



KNOWLEDGE ABOUT GINGIVAL ENLARGEMENT AMONG DENTAL STUDENTS

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Abstract: Background: Gingival overgrowth is one of the common presentations of gingival disease often is the consequence of using certain medications, if left untreated could result in severe oral complications, however diagnosis of these entities becomes challenging due to its varied presentations. It is often associated with poor oral hygiene. **Aim:** To evaluate the knowledge of gingival enlargement among the dental students and to reinforce the importance of these enlargements in clinical practice by giving additional education regarding pathophysiology, presentation and treatment. **Method:** A cross sectional study was conducted using self-administered questionnaire, through Google forms among 100 dental students across dental colleges in Tamil Nadu, India during COVID-19 pandemic lockdown period. **Results and Discussion:** On evaluating the knowledge about gingival enlargement only 42% responded for it to be an increase in size of gingiva and 35% were not sure whether gingival enlargement will be reduced after scaling procedure. On assessing the treatment option available for gingival enlargement only 39% participants believe gingival enlargement is treatable among which fewer than one fourth (24%) of total participants considered it as a reversible condition. Majority of the students were unaware of clinical presentation and complications of gingival enlargement. **Conclusion:** The present study clearly showed a lack of awareness and knowledge among the budding dental students about gingival enlargement during their early academic life. Hence steps have to be taken to incorporate positive knowledge and reinforce the importance of these enlargements in clinical practice by giving additional education towards the outcome of improper treatment.

Keywords: Awareness, Gingival overgrowth, Idiopathic enlargement, Plaque-induced enlargement.

I. INTRODUCTION:

Oral health and general health are inseparable in nature. Enlargement or overgrowth of gingival tissue is a common trait of gingival disease. Gingival enlargement, also called as gingival hyperplasia or hypertrophy, an abnormal overgrowth of gingival tissues has been classified according to their etiologic factors and pathologic changes as inflammatory enlargement, drug-induced enlargement, enlargement associated with systemic diseases or conditions, neoplastic enlargement and false enlargement [1]. Inflammatory enlargements usually are secondary complications to any of the other types of enlargement creating a combined gingival enlargement presenting either as acute or chronic form [2]. Acute inflammatory enlargements are seen in gingival abscess as a painful, rapidly expanding lesion that is usually of sudden onset generally limited to the marginal gingiva or interdental papilla. On the other hand chronic gingival inflammatory enlargement is caused by prolonged exposition to dental plaque often originates as a slight ballooning of the interdental and marginal gingiva [3]. There are many factors favoring plaque accumulation and retention which include poor oral hygiene habits along with irritation caused by anatomical abnormalities, orthodontic forces and inappropriate restorations [4].

Drug-induced enlargement is a well-known consequence of the administration of some anticonvulsants, immune-suppressants and calcium channel blockers and may create speech, mastication, tooth eruption, and aesthetic problems [5]. Idiopathic gingival enlargement is a rare condition of undetermined cause. It has been designated by various terminologies such as gingivomatosis, elephantiasis, idiopathic fibromatosis, hereditary gingival hyperplasia, and congenital familial fibromatosis. Many systemic diseases and conditions can affect the periodontium by two different mechanisms. In magnification of an existing inflammation initiated by dental plaque mechanism, group of diseases, discussed under "Conditioned Enlargements," like hormonal conditions (e.g., pregnancy and puberty), nutritional diseases such as vitamin C deficiency, and some cases in which the systemic influence is not identified (nonspecific conditioned enlargement) are included. The second mechanism covers a wide-range of systemic disease independently of the inflammatory status of the gingiva and neoplastic benign enlargements such as fibroma, papilloma, peripheral giant cell granuloma, central giant cell granuloma, and leukoplakia as well as certain malignancies like carcinomas and malignant melanoma [6, 7].

False enlargements are not true enlargements of the gingival tissues but may appear as such as a result of increases in size of the underlying osseous or dental tissues. The gingiva usually present with no abnormal clinical features except the massive increase in size of the area [8]. Due to their varied clinical presentations as discussed above, the diagnosis of these entities becomes challenging since the management of these lesions and prevention of their recurrence is critical for the clinician. Hence the present study was aimed to evaluate the knowledge of gingival enlargement among the dental student and to reinforce the importance of these enlargements in clinical practice by giving additional education towards the outcome of improper treatment.

II. MATERIAL AND METHODS:

The cross-sectional questionnaire survey was conducted amongst the dental students to determine their knowledge towards gingival enlargement. Since this study was conducted during COVID 19 Pandemic lockdown period, online Google forms were distributed. A sample size of 100, randomly selected among the dental students across Chennai participated in this survey. Participants were informed about the study and assured that their participation was purely voluntary. The main outcome of the study is to assess the level of awareness, knowledge about gingival inflammation among dental students. The required information was collected from various articles pertaining to the subject. The data was collected via, self-administered structured questionnaires, which consisted of 25 questions in English terms, including demographic details, socio economic status of the participants and substantive questions exploring the students on oral hygiene practices and slowly progressing to questions on dental implants. The questionnaire had both combination of selected response to the certain questions and also few close ended questions (Yes / No). On completion, their responses were collected and subjected to statistical analysis.

III. RESULTS:

A total of 100 dental students participated in the present survey among which 35% were interns, 18% were final years, 21% were third years and 26% were second year students. On evaluating the knowledge about gingival enlargement only 42% responded as increase in size of gingiva (**Graph 1**) and 35% were not sure gingival enlargement will be reduced after scaling procedure (**Graph 2**). Most of the study participants were unaware of various terminologies of gingival hyperplasia. On evaluating the various clinical presentations and its association with systemic diseases 35% responded thrombocytopenic purpura, 30% for leukemia and 26% opted for HIV as common systemic disease associated with gingival enlargement (**Graph 3**). Unequal responses were obtained from students on their knowledge about scoring criteria and frequent location of gingiva involved in chronic gingival enlargement. Only 26% of students were familiar with various local factors like improper restoration, orthodontic appliance and poor oral hygiene are collectively involved in gingival enlargement etiology. On assessing the responses about various habits associated with gingival enlargement 43% responded to mouth breathing, 26% responded to bruxism and few responded to thumb sucking and lip biting (**Graph 4**).

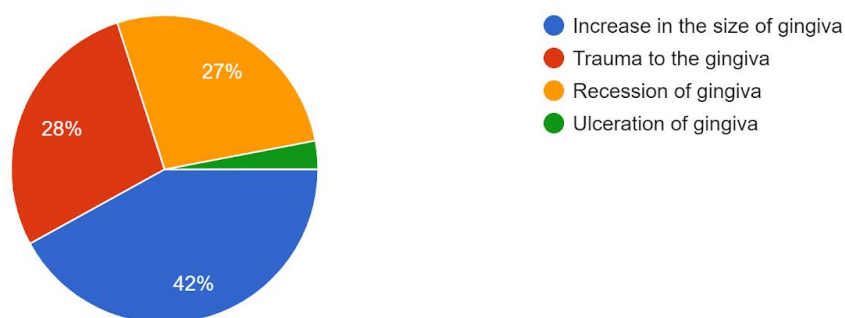
On evaluating the various common conditions associated with gingival enlargement 37% responded for anemia, 23% each for pregnancy and jaundice. On evaluating the knowledge about various drugs associated with gingival enlargement 45% responded for cyclosporine, 25% each for felodipine and phenytoin (anti-convulsant) (**Graph 5**). Only 30% of study participants preferred phenytoin over diazepam as a choice of drug. Among considering other gingival enlargement conditions only 32% were aware of gingival abscess, 33% for pyogenic granuloma, and 31% for angioedema respectively.

On assessing the treatment option available for gingival enlargement only 39% participants believe gingival enlargement is treatable among which fewer than one fourth (24%) of total participants consider it as a reversible condition. Majority of the students were unaware of clinical presentations and complications of gingival enlargement however 41% opted for pezo-surgery over cryosurgery and laser surgery apart from removal of the etiological agents.

IV. FIGURES AND ILLUSTRATIONS:

1. What is Gingival Enlargement ?

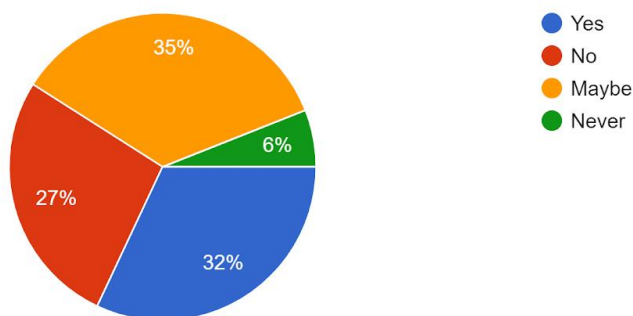
100 responses



Graph 1: Graph showing responses on knowledge about gingival enlargement.

2. After scaling, is there any chances of reducing gingival enlargement ?

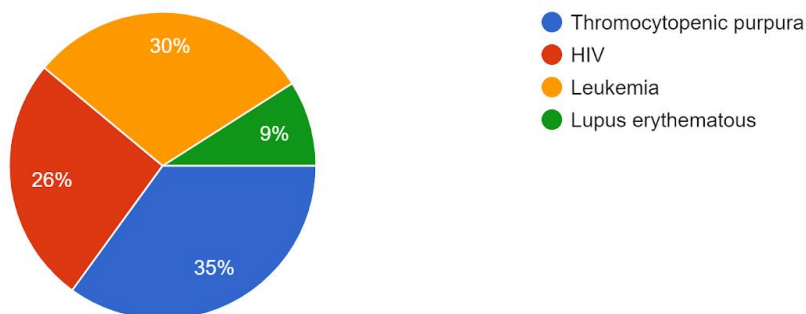
100 responses



Graph 2: Graph showing responses about scaling as a treatment option for reduction of gingival enlargement.

4. Which of the systemic diseases is associated with gingival enlargement ?

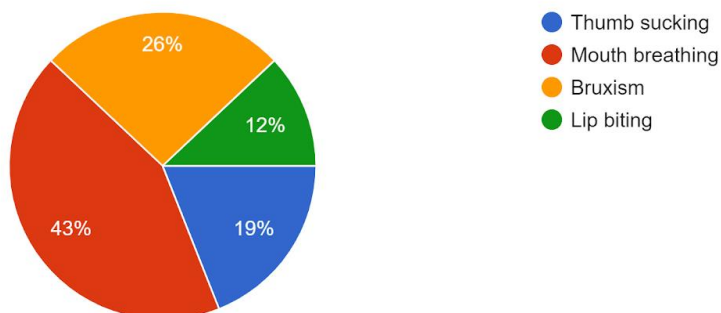
100 responses



Graph 3: Graph showing responses about systemic diseases associated with gingival enlargement.

8. Which of the following habits often leads to gingival enlargement ?

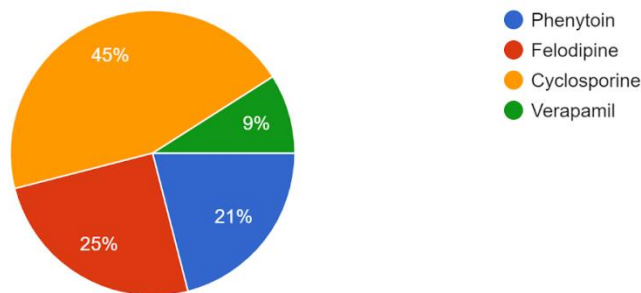
100 responses



Graph 4: Graph showing responses on knowledge about gingival enlargement and oral habits.

12. Which of the immunosuppressant drug that causes gingival enlargement ?

100 responses



Graph 5: Graph showing responses on knowledge about drugs associated with gingival enlargement.

V. DISCUSSION:

More commonly, gingival disease manifests as local or generalized gingival enlargement, which often represents one of the diverse types. Accurate diagnosis by proper medical, dental history such as drug influenced or hormonal influenced gingival enlargement along with their clinical presentation with or without associated local irritants (plaque and calculus) is critical.

Drug-induced gingival enlargement was first observed in patients who were taking phenytoin for epilepsy, with approximately 50% having gingival overgrowth [9]. In the present study on evaluating the knowledge about various drugs associated with gingival enlargement 45% responded for cyclosporin, 25% each for felodipine and phenytoin (anti-convulsant) similar to the studies by Friskopp et al [10], Daley et al [11] suggesting cyclosporin as a potent agent in causing gingival enlargement in 25-80% of patients. The incidence of phenytoin-induced gingival enlargement as reported by a study by Kimball [12] was found to be 57% while other studies by Whitehead et al [13], Cals et al [14] have revealed wide incidence range of 20-40%, similar interpretations were made by 25% of participants in our study however 30% of study participants yet preferred phenytoin over diazepam as a choice of drug. From the above observations it is evident that dental practitioners should advise patients of the possibility of this effect and emphasize the importance of maintaining good oral hygiene as a preventive measure. It is believed that plaque bacteria caused by poor oral hygiene can exacerbate the drug's effect, and therefore nonsurgical mechanical debridement and good home care should be included.

Vally et al [15], Katsikeris et al [16] observed gingival hyperplasia as a rare condition that could be an indication of underlying systemic disease such as uncontrolled diabetes, pregnancy, and puberty similar results were noted on evaluating the knowledge about various uncommon conditions associated with gingival enlargement (37% responded for anemia, 23% each for pregnancy and jaundice).

Several studies carried out by Sharma et al [17], Gulati et al [18] observed a definite association between mouth breathing and gingival enlargement. Similarly in the present study on assessing the responses about various habits associated with gingival enlargement 43% responded to mouth breathing, 26% responded to bruxism and few responded to thumb sucking and lip biting. These results shows that controlling oral health behavior and evaluating mouth breathing would effectively prevent periodontal disease at an early stage in young people.

Treatment for gingival enlargement depends on the etiologic agent and the category the disease falls under. Bhatnagar et al in 2019 stated that in excessive enlargement cases, a properly timed surgical procedure to reduce the tissue to a normal contour will yield maximum benefit to the patient [19]. In contrast, on assessing the treatment option available for gingival enlargement only 39% participants believe gingival enlargement is treatable among which fewer than one fourth (24%) of total participants consider it as a reversible condition.

Bosco et al [20], Ramer et al [21] advocated gingivectomy with periodontal pack placement for one week or modified periodontal plastic surgery as a preferred mode of treatment for the removal of gingival overgrowth however 41% opted for pezo-surgery over cryosurgery and laser surgery apart from removal of the etiological agents. From the present study it was observed that majority of the students were unaware of clinical presentation and complications of gingival enlargement.

VI. CONCLUSION:

The present study clearly shows a lack of awareness and knowledge among the budding dental students about gingival enlargement during their early academic life. It is indeed believed to impact their approach towards the patients once they enter into clinical practices. Hence steps have to be taken to incorporate positive knowledge and reinforce the importance of these enlargements in clinical practice by giving additional education towards the outcome of improper treatment.

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