



Clinical Spectrum of Angiomatous Granuloma and Inflammatory Fibrous Hyperplasia- A Retrospective Study

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Article History:

Received on: 23 Jul 2020
Revised on: 22 Aug 2020
Accepted on: 23 Aug 2020

Keywords:

IFH,
Clinical Diagnosis,
Histopathology Reports,
Angiomatous Granuloma

ABSTRACT

Angiomatous granuloma is a reactive tumour-like lesion commonly seen in the oral cavity. It generally occurs due to proliferation of capillary blood vessels. Whereas, inflammatory fibrous hyperplasia (IFH) refers to gingival enlargement, which is the current terminology for an increase in the size of the gingiva and is a common feature of gingival diseases. Therefore, the aim of the current study is to analyse the clinical spectrum of angiomatous granuloma/IFH in a private dental hospital. This study was carried out in a hospital setting (single centred study). The data of the study subjects was collected after a complete analysis of data of 86000 patients between June 2019 and March 2020. The data of the patients, including age, gender clinical diagnosis and histopathological reports, were collected and analysed using the Chi-square test to find the association between the clinical and histopathological reports in the study. In the present study, angiomatous granuloma(55%) had a higher prevalence compared to IFH (40%) with higher gender predilection among the female population (61.5%) and generally in the age group ranging from 20 to 40 years. (57.5%) [p value= 0.329] statistically not significant. Similarly, IFH was also found to be higher in the female population of about (38.4%), in the age groups between 20 to 50 years (41.3%). The knowledge of various clinical presentations and histopathological characteristics the lesion is necessary for proper identification and treatment planning.



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ISSN: 0975-7538

DOI: <https://doi.org/10.26452/ijrps.v11iSPL3.2907>

Production and Hosted by

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INTRODUCTION

Most common oral lesions are localised focal fibrous growths which include fibrous hyperplasia, pyogenic granuloma, traumatic fibroma, peripheral ossifying fibroma and peripheral giant cell granuloma. Angiomatous granuloma is the most common oral reactive lesion. It generally occurs due to the proliferation of blood vessels. The lesion is non-neoplastic in nature and hence is referred to as a 'tumour-like lesion' (Gomes *et al.*, 2013). The term "pyogenic granuloma" was coined by Hartzell in 1904 (Hattori, 2004). This terminology is a misnomer because it is neither caused by a bacterial

infection nor does it form a true granuloma. It is also associated with certain medications like retinoids and oral contraceptives.

Angiomatous granuloma most commonly presents itself as a nodular lesion in the gingiva. The colour of the lesion may range from reddish to a purplish hue due to the vascularity of the lesion (Asha *et al.*, 2014). The early and established lesions are pinkish to purplish and the lesions that undergo healing present as whitish to pinkish mass. In defiance to their uncommon prevalence, they possess diagnostic difficulty in the clinical course due to their gross resemblance.

Also, histopathologically pyogenic granuloma consists of three growth phases, namely I) cellular phase, II) capillary /vascular phase III) involutory phase. (Kamal *et al.*, 2012). Three different phases of angiomatous granuloma can be appreciated only at the microscopic levels (Ravi *et al.*, 2012). Histopathologically, the angiomatous granuloma is also called lobular capillary hemangioma (LCH).

Reactive hyperplastic lesions usually arise due to reactions to any kind of chronic irritation, calculus, fractured teeth, ill-fitting dentures and overhanging dental restorations. The Synonyms include irritation Fibroma, traumatic Fibroma, focal fibrous hyperplasia, fibrous nodule, fibrous polyp. Gingival enlargement has been classified under inflammatory, drug-induced, idiopathic, associated with systemic diseases and neoplastic (kumar Sharma and Roopa, 2014). This is mainly caused due to tissue edema and infective cellular infiltration, caused by prolonged exposure to bacterial plaque. The accumulation and retention of plaque are one of the major causes of inflammatory gingival enlargement, which is conventionally treated with scaling and root planing and surgical excision.

All the reactive oral lesions are clinically similar but may possess diverse histopathological features. This similarity among the lesions is a complex matter for differential diagnosis. Therefore the aim of the present study is to study the clinical spectrum of angiomatous granuloma/ inflammatory fibrous hyperplasia in a private dental hospital to set up diagnostic criteria.

MATERIALS AND METHODS

The present study is a retrospective cross-sectional study carried out in a hospital setting among a varied population, predominantly South Indian population. It is a single centred study conducted with small sample size. It was carried out under Institutional review board approval.

In this study, out of 256 biopsied cases data of the patients who were diagnosed with pyogenic granuloma and IFH clinically were collected by a complete analysis of data of 86000 patients between June 2019 and March 2020. Data including the age, gender, the clinical diagnosis and the histopathological reports of the patients were collected. And for further analysis, the data collected were cross-verified by another examiner. Incomplete data-verified from concerned departments.

The collected data were tabulated using Excel Spreadsheets, and the data were analysed using SPSS software version 19. The statistical test used in this study was Chi share test with p value<0.05 and a confidence interval of 95%.

RESULTS AND DISCUSSION

A total of 20 cases with a clinical diagnosis of pyogenic granuloma and IFH have been selected for the present study. Out of 20 cases, 11 cases were histopathologically confirmed cases of angiomatous granuloma and the remaining 8 cases were IFH.

Comparing the gender predilection out of 20 patients, the female: male ratio in the overall study was (68.4%: 31.6%). Angiomatous granuloma in females was about 42.11% and 15.79% in the males (Figure 1), and inflammatory fibrous hyperplasia with P-value = 0.329.

On the other hand, the prevalence of IFH in the female population was about 26.32% in the females and 15.79% in males. Vilmann et al. had the same evidence of higher prevalence in the female populations and reported due to the hormonal effects on the vasculature in the females. Previous studies consensus with this parameter.

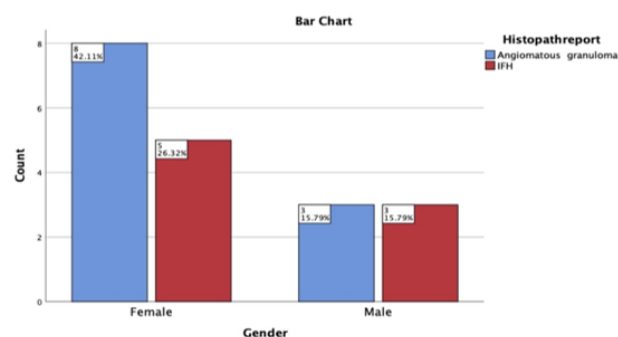


Figure 1: Bar chart depicting the association between gender to the histopathologically confirmed cases of angiomatous granuloma

According to the present study, angiomatous granuloma and IFH was commonly found in the age group between 41 to 50 years was about 26.32%(Figure 2). In the age group 20 to 30 years it was about

26.3%, in 31 to 40 years (21.05%), in 51 to 60 years (15.7%) and in 61 to 70 years (10.53%). Hartzell MB et al. reported angiomatous granuloma was generally seen among the second decade of life. Previous studies consensus with the present study. The rate of occurrence was about (47.35%) among the age groups ranging from 20 to 40 years of age. Impacted third molars lead to crowding of teeth which in turn leads to the accumulation of local factors leading to gingival diseases (Sivaramakrishnan and Ramani, 2015).

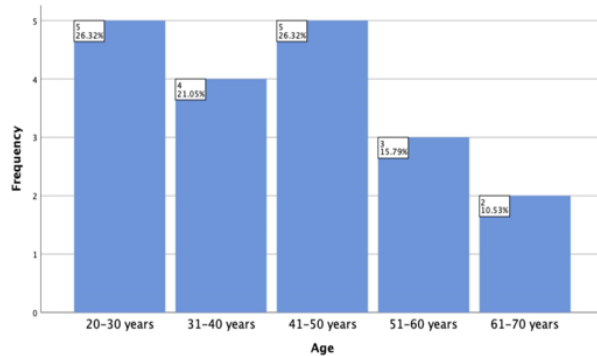


Figure 2: Bar chart depicting the age groups in the study population

Comparing the histological reports of the 256 patients taken for the study, the prevalence and occurrence of angiomatous granuloma was higher (4.31%) and IFH about (3.14%) (Figure 3), and IFH with the total number of biopsied cases.

Few authors would like to stress upon the fact that clinicians should not overlook the swellings that may not appear distinct, dismiss it as an anomaly with no significance and ultimately provide appropriate treatment and follow up. (Sherlin et al., 2015).

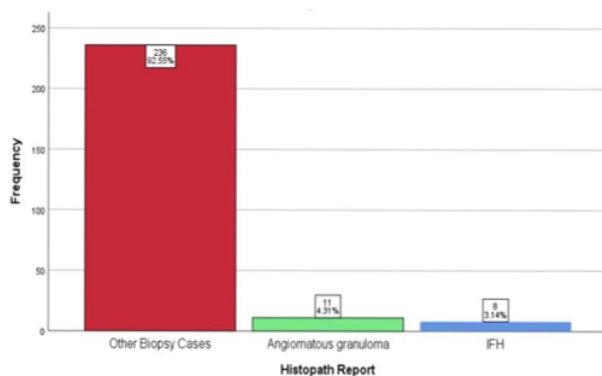


Figure 3: Bar chart depicting the frequency of histopathologically confirmed cases of Angiomatous granuloma

Diagnostic accuracy is the most challenging and essential aspect of medical and dental practice. (Jayaraj et al., 2015b; Shree et al., 2019) Carcinoma is the second most common cause of death

worldwide (Gheena and Ezhilarasan, 2019). Photography is the best method to collect and preserve evidence (Hannah, 2018). A biopsy is mandatory to arrive at a diagnostic conclusion (Gupta and Ramani, 2016) Immuno histochemical evaluation can be done in order to demonstrate the prognostic value for oral mucosal lesions (Jayaraj et al., 2015a; Viveka, 2016) Salivary metabolomics can be used to analyse the disease progression. (Sridharan, 2019; Sridharan et al., 2017) Molecular prognostic factors are required to identify the patients who are at higher risk of recurrence. (Thangaraj et al., 2016). It is imperative to often integrate pathology with clinical information to arrive at an accurate diagnosis (Jayaraj, 2015). Histopathology involves addressing a specimen visually, anatomically and microscopically (Swathy et al., 2015). Tremendous advancement in the field of molecular biology and genetics has minimised the diagnostic confusions and thereby provide appropriate treatment for the patients. (Jangid, 2015)

CONCLUSION

Angiomatous granuloma is the most common reactive lesion compared to inflammatory gingival enlargements. Knowledge of the same is essential for diagnosing the lesion at an early stage. Overall, a careful clinical and histopathological correlation is essential for the identification of reactive lesions of the oral cavity.

ACKNOWLEDGEMENT

The authors would like to thank the study participants for their participation and kind cooperation throughout the study.

Funding Support

The authors declare that they have no funding support for this study.

Conflicts of Interest

The authors declare that there were no conflicts of interest in the present study.

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