13.8%)	0 (0.0%)	0.038
No	25 (86.2%)	29 (100.0%)	
Total	29 (100.0%)	29 (100.0%)	

**Table 7: Patient distribution according to dehiscence 3rd day**

Dehiscence day 3	Study groups		P-value
	Group A	Group B	
Yes	2 (6.9%)	0 (0.0%)	0.150
No	27 (93.1%)	29 (100.0%)	
Total	29 (100.0%)	29 (100.0%)	

**Table 8: Patient distribution according to dehiscence 7th day**

Dehiscence day 7	Study groups		P-value
	Group A	Group B	
Yes	0 (0.0%)	1 (3.4%)	0.313
No	29 (100.0%)	28 (96.6%)	
Total	29 (100.0%)	29 (100.0%)	

On day three pain was decreased as 15(51.7%) patients had mild pain and 2(6.9%) patients had moderate pain while in 12(41.4%) patients had no pain. In group B 8(27.6%) patients had mild pain, 3(10.3%) patients had moderate pain and majority of the patients 18(62.1%) had no pain, while no any cases of severe pain was found in both groups, findings were statistically insignificant, p-value 0.171, [Table 3] On day 7 pain was markedly decreased in both groups, only 2(6.9%) patients of each group showed mild pain, no moderate or severe pain was found in both groups, p-value 1.000, [Table 4].

On day 3, Swelling was found in 15(51.7%) patients of group A and in 3(10.3%) patients of Group B. On day 7, Swelling was found in 4 (51.7%) patients of group A and in Group B no patient was reported with swelling. Results showed in [Table 5, 6].

Dehiscence was found in 5(17.2%) patients of group A on day 3, no any patients was seen with

dehiscence in group B, p-value 0.019, results showed in [Table 7].

On day 7 Dehiscence was found only in one case of group B, results showed in [Table 8].

## DISCUSSION

Mucocele is by far the most prevalent benign lesions found in buccal cavity resulting from the extravasation or retention of mucus content from minor salivary ducts. In this study we had compared the outcomes of using two treatment protocols (surgical excision versus corticosteroid therapy) for treatment of mucocele in oral cavity with respect to Postoperative pain, swelling and dehiscence. In this study we found both methods as effective, but corticosteroid therapy showed better outcome in terms of postoperative pain. Similarly Baharvand et al.<sup>[9]</sup> reported seven cases managed with dexamethasone were cured totally and two exhibited reduction in the size. No long standing complication was experienced postoperatively except for local discomfort reported by one. Mortazavi et al.<sup>[10]</sup> reported a bulky labial mucocele managed by combined micromarsupialization and intralesional dexamethasone which offered complete healing. Sinha R et al,<sup>[8]</sup> concluded that for handling oral mucoceles, corticosteroid therapy may be favored. Inconsistently Bahadure RN et al,<sup>[11]</sup> reported that a possible intervention for mucocele is traditional surgical procedure to extract minor salivary conduits implicated among paediatric patients. Giraddi GB et al,<sup>[5]</sup> concluded that Micro-marsupialization method is as effective as surgical removal for mucocele treatment. It is beneficial over abscission because it is easy and less invasive, thus non-correlated to surgery-associated complications, and patients can easily tolerate this procedure.

Recently Nagaraj T et al,<sup>[12]</sup> stated that corticosteroids intralesional injection contributes significantly in the management of mucocele. No comparative studies have been found of (surgical excision versus corticosteroid therapy) for treatment of mucocele in oral cavity. Above mentioned studies including this study containing low sample size and some are case reports also; therefore large sample studies are required on this comparative choice of treatment.

In this study of total 58 patients were studied, and divided in two groups, in group A mean age was 31±6 yrs and in group B mean age was 27±7 yrs. Giraddi GB et al.<sup>[5]</sup> reported that mean age of the patients in Group 1 was 20 ± 10 yrs, while in Group 2 was 22 ± 11 yrs. This mean age was less as compared to this study and this difference may be because of difference in selections of age ranges.

In this study males were more in both groups as compared to females and findings were insignificant (statistically) p-value 0.570. While

inconsistently Sinha R et al,<sup>[8]</sup> reported that females were more as compared to males.

## CONCLUSION

It was concluded both surgical excision and corticosteroid therapy showed better outcome, while Dexamethasone injection is a cost-effective, repeatable, simple and feasibly curative treatment method that can be a preferable choice for practitioners for management of mucocele of oral cavity.

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**How to cite this article:** Ahmed A, Shahzad M, Hassan SG, Noorullah, Memon MY, Mushtaque K. Comparison of Surgical Excision versus Corticosteroid Therapy for the Treatment of Mucocele in Oral Cavity. Ann. Int. Med. Den. Res. 2021; 7(1):DE44-DE47.

**Source of Support:** Nil, **Conflict of Interest:** None declared