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Outcome of Surgical Excision for Managing the Oral Pyogenic Granuloma

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Authors' contributions

This work was carried out in collaboration among all authors. Author AGZ and ARA designed the study, wrote the protocol, and wrote the first draft of the manuscript. Authors THS, TAK and BJ managed the analyses of the study and design the manuscript. Author MS managed the literature searches and guidelines. All authors read and approved the final manuscript.

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ABSTRACT

Objective: To determine the outcome of surgical removal of oral pyogenic granuloma in terms of post-operative pain (POP), post-operative healing and post-operative infection.
Materials and methods: This observational study was conducted at Oral and Maxillofacial Surgery department, Liaquat University of Medical and Health Sciences Jamshoro/Hyderabad, from October 2018 to March 2019. Patients of oral pyogenic granuloma, 18-45 years old and either of gender were included. Surgical process of oral pyogenic granuloma were done under local anesthetic by giving infiltration surrounding deep oral pyogenic granuloma by 2% Xylocaine along with adrenaline. Patients were followed for three weeks on weekly basis to access post-operative complications including post-operative healing. Data was collected via study proforma.
Results: Total 37 patients took part in the study; their mean age was 47.86±7.61 years. On 1st week assessment all patients were noted with history of mild pain, moderate pain and severe pain (19, 10 and 8 cases respectively), while healing was achieved in 19 patients. On second week assessment 25 patients exhibited mild pain and 6 exhibited moderate pain and healing was

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achieved by 16 patients. On 3rd week assessment, only 09 patients exhibited mild pain and mostly were healed few cases showed minor infection.
Conclusion: It was concluded that surgical removal is valuable procedure for the management of pyogenic granuloma of oral cavity with lower rates of post-operative infection and pain, and highest rates of post-operative healing.

Keywords: Pyogenic granuloma; incision; outcome.

1. INTRODUCTION

Pyogenic granuloma (PG) is an inflammatory hyperplasia, denoting a wide range of oral mucosal nodular growths, which histologically represent granulation tissues and inflamed fibrous [1,2]. Oral PGs are most usually associated with lobular mass of granulation hyperplastic tissues, as well as inflammatory infiltrates and endothelial proliferation. The surface is usually smooth, pedunculated, lobulated, or soft, and sessile. It erodes easily, resulting in bleeding and pain, which have been reported to be the most common symptoms linked with oral PG. [3] It is more common among women and is related with etiological factors within 16 percent of cases [4], while non-LCH PG was linked to etiological factors more commonly (86 percent). Oral PG is a most prevalent gingival tumor [5], with a notable preference for the gingiva, comprising 75% of all patients, where it is thought to be the result of foreign debris or calculus in gingival crevice. The next most prevalent sites are buccal mucosa, tongue, and lips.[1,6] On maxillary gingival tissues, lesions are somewhat more common than on mandibular gingival tissue; anterior regions are more commonly afflicted than posterior sites. Furthermore, these abnormalities are far more frequent on facial side of the gingiva as compared to lingual side; a few spread between teeth and affect both the lingual and facial gingiva [6]. Oral PG's surface color ranges between pink and red to purple, and their size rarely exceeds 2.5 cm.[7] Oral PG is caused by traumatic injury, local irritants, low-level chronic trauma, and as well as persistent calculus irritation, medicines like Cyclosporine, and hormone factors [8]. Differential diagnosis formulation becomes essential to aid in further examination of the patient's health and treatment, if there is any mass in oral cavity [9]. The findings of biopsies are conclusive and important in confirming the diagnosis. Sclerotherapy, surgical removal, CO2 laser therapy, and curettage are among options for treating oral PG. Early detection of PG as well as surgical treatment with adequate resection is safe, minimizes the risk of relapse, and benefits patients by allowing them to avoid repeated visits. [10] As per published studied outcome is still controversial as in a study it was reported that surgical removal results in little bleeding and cosmetic problems [11]. PG management depends up on the extant of symptoms. Clinical monitoring and follow-up are recommended when the lesion is minor, painless, and bleeding-free. Though conservative surgical removal and the removal of causative irritants (calculus, plaque, trauma source, foreign materials) are the most common treatments in the cases of gingival lesions [1,6,12]. The resection must extend down towards periosteum, and the surrounding teeth must be deeply scaled to eliminate the source of persisting irritation. [6]. However this study aimed at determining the outcome of surgical removal for managing the oral pyogenic granuloma in terms of post-operative pain, post-operative infection and post-operative healing.

2. MATERIALS AND METHODS

This observational study was conducted at Oral & Maxillofacial Surgery department, Institute of Dentistry, Liaquat University of Medical & Health Sciences Jamshoro/Hyderabad, from October 2018 to March 2019. All the patients were >18 years old with oral pyogenic granuloma and either of gender were included. Patients who were in the middle of an emergency procedure, had any systemic disease that hampered surgical intervention based on clinical records and previous history, patients with any oral cavity pathological lesion, pregnant women, and those who refused to take part in the study were all excluded. The diagnosis of oral pyogenic granuloma was based on history, clinical examination and periapical x-ray. Patients underwent surgery of oral PG were done under local anesthesia by giving deep infiltration to the surrounding oral PG with Xylocaine 2% and adrenaline. Patients were prescribed Acetaminophen 500 mg for each 8 hour after resection to alleviate any discomfort. Patients were advised to eat soft diets after surgery, avoid eating hot foods, and use

mouthwash to ensure healthy dental hygiene. All the information regarding post-operative measures such as pain, healing, and infection were documented after week 1, week 2, and week 3 was collected via study proforma. Data was analyzed by SPSS version 20.

3. RESULTS

Total 37 patients were studied; their mean age was 47.86±7.61 years, minimum 19 years and maximum 44 years. Out of all 28 were males and 09were females Table: No. 1.

On 1st week assessment all patients were noted with history of pain as 19 had mild pain, 10 patients had moderate pain and 8 patients were with severe pain. On 1st week assessment healing was achieved in 19 patients.

On second week assessment 25 patients exhibited mild pain and 6 exhibited moderate pain. On 2nd week assessment healing was achieved by 16 patients.

On 3rd week assessment 09 patients exhibited mild pain, while no moderate or severe pain found in any case. On 3rd week assessment infection and fever were occurred among few cases.

4. DISCUSSION

An inflammatory, benign hyperplasia of the mucous membrane and skin is referred to as a pyogenic granuloma (PG) [7]. The gingiva is thought to be the most prevalent intraoral location for PGs. They do, however, frequently affect young adults and children at the sites involving lips, tongues, and buccal mucosa [13]. Surgical removal is the most usual method of therapy for PG. The average age in this research was 47.86 years. Kiran R et al. [14] reported 28 years of mean age in their study. Other studies have revealed similar results to ours, such in a Brazilian study on 293 patients, average age was reported to be 27 years [15]. Though PG can affect people of any age, the majority of cases (50%) have been documented to occur in 10-40 years of age group, with a highest prevalence at the age of 30 years [16]. This discrepancy in mean age might be due to the fact that our research was older than the reported studies. Males made up the majority of the participants in this study. Likewise, in the study of Kiran R et al [14] males and females were 42.9% and 57.1% respectively. While other studies documented predominance of female gender. Mohamed Zaghlool Amer et al also reported comparable findings. [17] Females, on the other hand, were more prevalent than males, according to Khaitan T et al. [18]. Females are more commonly afflicted, according to Samatha Y et al. [19], with predisposition of females over males (ratio 3:2). This discrepancy might be due to the fact that in our research only female patients of oral PG were studied. Other studies reported that treatment of PGs comprise conservative

Table 1. Descriptive statistics of age and gender n=37

Variables		Statistics
Age	Mean	47.86 years
	Standard deviation	7.61 years
	Minimum	20 years
	Maximum	44 years
Gender	Male	28(75.7%)
	Female	09(24.3%)
	Total	37(100.0%)
Occupational Status	Worker	9(24.3%)
	Farmer	17(45.95)
	Housewife	4(10.8%)
	Shopkeeper	02(5.4%)
	Police man	02(5.4%)
	Malhi	02(5.4%)
	Student	01(2.7%)
	Total	37(100.0%)

Table 2. 1st week outcome of patients n=37

Variables		Frequency	Percentage
Pain	No	**00**	**00**
	Mild	19	51.4
	Moderate	10	27.0
	Severe	18	21.6
Healing	Yes	19	51.4
	No	18	48.6
Infection	Yes	22	59.5
	No	15	40.5
Fever	Yes	19	51.4
	No	18	48.6

Table 3. Second week outcome of patients n=37

Variables		Frequency	Percentage
Pain	No	6	16.2
	Mild	25	67.6
	Moderate	6	16.2
	Severe	00	00
Healing	Yes	21	56.8
	No	16	43.2
Infection	Yes	10	27.0
	No	27	73.0
Fever	Yes	8	21.6
	No	29	78.4

Table 4. Third week outcome of patients n=37

	Variables	Frequency	Percentage
Pain	No	28	75.7
	Mild	9	24.3
	Moderate	00	00
	Severe	00	00
Healing	Yes	36	97.3
	No	01	02.7
Infection	Yes	01	02.7
	No	36	97.3
Fever	Yes	01	02.7
	No	36	97.3

laser surgery, cryosurgery, or surgical excision which is generally acceptable however often causes recurrence and scars, and also needs skilled expertise [18,20].

Resection of PG was proven to be a successful option of treatment in this study. On other hand in a case series study of Rosa CG et al. [21] also observed that the accurate excisional removal considerably reduces the possibilities of recurrences, while they determined the pyogenic granuloma among pregnant females. In another study it is stated that the surgical excision is the considerable and simple treatment option, there might be developed some complications like intra-operative bleeding and postoperative infections that can cause of delayed healing the wound.[22] On other it is demonstrated that the simply done surgical excision can be reduce the high recurrences rate, but often leaves the visualized scar.[23] In another study of the Leung AKC et al [24] observed that, by the surgical excision with linear closure histologic examination can done of the removal tissue and it also associated to the lower recurrences rate, the technique is the choice of the treatment.

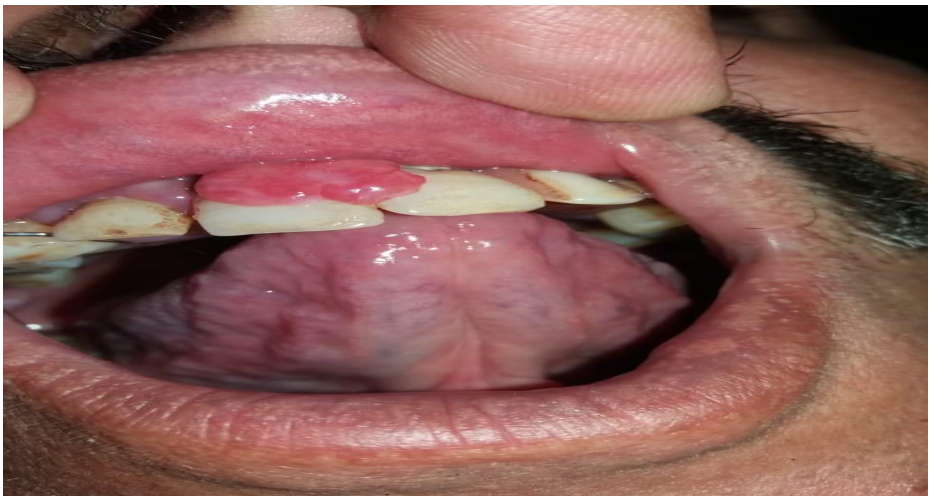

Fig. 1. Oral pyogenic granuloma in upper anterior teeth before surgery

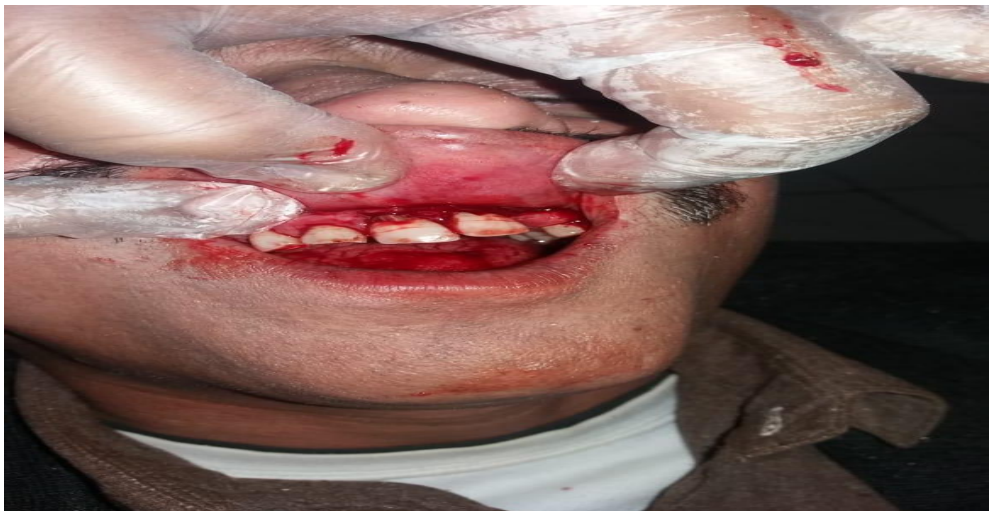

Fig. 2. Oral pyogenic granuloma in upper anterior teeth after surgery

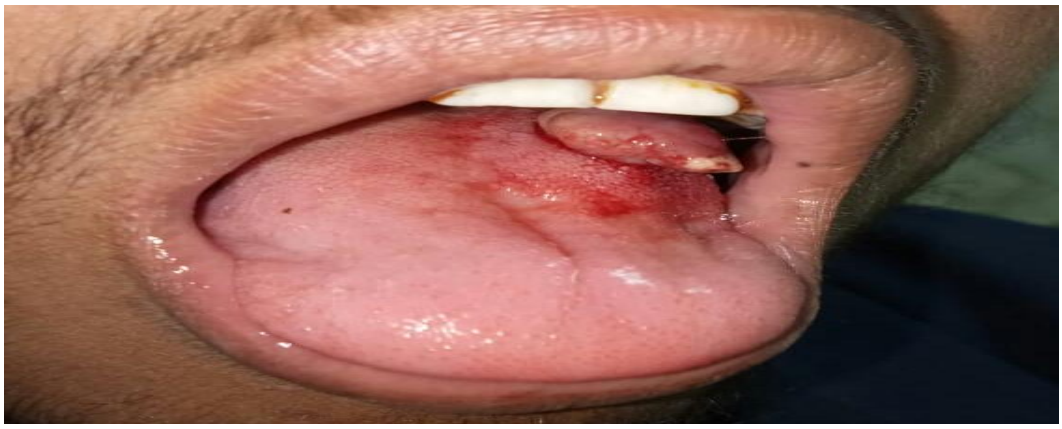

Fig. 3. Oral pyogenic granuloma on the posterior surface of tongue before surgery

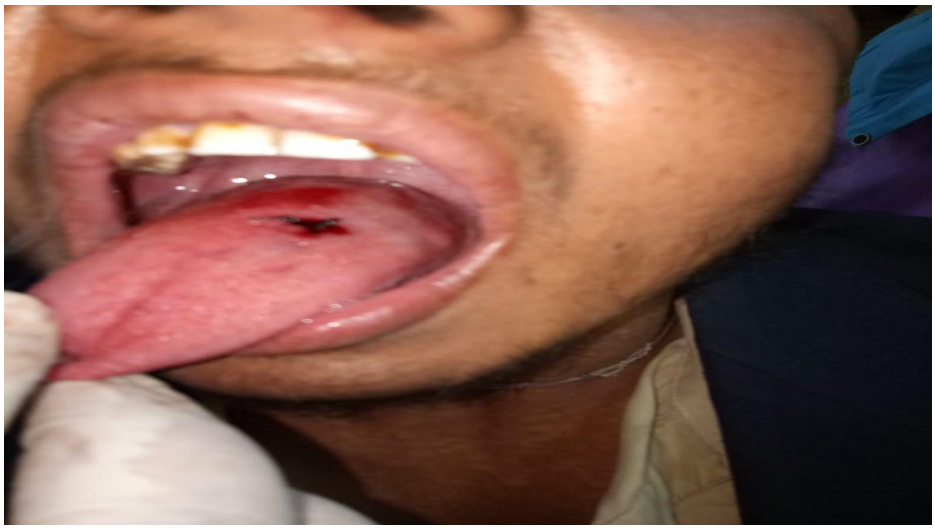

Fig. 4. Oral pyogenic granuloma on the posterior surface of tongue after surgery

5. CONCLUSION

It was concluded that surgical removal is the valuable managing procedure of the oral pyogenic granuloma with lower rate of pain, best achievement of post-operative healing and lower rate of post-operative infection. This was a small sample size and single center study. However further large scale studies are recommended on this subject.

CONSENT

Informed and written consent was taken from the patients.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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