

## Oral Pyogenic Granuloma-A Prospective Clinico-Pathologic Study

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### Abstract

### Original Research Article

**Aim:** To evaluate the occurrence and commonest site of involvement of oral pyogenic granuloma among genders. **Subjects and Methods:** A prospective study was carried out in the department of oral medicine and radiology, govt dental college Srinagar since March 2017 to March 2018; cases reported as pyogenic granuloma (PG) clinically as well as histopathologically were included in the study. **Results:** PG was most commonly seen in the third decade of life among males and females with a female preponderance (male: female 1:2.6). The mean age of occurrence among females was 35.4 years and for males 28.1 years. Maxillary gingiva was more commonly involved (64%) than mandibular gingiva (36%). **Conclusion:** Although pyogenic granuloma is a benign lesion which is commonly encountered and excised in dental practice, it is important to properly diagnose these variants to avoid misdiagnosis, it is always wise to subject it to histopathological confirmation owing to its close clinical resemblance to vascular malformations and neoplastic conditions.

**Keywords:** Benign growth, Gender distribution, Gingiva, Pyogenic granuloma, Tumor.

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## INTRODUCTION

The word “pyogenic granuloma (PG)” is a misnomer because the lesion does not contain pus and histologically does not represent a granuloma. Various authors have suggested other names such as granuloma gravidarum or pregnancy tumors, Rocker and Hartzell’s disease, vascular epulis, benign vascular tumors, epulis telangiectium granulomatosa, and lobular capillary hemangioma (LCH). It is a kind of inflammatory hyperplasia. Hullihen’s reported the first case of PG [1]. Hartzell introduced the term “PG” or “granuloma pyogenicum. Hence, it was also called a Crocker and Hartzell’s disease [2]. It is now universally accepted that this lesion is formed as a result of an exaggerated localized connective tissue reaction to a minor injury or any underlying irritation. The irritating factor identified was calculus, poor oral hygiene, non-specific infection, over hanging restorations, cheek biting, etc., Due to continuous irritation, the underlying fibrovascular connective tissue becomes hyperplastic, and there is a proliferation of granulation tissue which leads to the formation of a PG [3]. Factors such as inducible nitric oxide synthase, vascular endothelial growth factor, or connective tissue growth factor are said to be involved in angiogenesis and rapid growth of PG [4]. Angelopoulos [5] described it as “hemangiomatous granuloma” due to the presence of numerous blood

vessels and the inflammatory nature of the lesion seen histopathologically. Cawson *et al.* [6] in dermatologic literature have described it as “granuloma telangiectaticum” histologically due to the presence of numerous blood vessels.

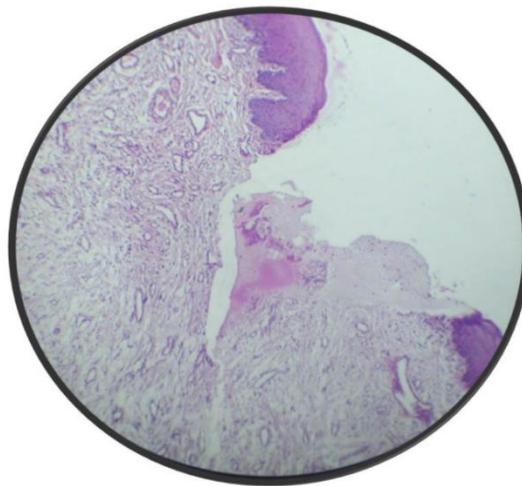
## SUBJECTS AND METHODS

A prospective study was carried out in the Department of Oral Medicine and Radiology govt dental college, Srinagar for a period of 1 year (March 2017- March 2018). Patients visiting to the department with a chief complaint of growth as shown in figure(1) were first diagnosed clinically as a case of pyogenic granuloma later on after doing excisional biopsy of the lesion, the specimen were sent for histopathological confirmation as shown in figure(2) and only those cases were included in the study. Patients on calcium channel blockers, anticonvulsant medications and immunosuppressants were excluded from the study. Before commencement of the study, ethical clearance has been taken from the internal institutional ethical committee. Data for the following parameters were recorded: age, gender and site of involvement. Descriptive statistical methods were applied for data analysis and analysis of variance test was employed to assess the mean difference. SPSS software, version 20.0

(SPSS, Chicago, IL, USA) was used for statistical analysis of collected data.



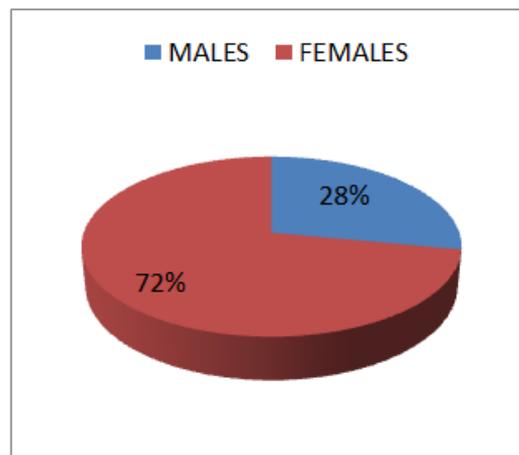
**Fig-1: Showing growth over right maxillary gingiva**



**Fig-2: Showing histopathologic slide showing marked vascular proliferation among immature fibroblastic connective tissue, granulation tissue, and chronic inflammatory infiltrate**

## RESULTS

There were 36 female and 14 male patients having pyogenic granuloma of the oral cavity with age range of 10-70 years with a mean age of 35.4 and 28.1 years in females and males, respectively. Figure 3 shows gender wise distribution of PG with female preponderance having male to female ratio of 1:2.6.



**Fig-3: Shows genderwise distribution of pyogenic granuloma**

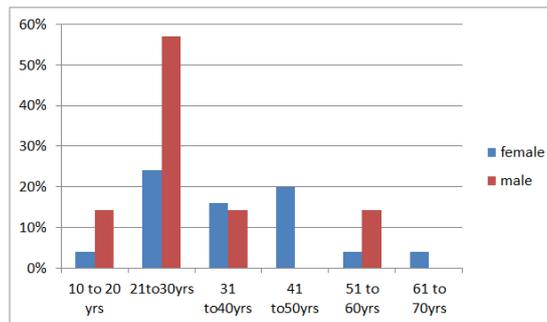
**Table-1: Shows age wise distribution of patients with most of the patients in the age range of 21-30years**

AGE(yrs)	FREQUENCY		TOTAL
	MALES	FEMALES	
10-20	2(4%)	2(4%)	4(8%)
21-30	8(16%)	12(24%)	20(40%)
31-40	2(4%)	8(16%)	10(20%)
41-50	0	10(20%)	10(20%)
51-60	2(4%)	2(4%)	4(8%)
61-70	0	2(4%)	2(4%)
Total	14	36	50

Table 2 shows site wise distribution of PG in the oral cavity with right maxillary gingiva being most commonly involved site by the PG. Out of 50 cases there were 18 cases of PG on the right maxillary gingiva.

**Table-2: Sites Affected By Pyogenic Granuloma**

SITE	NO. OF CASES (%)
Right maxillary gingiva	18(36%)
Left maxillary gingiva	6(12%)
Anterior maxillary gingiva	8(16%)
Right mandibular gingiva	8(16%)
Left mandibular gingiva	4(8%)
Anterior mandibular gingiva	6(12%)
Tongue, Buccal mucosa	0



**Fig-4: Showing increased rate of occurrence of pyogenic granuloma in third decade among males and females**

## DISCUSSION

PG, also known as lobular capillary hemangioma, is a benign proliferative vascular tumor which most commonly affects the skin or mucosa of children [7]. The mean age of patients in this study was 35.4years among females and 28.1 years among males. Some studies have shown that mean age ranges from 30 to 40 years [8, 9]. Total no. of PG cases diagnosed were 50, out of which 36(72%) were females and 14(28%) was males. In the present study, females showed a distinct predominance, with a male-female ratio of 1:2.6. We divided age into 10-year age bands in order to investigate age-specific incidence. In males, 8 patients (16%) were diagnosed in third decade of life. In women, 12patients (24%) were diagnosed in third decade of life, 8 patients (16%) in fourth decade and 10(20%) were diagnosed in fifth decades, respectively. A previous study reported that the second, third and fourth decades of life were associated with increased incidence of PG in women [10, 11]. Pregnancy has previously been reported as a causative factor for PG [12] and it has been suggested that the increase of pregnancy age shifted the incidence of PG in women. But in our study there was only limited cases reported

due to short duration of the study period. Further research is required to investigate the relationship between age at pregnancy and the incidence of PG.

Pyogenic granuloma is one of the most common benign hyperplastic lesion usually encountered during oral examination. Age at the time of presentation is an important clinical factor that should be considered for an accurate diagnosis of a lesion. In the current study, the majority of PG lesions occurred in the third decades of life. This age distribution is in support with findings in previous reports [13, 14]. Oral PGs occur in all age groups, children to older adult, but are more frequently encountered in females in their second decade due to the increased levels of circulating hormones estrogen and progesterone [15] but in our study third decade of life favoured the increased incidence. PG of the oral cavity appears as an elevated, smooth or exophytic, sessile, or pedunculated growth covered with red hemorrhagic and compressible erythematous papules, which bleeds on slight provocation and appear lobulated and warty showing ulcerations and covered by yellow fibrinous membrane [6, 16]. The color of the mass varies from red, reddish

purple to pink depending on the vascularity of the growth [17]. Most of the cases in our study present with the same features. In the previous series, gingiva is the most common affected intraoral region followed by the lips, tongue, palate, and buccal mucosa [14, 18]. Our study also concludes that gingiva is the most commonly affected site in the oral cavity.

Excisional biopsy of the lesion is the recommended line of treatment unless it would produce a marked deformity and in such a case incisional biopsy is recommended [19]. Conservative surgical excision of the lesion with the removal of irritants such as plaque, calculus, and foreign materials is recommended for small painless nonbleeding lesions. Excision of the gingival lesions up to the periosteum with thorough scaling and root planning of adjacent teeth to remove all visible sources of irritation is recommended [16]. In the present study, 50 lesions were surgically excised and scaling and root planning of the adjacent teeth was completed to remove all the local irritants, which could have been the primary etiologic factor.

## CONCLUSION

PGs are exophytic benign tumor-like lesions commonly encountered, but when presented late, especially when infected, they can pose diagnostic challenges by mimicking more threatening lesions, due to their remarkably large sizes [16]. It's important to have knowledge of their clinical features for all health personnel who encounter this lesion. We presented a study carried out on patients with oral PG to evaluate its gender predilection with its commonest site of occurrence and age distribution. For better knowledge this study needs inclusion of large sample size.

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