



OUTCOME OF SCLEROSING AGENT FOR MANAGING THE ORAL PYOGENIC GRANULOMA.

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ABSTRACT... Objectives: Outcome of sclerosing agent for managing the oral pyogenic granuloma in terms of post-operative pain, post-operative healing and post-operative infection. **Study Design:** Cross-section study. **Setting:** Department of Oral & Maxillofacial Surgery, Institute of Dentistry, Liaquat University of Medical & Health Sciences Jamshoro / Hyderabad. **Period:** October 2018 to March 2019. **Material & Methods:** Patients with oral pyogenic granuloma and willing to contribute in study were included. Sclerosing agent (ethanolamine oleate) was taken in 3cc disposable syringe and injected in each lesion once a week and repeated according to need. Patients were followed for 1 to 3 weeks. Outcome was assessed in terms of post-operative pain, post-operative healing and post-operative infection. Data was recorded in proforma. **Results:** Total seventy four patients were included; their mean age was 40.67+4.99 years. Males were in majority 59.5%. On 1st week 32 showed mild pain which was markedly decreased on 2nd and 3rd week almost among all patients. On 1st week healing was achieved by all cases. Infection was occurred in 4 patients and fever was noted in 12 cases. On 2nd week infection was occurred in 2 patients and fever was in 04 cases. On 3rd week infection was noted in only one cases and fever not found. **Conclusion:** It was concluded that sclerosing agent ethanolamine oleate is better treatment option than surgical removal with lower postoperative pain, best achievement of post-operative healing and lower rate of post-operative infection for the oral pyogenic granuloma management.

Key words: Ethanolamine Oleate, Oral Pyogenic Granuloma, Sclerosing Agent, Sclerotherapy.

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INTRODUCTION

Oral pyogenic granuloma (PG) is a reactive inflammation filled with undeveloped fibroblastic connective tissue, proliferating vascular channels and scattered inflammatory cells.¹

Oral PGs mostly comprise of lobular masses of hyperplastic granulation tissues in addition to endothelial proliferation as well as union of inflammatory infiltrates. Surface is generally, smooth, lobulated, pedunculated or sessile and soft to palpation frequently erodes that leads to bleeding and pain which are highly common problems correlated with oral PG.²

Surface of oral PG varies from purple to red to pink in color with size infrequently exceed from

2.5 centimeters in size.³

PG of buccal cavity is believed to involve the gingiva usually, extra-gingival that takes place on the buccal mucosa, cheeks, palate, lips and tongue.⁴

Oral PG takes place due to low grade, chronic, trauma, local irritants, and traumatic injury, chronic irritation by the calculus, drugs such as Cyclosporine or Hormonal factors.⁵

There are many treatment choices for oral PG that is sclerotherapy, CO₂ laser therapy, curettage and surgical removal. Surgical removal is made with scalpel and blade no: 15 timely diagnosis of PG and surgical therapy with sufficient excision

is a safe and benefits of no recurrence rates and beneficial for patients to free from repeated visits.⁶ Though in these both processes is get defining clear benefits of one over the others. In surgical removal results in little bleeding and cosmetic problems.⁷ S

Sclerotherapy is a process of targeted eradication of small varicose veins, vessels and vascular abnormalities by injections of sclerosing agents.⁸ There are various sclerosing agents used for sclerotherapy such as such as 5% Phenol in Arachus and almond oil, Phenol in, Aetoxisclerol, Ethanolamine oleate, Polidocanol, Quinine, Sodium tetradecylsulphate, XiaoZhilign(XZL), Absolute alcohol and Hypertonic saline have been used in sclerotherapy.⁹

The efficacy of sclerosing agent ethanolamine oleate was assessed for the treatment of oral PG and treatment effects were determined PG removed completely.¹⁰ Ethanolamine oleate is practiced as a sclerosing agent with disposable syringe for the oral PG treatment. The mean number of ethanolamine oleate injections is 1 which ranges from 1 to 4 injections as per size of oral PG. Treatment with PG can possibly result repeated visits mainly in large variety, as it is associated with 95% cure rate. So likelihoods of recurrence are there.¹¹⁻¹² No such local data was found in literature, therefore this study has been conducted to assess the efficacy of sclerosing agent for managing the oral pyogenic granuloma in terms of post-operative pain, post-operative healing and post-operative infection.

MATERIAL & METHODS

This cross-section study was performed at department of Oral & Maxillofacial Surgery, Institute of Dentistry, Liaquat University of Medical & Health Sciences Jamshoro / Hyderabad, from October 2018 to March 2019. All the patients with age between 18-45 years, patients having oral PG and willing to contribute in the study were included. All the patients underwent emergency process, patients having any systemic disease which hampers the surgical intervention on the basis of previous history and clinical record, any pathological lesion in the buccal cavity, mentally

retarded patients and pregnant women were excluded. Informed consent was taken from every patient. The oral PG was diagnosed by history, clinical examinations and periapical x-ray. Clinical and demographic parameters such as age, gender, site of oral PG were recorded in proforma. All surgical process of oral PG was achieved under local anesthesia through infiltration neighboring deep the oral PG by xylocaine 2% with adrenaline. All the patients underwent sclerosing agent by 3 cc disposable syringe and Cotton balls. In the course of injecting the ethanolamine oleate bevel position of syringe was maid and applies local compression following injection with cotton balls. Following application of inj. ethanolamine oleate, patients were prescribing Acetaminophen 500 mg 8 hourly. Patients were followed for 1 week, 2 weeks and 3 weeks to access complications as; post-operative pain, post-operative healing and post-operative infection. All the data was recorded in proforma analysis was done by using SPSS (statistical package for social services) version -20.

RESULTS

Total 74 patients studied, with a mean age 40.67+4.99 years. Males 44 (59.5%) were in majority contrasted to 30(40.5%) females. Table-I

On 1st week assessment, 42 patients were without pain and 32 were with mild pain. On second week assessment pain was markedly decreased only 4 patients exhibited mild pain. On 3rd week pain was decreased almost in all cases only 1 patients exhibited mild pain. Table-II.

On 1st week healing was achieved by all cases. Infection was occurred in 4 patients and fever was noted in 12 cases. On 2nd week infection was occurred in 2 patients and fever was noted in 04 cases. On 3rd week infection was noted in only one cases and fever not found. Table-III.

Variables	Frequency	Percentage
Gender		
Male	44	59.5%
Female	30	40.5%
Total	74	100%
AGE (mean + SD)	40.67 + 4.99 years	
Occupation		
Worker	14	18.92%
Fisher men	4	5.41%
Farmer	18	24.32%
Housewife	14	18.92%
Shopkeeper	14	18.92%
Ward servant	4	5.41%
Carpenter	4	5.41%
Plumber	2	2.70%
Police man	0	0%
Malhi	0	0%
Student	0	0%
Total	74	100%

Table-I. Age, gender and occupational distribution of patients n=74

Pain	Frequency (%)
1st week	
No	42 (56.76%)
Mild	32 (43.24%)
Moderate	0 (0%)
Severe	0 (0%)
Total	74 (100%)
2nd week	
No	70 (94.59%)
Mild	4 (5.41%)
Moderate	0 (0%)
Severe	0 (0%)
Total	74 (100%)
3rd week	
No	73(98.6%)
Mild	1(1.4%)
Moderate	0 (0%)
Severe	0 (0%)
Total	74 (100%)

Table-II. 1st week to 3rd week pain of patients n=74

Variables	Frequency (%)
1st week	
Infection	4 (5.41%)
Fever	12 (16.22%)
2nd week	
Healing	74 (100%)
Infection	2 (2.7%)
Fever	4(5.4%)
3rd week	
Healing	74 (100%)
Infection	1 (1.4%)
Fever	0 (0%)

Table-III. 1st week to 3rd week complications and healing of patients n=74

DISCUSSION

A pyogenic granuloma is granuloma is inflammatory, benign hyperplasia of mucous membrane and skin.¹³ The gingiva is renowned for the growth of PGs as the most prevalent intraoral site. Furthermore, they also frequently affect children's and young adults' buccal mucosa, lips, and tongues.¹⁴ Although the most commonly used technique for treatment of PG is surgical excision, many other methods including elimination with electric scalpel or cryosurgery cauterization by silver nitrate, sclerotherapy by monoethanolamine oleate and sodium tetradecyl sulfate,¹⁵ absolute ethanol injection dye, ligation¹⁶, CO2 laser and Nd:YAG, laser photocoagulation, and shave excision have been reported to be used for this purpose. Surgical excision has been reported to have 16% rate of recurrence in treatment of PG. This study was a first comparative study which was conducted to compare the outcomes of surgical removal versus sclerosing agent for the management of oral PG. In this study sclerosing agent ethanolamine oleate showed best outcome as compare to surgical removal. Similarly Samantha et al.¹⁷ presented a case series on oral pyogenic granulomas wherein four cases showed complete resolution and one fibrosed on treating with sclerosing agent. In reactive vascular lesions, Hong et al¹⁸ assessed the effectiveness of sclerotherapy by using ethanolamine oleate. 16 cases out of 21 were seen with pyogenic granuloma and they reached clearance of 95 percent. Matsumoto

et al¹⁹ utilized sclerotherapy among 9 PG cases and all the subjects demonstrated complete clearance.

Because PGs are the benign vascular lesions, the application of intra lesion sclerosing agents have been indicated in few literatures as the least costly medical therapy agents for PG. Often, surgical procedure can be prevented or mitigated by sclerotherapy. The implementation of a simple method in a third world country including Nepal will be quite helpful for all patients, where it is a problematic situation for all subjects to attend a tertiary clinic. When dentists are educated in rural areas with this easy procedure, patients' morbidity can be reduced. The advantages of sclerotherapy are that it is a simple, safe, effective, and minimally invasive procedure, with minimal discomfort to the patient and minimal complications compared to surgery. There is negligible blood loss and no requirement for any postoperative dressing or specific care.^{20,21} In comparison to our results, Study conducted by Shah JS et al²² reported in their results that Surgical resection of the lesion is the mainstay treatment of mucocele and pyogenic granuloma. However intraoperative bleeding, postoperative infection and recurrence chances are more with surgical technique. In addition, surgical therapy might be difficult for infants and children under local anesthesia. They advised that to avoid complications associated with surgical procedures; sclerotherapy has been reported to have the advantages of minimal scarring, little recurrence, and few complications in the treatment of mucocele and pyogenic granuloma compared with other procedures.

In this series mean age was 40.67 years. Kiran Ret al²³ reported 28 years of mean age of patients. Other studies also found small age as compare to our findings as a Brazilian study in 293 cases, found 27 years of mean age. PG can manifest at any age, however >50 percent of cases were reported between 10 and 40 years of age, with peak effects at the age of 30 years.²⁴ This mean age difference may because age of our study was higher as compare to these studies. In this study males were found in majority. Similarly Kiran Ret al²⁵ reported 42.9% male cases and 57.1% female

cases. While in other studies reported that females were most common. Similar findings were also reported by Mohamed Zaghlool Amer et al.²⁶ on other hand Khaitan T et al²⁷ reported that females were most common as compare to males. Samatha Y et al¹⁷ reported that females are found to be more frequently affected with a predilection of 3:2 over male. This difference may because in our study female with only oral PG were included. According to the other studies the management of pyogenic granulomas comprises conservative surgery, cryosurgery, or a laser surgery generally adequate but often results in scars, recurrence, and skilled expertise.^{27,28} Therefore, sclerotherapy was considered as an alternative and effective treatment modality. Sclerotherapy is described as the targeted eradication of vascular anomalies and anomalies of varicose veins and small vessels via sclerosant injection.²⁷ These are tissue aggravations causing endothelial damage and vascular thrombosis resulting in endofibrosis and vascular obliteration when injected into or adjacent to blood vessels.⁸

CONCLUSION

It was concluded that sclerosing agent ethanolamine oleate is a better treatment option than surgical removal. It has a lower rate of pain, best achievement of post-operative healing and lower rate of post-operative infection for the management of oral PG.

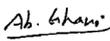
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2	Muhammad Shahzad	Manuscript review.	
3	Ali Raza Abbasi	Contribution in data analysis.	
4	Abdul Ghani Shaikh	Contribution in manuscript writing.	
5	Aftab Ahmed Memon	Review of literature.	
6	Noorullah Jagirani	Contribution in data analysis.	