Case Report

Hereditary Gingival Fibromatosis: A Report of a Rare Case in Siblings and Its Management Using Diode Laser

Abstract

Hereditary gingival fibromatosis (HGF) is a proliferative fibrous lesion causing severe gingival enlargement, affecting the esthetics, as well as posing various periodontal problems. This case report addresses the diagnosis and treatment of one such rare case of HGF where the patient presented with generalized diffuse gingival enlargement involving the maxillary and mandibular arches extending on the buccal and lingual/palatal surfaces and covering the incisal/occlusal third of the tooth, resulting in altered esthetics, difficulty in speech, and mastication. Gingivectomy was carried out in all the four quadrants using diode laser. The healing was uneventful; the patient was satisfied with her esthetics and was able to resume her oral hygiene practices. Even though recurrence cannot be predicted, the risk of recurrence can be outweighed with the psychological and functional benefits. Long-term follow-up will be required to evaluate the predictability of the different surgical techniques.

Keywords: *Gingival enlargement, gingivectomy, hereditary gingival fibromatosis, laser*

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Introduction

Hereditary gingival fibromatosis (HGF) is a heterogeneous group of disorders that develops slowly and progressively as local or diffuse enlargement involving marginal and attached gingiva and/or interdental papilla.[1] It is a rare disease, affecting only one in 750,000 people.[2] The gingival tissue enlarges partially covering the occlusal surface, however, the condition is usually not painful until it becomes severe. In such cases, the patient experiences functional, esthetic, and periodontal problems; also this enlarged tissue tends to get traumatized during mastication, thus worsening the condition.[1] Various causes have been suggested, including genetic predisposition influenced by gene mutations, however, in the case of idiopathic gingival fibromatosis, no causative agent can be identified.[2,3] In this report, we present an unusual, nonsyndromic, and recurrent case of generalized HGF, discussing about its clinical and histopathological features and the management of the same.

Case Report

A 39-year-old female patient reported to the Department of Periodontology in Subharti Dental College and Hospital, Swami Vivekananda Subharti University, Meerut, India, with a chief complaint of swollen gums, difficulty in mastication, and unpleasing appearance while smiling. The patient reported that this enlargement of gingiva started with the eruption of permanent dentition and progressed slowly to cover the entire permanent dentition, causing inadequate lip closure, resulting in poor esthetics. No history of drug intake, any mental disorder, or hormonal changes, which could be associated with gingival changes, were reported. Intraoral examination revealed a dull pink-colored gingiva that had a firm and fibrous consistency. The enlargement was generalized, nodular type, covering almost until the incisal/occlusal third of all of her teeth, thus making them barely visible [Figure 1]. The patient's parents did not reveal any evidence of gingival overgrowth. However, the patient gave a positive history for genetic predisposition as the patient's maternal grandmother, maternal aunt, and brother suffered a similar condition. Her brother did not report back for the treatment [Figure 2].

Routine blood investigations were carried out, which revealed the values within normal range. No bone loss was seen in panoramic

How to cite this article: Dureja D, Sharma H, Agarwal M, Srivastava S, Tandon P. Hereditary gingival fibromatosis: A report of a rare case in siblings and its management using diode laser. Contemp Clin Dent 2020;11:290-3.

Submitted : 22-Feb-2019
Revised : 15-Apr-2020
Accepted : 01-Jun-2020
Published : 26-Nov-2020

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Access this article online

Website: www.contempclindent.org

DOI: 10.4103/ccd.ccd_133_19

Quick Response Code:

radiographs [Figure 3]. Considering the demands of the patient and the severity of the enlargement, the treatment was discussed with the patient and informed consent was obtained. Excisional biopsy was carried out which histologically revealed a bulbous increase in the connective tissue, which was relatively avascular and had densely arranged collagen fiber bundles, numerous fibroblasts, and mild chronic inflammatory cells. The overlying epithelium exhibited hyperplasia and had elongated rete ridges, suggesting a histological diagnosis of fibro-epithelial hyperplasia [Figure 4]. Therefore, on the basis of medical, family, and drug history and clinicohistological findings, a diagnosis of HGF was made [Figure 5].

After completion of Phase I therapy, a quadrant-wise gingivectomy was performed under local anesthesia (lignocaine 2% with epinephrine 1:100,000), using 810 nm GaAlAs diode laser (Picasso+, AMD Lasers, Utah, United States) [Figure 6]. Postsurgery antibiotic amoxicillin 500 mg (Novamox cap, Cipla, Mumbai, Maharashtra, India), thrice daily for 5 days, and analgesic ibuprofen 400 mg (BRUFEN, Abbott India Ltd, Goa, India) 8 hourly for 3 days, were prescribed, along with chlorhexidine mouth rinses (0.2% Chlohex ADS, Dr. Reddy's Laboratories Ltd, Telangana, India) 10 ml twice daily, for 10 days. The postoperative healing was uneventful, and the patient was satisfied with the treatment rendered. However, the patient was recalled after 3, 6, and 9 month regular intervals for keeping a check on further recurrence [Figure 7].

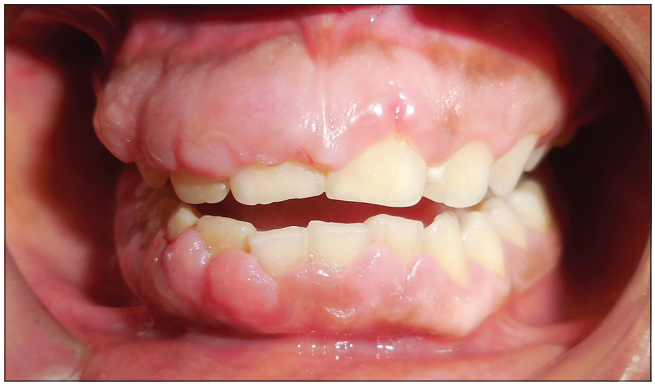

Figure 1: Preoperative intraoral frontal view of the maxillary and mandibular arches

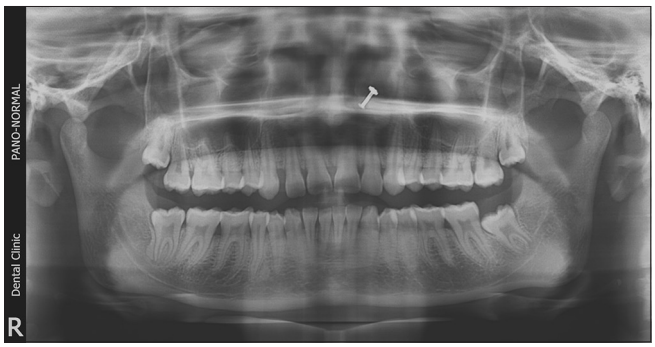

Figure 3: Panoramic radiograph revealing no bone loss

Discussion

In the cases of HGF, it is difficult to define the major etiological factor behind occurrence, therefore, its treatment by removing the etiologic agent is not possible. Various studies have reported it to be associated with either autosomal dominant or autosomal recessive disorders, thus suggesting that hereditary factors may be responsible for it, but the true genetic mechanism is still unknown.[4] The major cause of nonsyndromic gingival fibromatosis is proposed to be the mutation of Son-of-Sevenless gene with chromosome 2p21 as the first polymorphic marker.[5,6] This case report highlights the importance of pedigree analysis in the diagnosis of this genetic condition. In this case report, the pedigree was constructed including the four latest generations of the family to confirm the hereditary involvement [Figure 5].

This disorder characterizes with the enlargement of gingiva, which is proliferative in nature. Due to this condition, the patient experiences difficulty in mastication and speech and also it leads to disfigured esthetics, thus the patient tends to lose self-confidence. HGF tends to occur more frequently as a generalized condition involving all of the dentition

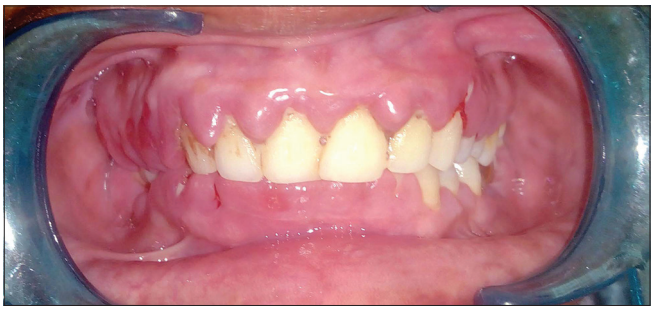

Figure 2: Intraoral view of second sibling revealing similar enlargement

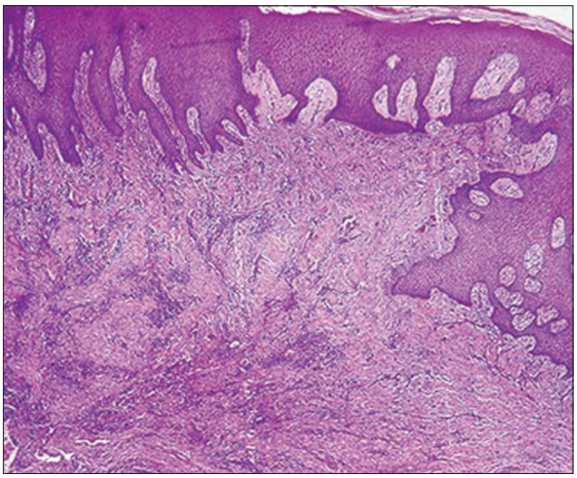

Figure 4: Histological picture illustrating the presence of densely arranged collagen bundles in connective tissue

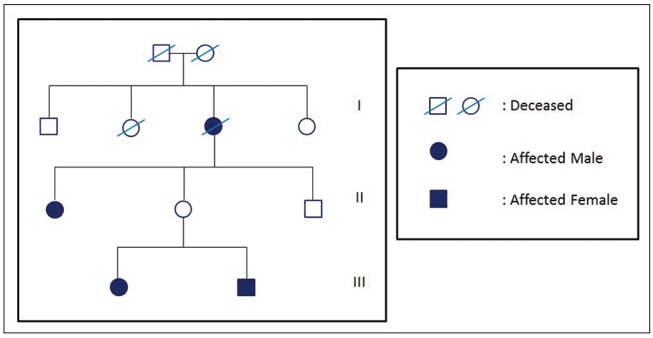

Figure 5: Pedigree chart: affected generations

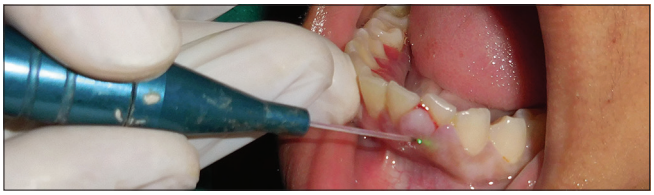

Figure 6: Third quadrant – gingivectomy with diode laser

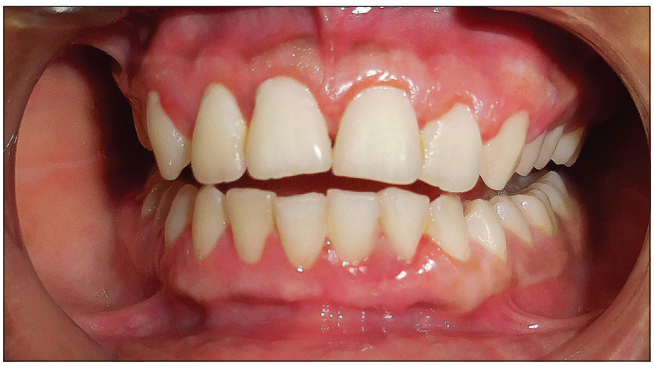

Figure 7: Nine months postoperatively

with a ratio of 15.2:1 from generalized-to-localized types.[7] The differential diagnosis includes elephantiasis gingivae, fibromatosis gingivae, gigantism of the gingiva, congenital macrogingivae, hereditary gingival hyperplasia, and hypertrophic gingiva.

The treatment of gingival fibromatosis depends on the severity of the enlargement/condition. This article presents a rare case of HGF in siblings, with familial aggregation in up to previous three generations, and there was no sign of the presence of any other genetic disorder. The enlargement was diffuse and covered more than one-third of the crown, hindering the mastication and compromising the esthetics.

Surgical intervention with gingivectomy and gingivoplasty is advocated for excessive enlargement with no attachment loss. Various modalities can be administered for this including conventional external bevel gingivectomy procedure, electrocautery, or the use of diode laser. Laser is preferred due to better hemostasis, increased patient comfort, and decreased postoperative healing time and morbidity.[8] However, lateral heat damage, lack of control over penetration of laser, required technical skill of the operator, and higher cost limit their application.[9]

In this case, the assertion of a hereditary condition helped to map a pedigree chart which included four generations. The case presented here was successfully managed using a diode laser without any surgical intervention. The patient was further educated about the importance of oral hygiene maintenance and recall visits and also about the chances of recurrence of the disease and occurrence of the same disease condition in the future generations.

Conclusion

HGF is a relatively rare condition with poorly understood etiopathogenesis and recurrence rate. The management of HGF is of prime importance as it may cause considerable cosmetic and psychological concerns in patients due to difficulty in mastication, phonetics, deformed esthetics, and malpositioning of teeth. Even though recurrence cannot be predicted, the psychological and functional benefits far outweigh the risk of recurrence.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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