



## Reactive Lesions of the Oral Mucosa: A Retrospective Analysis of 69 Cases

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### ABSTRACT

**Introduction:** Reactive lesions encompass a category of fibroepithelial lesions that are frequently observed in the oral mucosa. Due to the oral cavity's significant exposure to trauma or frictional forces, the incidence of these reactive lesions is notably higher within this anatomical region. Despite resembling neoplastic proliferations clinically, proper knowledge about these lesions is crucial for accurate diagnosis.

**Materials and Methods:** Clinical data of all the reactive lesions were collected retrospectively from the 5-year archives of the Oral Pathology Department, GITAM Dental College and Hospital, Visakhapatnam. A comprehensive clinical and histopathological assessment was conducted for all Reactive lesions. The collected data comprised age, gender, dimensions, location, and histopathological diagnosis, systematically compared and organized into tabulated formats.

**Results:** In our study, we found that (54%) were females, with a slight female prediction. The 1st most common reactive lesion observed in our study was fibroepithelial polyp (29.85%). The gingiva was the most affected site (38.8%), followed by the buccal mucosa (31.3%).

**Conclusion:** Reactive lesions are more prevalent in the oral cavity. As they can mimic multiple conditions, the clinical assessment was aligned with the histopathological characteristics to facilitate precise diagnosis while also delving deeper into the etiological factors implicated. Oral reactive lesions like pyogenic granuloma with unknown etiological factors need to be justified to arrive at a proper diagnosis, as suggested by Daley et al.

**Keywords:** Reactive lesions; Fibroma; Pyogenic granuloma; Peripheral giant cell granuloma.

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## Introduction

Reactive lesions include a group of fibroepithelial lesions commonly found in the oral mucosa. As the oral cavity is highly subjected to Trauma or Frictional force these reactive lesions were more prevalent in the oral cavity [1]. However, the concentration of circulating hormones is implicated in the pathogenesis of certain lesions, including pregnancy tumors (PT) and reactive lesions associated with puberty. The most prevalent reactive lesions encompass fibroma, pyogenic granuloma (Figure A), peripheral ossifying fibroma (Figure B), and peripheral giant cell granuloma (Figure C). These asymptomatic lesions, which can vary in size from a few millimeters to several centimeters, may present with either ulcerated or non-ulcerated surfaces and display a spectrum of colors ranging from pale pink to deep red [3].

The clinical manifestations of these reactive gingival lesions appear to represent the diverse stages of their progression; specifically, in the initial phases, they are characterized by a red, raw appearance, and exhibit bleeding upon minimal stimulation or even spontaneously, whereas, in the later phases, they exhibit characteristics of firm, mature, and avascular fibrous growths, which may present as either pedunculated or leaf-like formations, or as sessile structures. These lesions consist of fibrous tissue, which incorporates additional histological components such as multinucleated giant cells, calcified material, or hyperplastic small vessels. Despite resembling neoplastic proliferations clinically, proper knowledge about these lesions is crucial for accurate diagnosis.

### Aims and Objectives

1. To study the prevalence and distribution of Reactive lesions, over 5 years.
2. To evaluate the clinical and histopathological features of these Reactive lesions.

### Materials and Methods

For this study, we have collected a total of 577 cases from the archives of the Department of Oral Pathology (A 5-year retrospective study was done from January 2019 to May 2024, Out of 577 cases reviewed, 67 cases were diagnosed as reactive hyperplastic lesions. We confirmed the diagnosis by Histological Analysis (Figures 1,2,3,4). Clinical data like, the type of lesion, age, gender, and the site involved was collected, tabulated, and analyzed.

## Results

Based on this study, the obtained results were tabulated and we observed (54%) in females, with a slight female prediction (Table 1) (Graph 1). The 1st most common reactive lesion observed in our study was fibroepithelial polyp (29.85%), followed by the second most common, fibroma, (which are fibrous lesions) followed by mucocele (salivary gland lesion), peripheral ossifying fibroma (Odontogenic lesion) (Table 2) (Graph 2). The gingiva was the most affected site (38.8%), followed by the buccal mucosa (31.3%) (Table 3) (Graph 3). Due to the wide age distribution among the sample, age was excluded as a variable in our study.



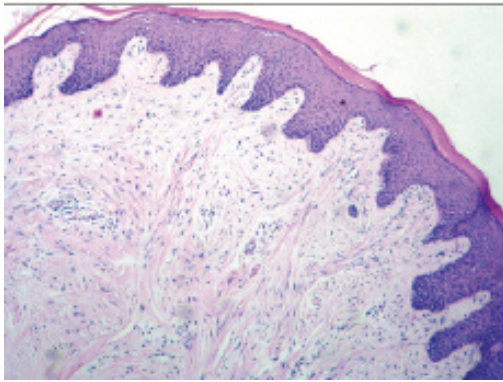
Figure A. Pyogenic granuloma.



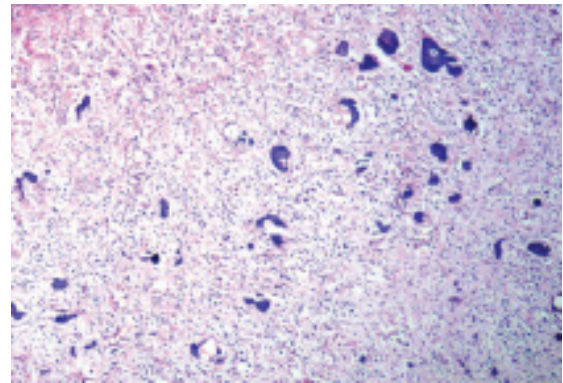
Figure B. Peripheral ossifying fibroma.



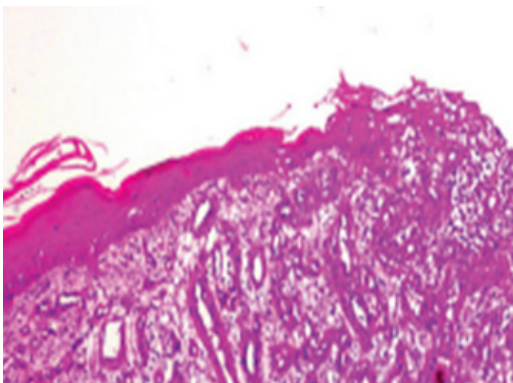
Figure C. Peripheral giant cell granuloma.



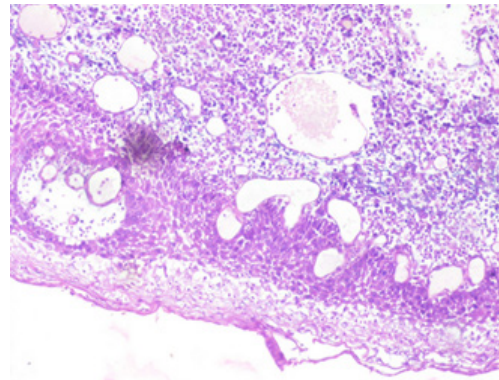
*Figure 1.* Fibro Epithelial Polyp demonstrating keratinized epithelium and fibrous Connective tissue stroma. (H&E stain, x100).



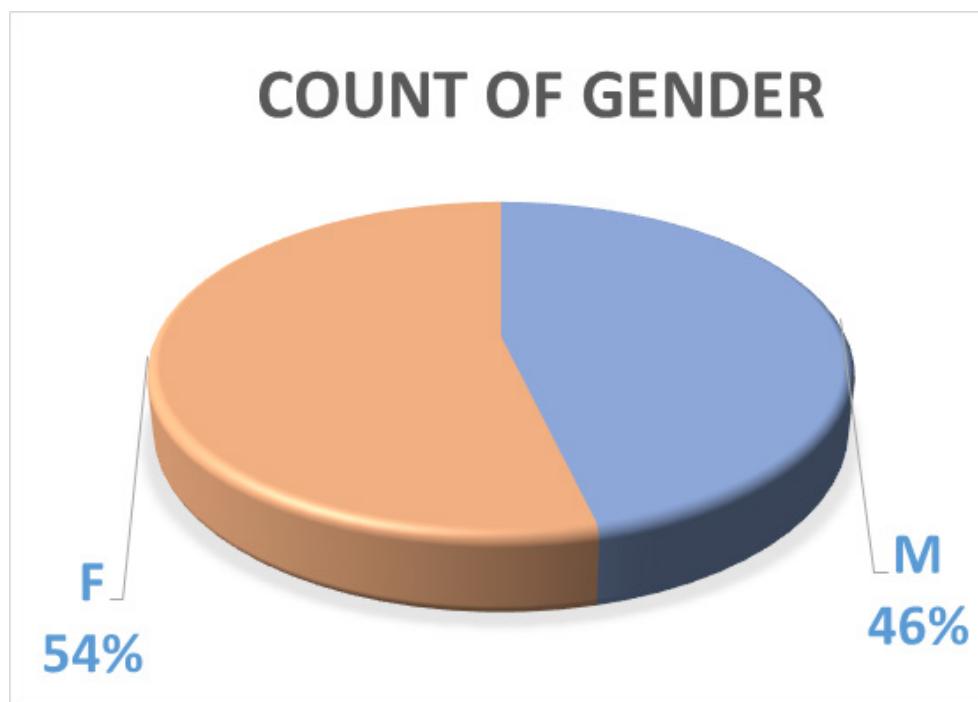
*Figure 3.* Showing areas of calcification in the fibrous connective tissue stroma (H&E stain, x100).



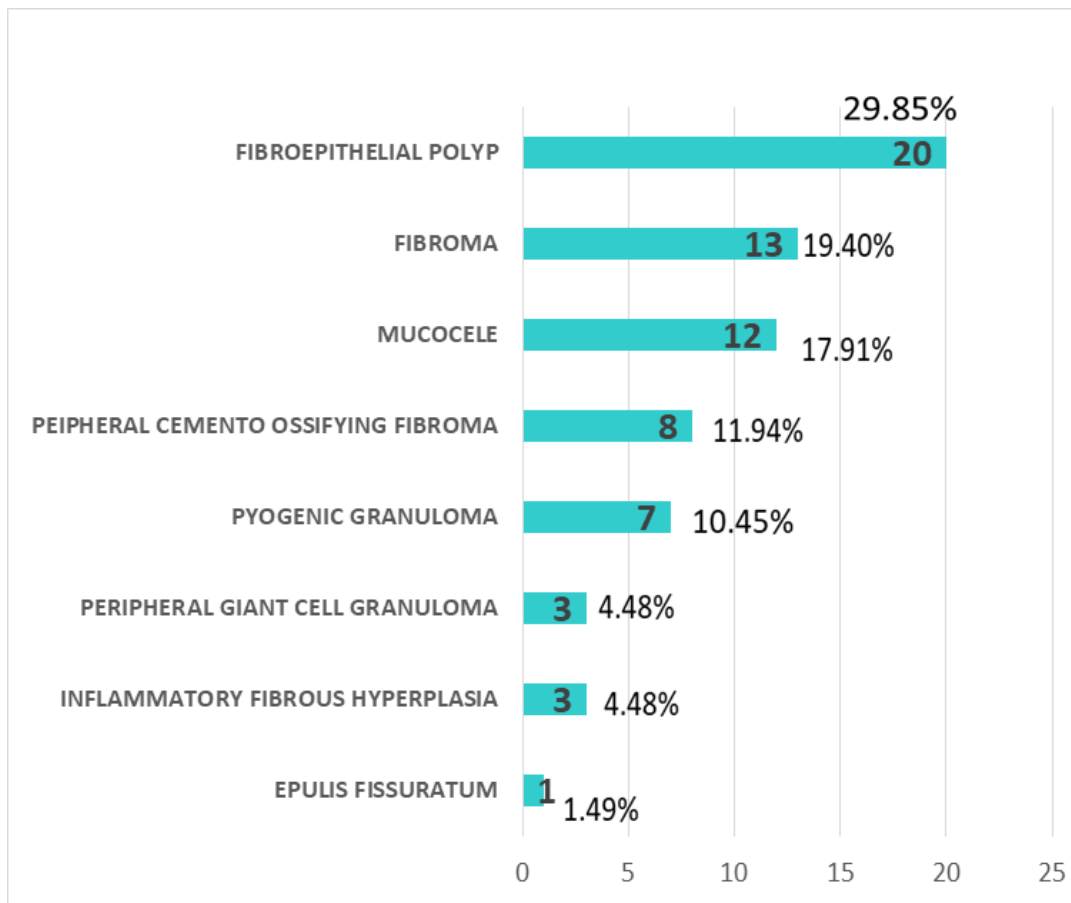
*Figure 2.* Epithelial morphology showing atrophic to ulceration seen predominantly in pyogenic granuloma (H&E, x20).



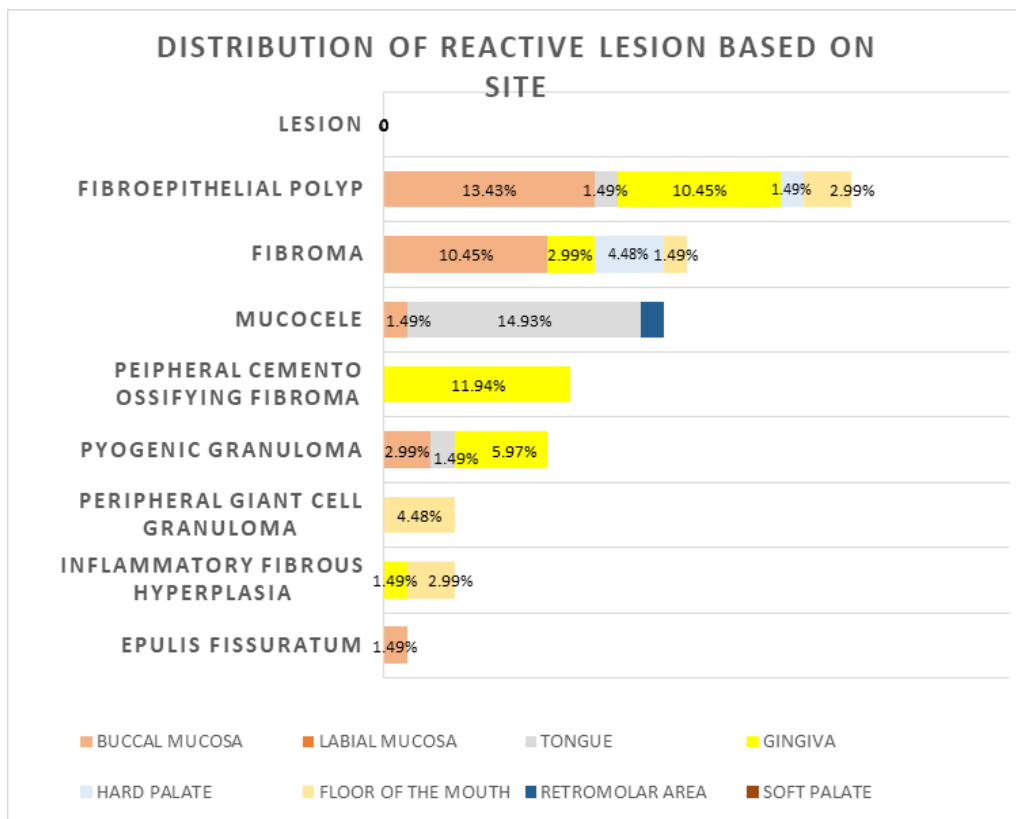
*Figure 4.* Vascular proliferation, especially capillary, seen in pyogenic granuloma (H&E, x10).



*Graph 1.* Gender.



Graph 2. Type of lesion.



Graph 3. Distribution of Reactive lesion based on site.

Table 1. Gender.

Gender	
Female	36
Male	31
Grand Total	67

Table 2. Count of lesion.

Row Labels	Count of Lesion
Epulis Fissuratum	1
Fibroepithelial polyp	20
Fibroma	13
Inflammatory Fibrous Hyperplasia	3
Mucocele	12
Peipheral Cemento Ossifying Fibroma	8
Peripheral Giant Cell Granuloma	3
Pyogenic Granuloma	7
Grand Total	67

Table 3. Distribution of Reactive lesion based on site.

Row Labels	Count of Lesion
Epulis Fissuratum	1.49%
buccal mucosa	1.49%
Fibroepithelial Polyp	29.85%
buccal mucosa	13.43%
gingiva	10.45%
hard palate	2.99%
labial mucosa	1.49%
tongue	1.49%
Fibroma	19.40%
buccal mucosa	10.45%
gingiva	2.99%
hard palate	1.49%
tongue	4.48%
Inflammatory Fibrous Hyperplasia	4.48%
buccal mucosa	1.49%
gingiva	2.99%
Mucocele	17.91%
buccal mucosa	1.49%
floor of mouth	1.49%
labial mucosa	14.93%
Peipheral Cemento Ossifying Fibroma	11.94%
gingiva	11.94%
Peripheral Giant Cell Granuloma	4.48%
gingiva	4.48%
Pyogenic Granuloma	10.45%
buccal mucosa	2.99%
gingiva	5.97%
labial mucosa	1.49%
Grand Total	100.00%

## Discussion

Reactive hyperplastic lesions (RHLs) in the oral cavity can arise from a prolonged, low-intensity irritation that triggers an aggressive healing response in the tissue. This excessive response creates soft tissue growth similar to a varied collection of clinical diseases. As such, this response presents a diagnostic challenge as an expansion may be indicative of a tumor, inflammation, cysts, developmental defects, or any combination of normal anatomic components. These lesions usually occur in response to prolonged inflammation brought on by a variety of low-grade chronic irritations of the oral mucosa, including food particles, dental calculus, sharp edges of extremely decayed teeth, poor dental restorations, persistent biting habits, and ill-fitting oral appliances [6].

The frequency of Reactive lesions within the oral cavity is documented at 22.25%. These instances were observed to occur with greater regularity among females (74.19%), with the singular exception of PGCL, which represented the only category of lesions exhibiting a higher prevalence (61%) in males. Fibroepithelial polyps emerged as the most commonly encountered reactive lesion within the oral cavity. The prevalence of reactive lesions was notably elevated in females, particularly in the gingival region. Several discrepancies have been identified between the results of the current investigation and those reported in prior studies.

The precise etiology of pyogenic granuloma remains elusive, albeit it was initially postulated to be attributable to a botryomycosis infection. It is posited that pyogenic granuloma may potentially arise as a tissue response to minor trauma and/or persistent irritation, thereby facilitating an avenue for the invasion of nonspecific microorganisms; however, microorganisms are infrequently identified within the lesion. The pathogenesis of pyogenic granuloma continues to be a subject of ongoing debate [7]. Fibroma, a non-malignant tumor arising from fibroblasts, signifies reactive hyperplasia of fibrous connective tissue as a consequence of localized irritative stimuli or trauma [1]. The sources of these traumatic irritants may include calculi, foreign bodies, and iatrogenic factors such as overhanging margins and dental restorations, among others. Traumatic fibromas are commonly encountered proliferative lesions within the oral cavity, constituting approximately 4.5% of all oral mucosal pathologies [2]. The predominant clinical presentation involves the development of a well-defined, smooth-surfaced lesion, typically exhibiting the coloration of normal muco-

sa, possessing either a sessile or pedunculated base, demonstrating a firm consistency, and measuring less than 1.5cm at its maximum diameter [3]. This condition is generally marked by a gradual, asymptomatic enlargement that accumulates over several months or years. In the course of our investigation, we noted that a significant proportion of the affected population was within their third and fourth decades of life, which aligns with the findings reported by Reddy et al. The observed female predilection in our study was in alignment with the study of Aghbali et al. [8]. Our finding regarding fibro-epithelial hyperplasia as the most common oral reactive lesion aligns with those of Buchner et al. [9]. Additionally, our study noted that the gingiva was the predominant site for oral reactive lesions, followed by the buccal and alveolar mucosa, consistent with the observations by Kadeh et al. [10].

## Conclusion

Reactive lesions are more prevalent in the oral cavity. As they can mimic multiple conditions, thorough clinical examination correlated with the histopathological features for accurate diagnosis with a further peak into etiological factors involved. Oral reactive lesions like pyogenic granuloma with unknown etiological factors need to be justified to arrive at a proper diagnosis, as suggested by Daley et al [11].

## Conflict of Interest

There is no conflict of interest to declare.

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