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Management of Lobulated and Non-Lobulated Capillary Haemangioma in a 22-Year-Old Male Patient- A Rare Case Report

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Case Report

History

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ABSTRACT

Pyogenic granuloma (PG), a benign, reactive, vascular exophytic growth occurring in oral cavity with a sessile or pedunculated base. Commonly occurs on gingiva, lip, tongue, buccal mucosa, palate and floor of the mouth. The usual causative agents are calculus, presence of foreign body, although certain drugs and hormonal imbalances precipitate its growth. Difficulty in speech, mastication and compromised aesthetics is encountered when increased in size. Histologically two variants are reported: Lobulated capillary haemangioma (LCH) and non- LCH. LCH shows organised arrangement of lobular aggregates of blood vessels whereas, non-LCH features granulation tissue type without lobular aggregates. The treatment consists of elimination of local irritants with conservative surgical excision. This case report deals with a patient who presented with long standing PG at multiple sites causing him difficulty in mastication leading to inadequate dietary intake which causing undernourishment. The management included elimination of local factors and excision by diode laser.

Keywords: Histology, lobulated capillary haemangioma, non-lobulated capillary haemangioma, laser excision, pyogenic granuloma..

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Introduction

The term pyogenic granuloma (PG) introduced in 1943 is a misnomer since the lesion has no pus nor is it a granuloma. Its histologic variant termed as Lobulated capillary hemangioma (LCH) was introduced in 1980 and since then both terms are used synonymously.[1] PG is described as a commonly occurring, reactive, benign vascular lesion of the oral cavity formed by proliferating capillaries. Clinically it may appear as a red lobulated or smooth exophytic growth occurring at isolated or multiple sites with a sessile or pedunculated base. Although it can occur at any age, the peak prevalence is said to be during second and third decade of life with a predilection for younger females compared to older males with a ratio of 1.2:1.[2]

Any injury/stimulus like calculus, presence of foreign body may precipitate its growth, caries and overcrowding of teeth may aggravate the condition. Hormonal imbalances and usage of certain drugs have also been implicated in its development.[2,3] The most affected intraoral site is gingiva followed by lips, tongue, buccal mucosa, hard palate, and floor of the mouth. The lesion may vary in size from few millimeters to centimeters and may cause difficulty in mastication, interfere with speech, and cause esthetic concerns. Any slightest provocation can cause considerable bleeding due to its high vascular nature. Other nomenclatures for PG include, granulation tissue type hemangioma, granuloma gravidarum/pregnancy tumor, Crocker and Hartzell's disease, vascular epulis, hemangiomatous granuloma, epulis teleangiectaticum granulomatosa and granuloma telangiectactium, granuloma pediculatum.[1-4] The treatment includes a combination of conservative approach with surgical excision.

Case Report

A 22-year-old male patient complained of multiple swelling of gums in the oral cavity that existed for 3 months. History revealed that 1 or 2 swellings occurred initially in isolated areas of gums for which he did not seek any treatment and ignored them thinking they might subside on their own. But with passage of time the swellings gradually increased in number and size at multiple sites. They were painful, bled excessively on touch, caused difficulty in chewing, swallowing and compromised his esthetics, causing him worry for which he seeked treatment. His guardians who accompanied him revealed about the patient's reluctancy towards food intake and mentioned about his consumption of only fluid beverages. They also showed concern over his continuing weight loss. The patient's medical, family and drug history was non-contributory to his present condition and his smoking history was negative.

Physically, the patient appeared thinly built with small body frame. His body mass index (BMI) recorded was 14.5 KG/M^2 revealing him to be an underweight person. Extraoral examination revealed incompetent lips. (Figure 1) On intraoral examination, multiple reddish shiny protuberant overgrowths on marginal, attached, and interdental gingiva were noted extending up to occlusal surfaces of posterior teeth of both

arches. Anteriorly the enlarged gingiva had a sessile base and covered almost 2/3rd of the labial surface of mandibular incisors. The consistency in this region was soft and friable. (Figure 2) Another bigger and firmer swelling extending from 24 to 27 was noted on hard palate with a pedunculated base. (Figure 3) Below these bases was found mild to moderately accumulated deposits of plaque and calculus. Mobility check revealed first degree with 14, 15 and 16.

To exclude the possibility of systemic involvement and considering surgical intervention, the patient was advised hematological investigations that included complete hemogram, HbsAg and HIV tests and radiographic investigations i.e., orthopantomograph (OPG), which revealed normal parameters. OPG depicted localized bone loss, root pieces with 36 grossly destructed crown with 26,37,46 and impacted 28. (Figure 4)

Procedure

As per the protocol a signed informed consent was obtained from patient and non-surgical periodontal therapy was initiated that included scaling and root planing under the cover of antibiotics and anti-inflammatory drugs. During the procedure it was noticed that not only the gingiva bled profusely but all the reddish swellings had turned black in color. (Figure 5) Upon completion of scaling, bleeding was controlled by local hemostatic measures. The patient was recalled after two weeks and remarkable improvement in tissue morphology was noted. (Figure 6) Excisional biopsy was carried out at two different sites with the help of diode laser (wavelength: 980nm, power output: 1 watt, wave mode: pulsed) along with extraction of the hopeless teeth i.e., 36 at the same time. After receiving the biopsy reports, a combination of gingivectomy and laser curettage was performed precisely in all the quadrants and the patient was discharged after application of periodontal dressing with prescription of antibiotics, anti-inflammatories, multivitamins, and oral antiseptics. The patient was motivated for plaque control measures. The importance of nutritionally balanced diet with inclusion of fresh fruits and vegetables were recommended. The patient was followed up for 3 months and 6 months during which there was no recurrence noted. (Figure 7) Mobility of the teeth 14,15,16 had reduced to zero degree owing to resolution of inflammation. The patient failed to report further for follow-up.

Histopathological examination of the biopsy from mandibular anterior region with sessile base revealed discontinuous stratified squamous parakeratinised epithelium overlying fibrovascular stroma with numerous endothelial lined vascular spaces of varying sizes in the form of lobular aggregates well separated with connective tissue septae. Along with multiple evidences of budding capillaries with endothelial proliferation chronic inflammatory infiltrate composed of lymphocytes, plasma cells, neutrophils, and macrophages were found. Presence of abundant areas of hemorrhage suggested LCH. (Figure 8) The specimen excised from palate revealed deposition of dense homogenous eosinophilic material that comprised of proliferating fibroblasts along with thin-walled capillaries having small lumen and infiltration of chronic inflammatory cells interspersed in extracellular matrix that suggested granulation tissue or non-LCH. (Figure 9)

Figure 1: Extraoral picture showing incompetent lips.

Figure 2: Diffused enlarged gingiva at multiple sites

Figure 3: Palatal swelling on left side extending from first premolar to second molar

Figure 4: OPG showing root pieces and carious lesion with 26,36,37 and impacted 28.

Figure 5: Blackish discoloration at provoked sites.

Figure 6: Clinical picture after two weeks of scaling

Figure 7: Labial and palatal view at the end of 6 months

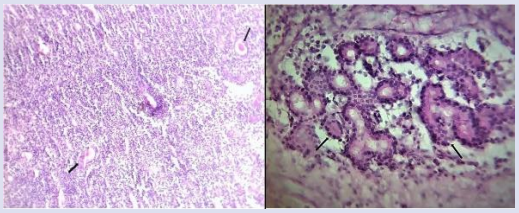

Figure 8: Photomicrograph showing budding capillaries of endothelial cells arranged in lobular aggregates separated by connective tissue septa. H&E stained (x10) and (x40)

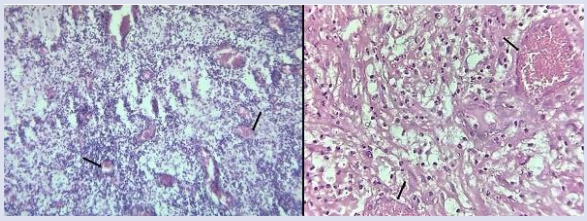

Figure 9: Photomicrograph showing areas of hemorrhage, filled with RBC's and thin-walled capillaries with small lumen along with chronic inflammatory infiltrates. H&E stained (x10) and (x40).

Discussion

PG is said to be a commonly occurring condition caused by trauma or local irritant factors. The lesion usually does not lead to serious outcomes if recognized early and treated promptly. Since it is a highly vascular lesion, the excess bleeding that occurs on provocation is explained by the role of angiogenesis through activation of cytokines and endothelial cell with greater expression of Intercellular adhesion molecule-1 (ICAM-1), Vascular cell adhesion molecule-1 (VCAM-1), CD34 molecules.[5] The varying size of the lesion is said to depend on factors such as duration, site, type of inflammatory infiltrates, vascularity etc. However, neglected, and long-standing cases may show increase in size and lead to difficulty in mastication, compromised esthetics. In the present case these conditions lead to inadequate diet intake thus paving the way for undernourishment and weight loss of the patient.

Two histological variants of PG i.e., LCH and non-LCH are found based on the presence or absence of lobular aggregates of endothelium lined vascular spaces. A different evolutionary pathway has been suggested for this difference.[2,6] Another distinguishing feature is said to be the foci of fibrous maturation being absent in LCH compared with non-LCH.[6] In the present case, two different sites were chosen for biopsy to assess if any variation existed histologically since the clinical picture varied from region to region and it existed.

The usual treatment consists of elimination of local irritants through phase I therapy followed by conservative surgical excision that include use of Nd: YaG lasers, cryosurgery using CO_2 snow, intralesional injection of triamcinolone, absolute ethanol, sodium tetradecyl sulfate and topical application of timolol.[2,3,7] In the present case phase I therapy resulted in resolution of inflammation to a greater extent. The blackish discoloration that occurred during this phase was found similar to a case of scorbutic siderosis reported.[8] In the present case report, surgical excision of the lesion was carried out by a soft tissue diode laser.

The differential diagnosis of PG includes Peripheral giant cell granuloma, peripheral odontogenic fibroma, hemangioma, Kaposi's sarcoma, angiosarcoma, hyperplastic gingival inflammation.[9] However confirmatory diagnosis is always certain with combination of clinical and histological correlation. Recurrence rate of PG is said to be as high as 22.2 percent especially in third and fourth decade, predominantly in

females.[10] However in the present case there was no recurrence till six months. There was improvement in the patient's oral and general health as his BMI recorded showed 20.06KG/M^2 at the end of 6 months.

Conclusions

The present case highlights both histological variants of PG in a single patient at gingival as well as extra gingival sites. Not only the local condition was managed but the patient's general health was also taken care of. The advantage of laser assisted gingivectomy and curettage result in minimal hemorrhage, pain, and discomfort to the patient. Hence, early diagnosis with meticulous treatment is the key for management of these benign lesions.

Acknowledgement

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Informed consent

An informed consent was obtained from the patient for publication of this case report.

Conflicts of Interest statement

No conflicts of interest.

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