

Capillary Hemangioma of the Gingiva in an Adult: A Rare Case Report

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ABSTRACT

Objective: We report a case of a 40-year-old female with gingival overgrowth in the right maxillary anterior region which has been excised at a peripheral hospital that caused displacement, mobility of associated teeth and lip incompetency.

Case description: A case of recurrent gingival overgrowth in the right maxillary anterior region in a 40-year-old female with associated teeth displacement and mobility and lip incompetency. There was a radiologic evidence of bone loss. Excisional biopsy was carried out and the histologic diagnosis was Capillary Hemangioma.

Conclusion: Capillary Hemangioma should be considered as one of the differential diagnosis in cases of gingival overgrowth of maxillary anterior region, which mimics pyogenic granuloma

Keywords: Capillary Hemangioma of the gingiva, pyogenic granuloma, gingival overgrowth

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INTRODUCTION

Hemangiomas are a heterogeneous group of clinically benign vascular lesions with similar histologic features.¹ This vascular lesion can be classified as hemangiomas or vascular malformations.² It is believed to be a developmental anomaly or hamartoma, which is a congenital lesion but not a true neoplasm.³ This proliferating collection of blood vessels does not undergo malignant transformation, thereby making it a benign lesion.⁴ There has been report of higher incidence in females than males.² This lesion develops in childhood but a few cases are congenital,⁴ with older patients

being affected occasionally.^{5,6} The congenital hemangioma is often present at birth and may become further evident throughout life.⁴ Hemangiomas are the most frequently encountered growth of childhood occurring in 5-10% of infants less than one year of age.⁶ Oral involvement of hemangiomas is rare, even when reported to be localized in the craniofacial area in 60% of the cases.⁷ Sznajder *et al.*, first described this lesion in 1973 under the term hemorrhagic hemangioma.⁷ An oral presentation affects lips, tongue, buccal mucosa, and palate.³ Other gingival lesions can mimic hemangiomas clinically, radiographically,

and histopathologically.¹ The differential diagnosis of hemangioma includes pyogenic granuloma, chronic inflammatory gingival hyperplasia (epulis), irritational fibroma, telangiectasia, and even squamous cell carcinoma.¹ Capillary and cavernous hemangiomas are two (2) main forms defined according to size of vascular spaces.^{4, 6} The capillary form presents as a flat area consisting of numerous small capillaries while cavernous hemangioma appears as an elevated lesion of a deep red color, and consists of large dilated sinuses filled with blood. Capillary hemangioma (CH) are composed of small thin-walled vessels of capillary size that are lined by a single layer of flattened or plump endothelial cells and surrounded by a discontinuous layer of pericytes and reticular fibres.⁶ Cavernous hemangiomas consist of deep, irregular, dermal blood-filled channels.⁶ They are composed of tangles of thin-walled cavernous vessels or sinusoids that are separated by a scanty connective tissue stroma.⁶ Mixed hemangiomas contain both components and may be more common than the pure cavernous lesions.⁶

Notwithstanding that hemangiomas are benign in nature, it is of clinical importance to the dental

professionals as they may pose severe bleeding risk. The uncommon clinical presentations of these lesions may mimic other common gingival lesions; hence, dental practitioners need to be aware of these lesions. This case report describes a hemangioma of the gingiva in a 40-year-old female that mimicked a pyogenic granuloma.

CASE REPORT

A 40-year-old housewife presented to the Periodontology Clinic of Aminu Kano Teaching Hospital, Kano, Nigeria with a 5-year history of a slow growing, painless gingiva growth. This gingival overgrowth was present in her right maxillary anterior region. The lesion started as a small sized nodule, gradually increased in size with positive history of itching and occasional bleeding. Patient gave a positive history of food impaction, use of toothpick and bruxism. Patient's medical history was non-contributory. Patient history also revealed that excision had been done prior to the 5 years history in a peripheral hospital, and no histology report was requested of the excised tissue. The growth reoccurred in same area after the excision.



Figure 1: Preoperative extraoral view

Extra oral examination showed an elevation of the upper right lip by the overgrowth (Figure 1). The gingival overgrowth was present between the upper and lower lip hence causing both upper and lower lip incompetence, and was visually distressing. An intra-oral examination revealed a lobulated hyperaemic growth, non-



Figure 2: Preoperative buccal view of the lesion

tender, firm in consistency at the midline and soft at the sides, sessile in nature, arising on the labial gingiva of the interdental papilla of 14 and 21, measuring 5cm by 5cm (Figure 2). There is an associated bleeding on pressure. The rest of the gingiva appeared generally hyperaemic. Simplified oral hygiene index score of 3.8 was

recorded, which was poor. The growth totally enclosed the 13 and there was mobility of 11 and 12 (grade 1).



Figure 3: Preoperative occlusal Radiographic view

Radiography revealed bony involvement of the 12 and 13, with bone loss to the apical portion of 12 and widening of periodontal ligament of 12 (Figure 3).

Based on the clinical and radiographic features a provisional of pyogenic granuloma was made.



Figure 5: Postoperative view with Periodontal dressing in situ

Differential diagnosis of peripheral giant cell granuloma and peripheral ossifying fibroma was considered. After performing oral prophylaxis of scaling and root planing, patient was placed on warm saline mouth bath and reviewed after two



Figure 4: Postoperative view

weeks. The gingival overgrowth had not reduced in size but the oral hygiene was good and consent for the surgical procedure was obtained from the patient after proper counseling was done. Under local anesthesia the lesion was completely excised, revealing bone and underlying surface was thoroughly curetted



Figure 6: One week post-operative view

(Figure 4). Copious normal saline irrigation was done until bleeding became minimal. Hemostasis was achieved and a periodontal dressing was placed (Figure 5).

Medications prescribed Ibuprofen 400mg BD X 3/7, Augmentin 625mg BD X 7/7, Metronidazole 400mg TDS X 7/7 and vitamin C 100mg TDS X 7/7. Post-operative instruction was given to the patient. The excised tissue was submitted to the Histopathology Department for histologic diagnosis. Patient was recalled after one week for removal of the periodontal dressing (Figure 6).

Histological section showed tissue focally lined by stratified squamous epithelium. The stroma demonstrates proliferating small to intermediate size capillary vascular channels lined by bland endothelial cells with occasional red blood cells within lumen. The scanty intervening fibroconnective tissue stroma exhibits sparse inflammatory cells infiltrates (Figure 7-11). Based on this, a diagnosis of Capillary Hemangioma was made.

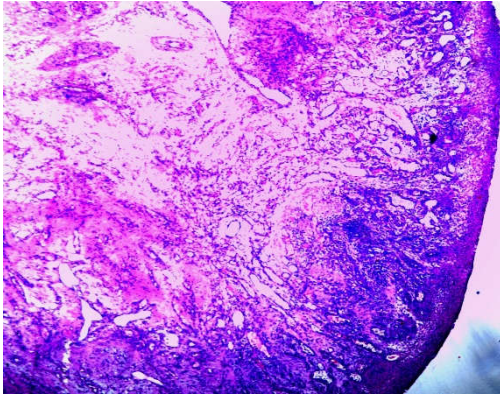


Figure 7: Histology slide low magnification

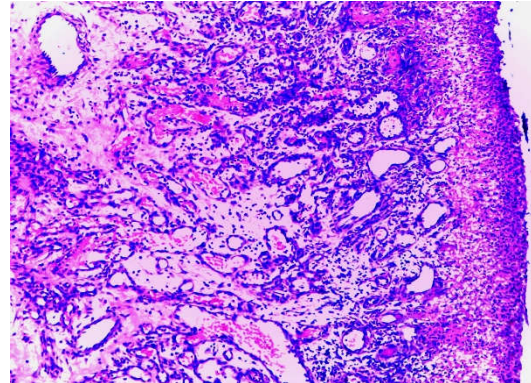


Figure 8: Histology slide low magnification

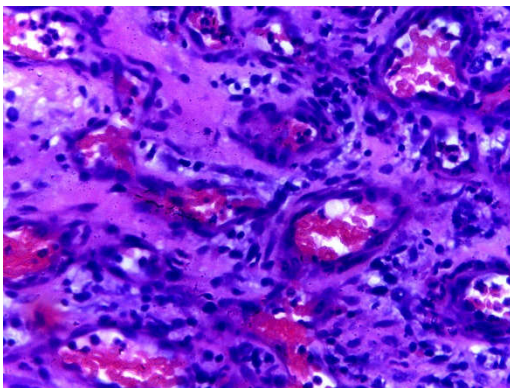


Figure 9: Histology slide high magnification

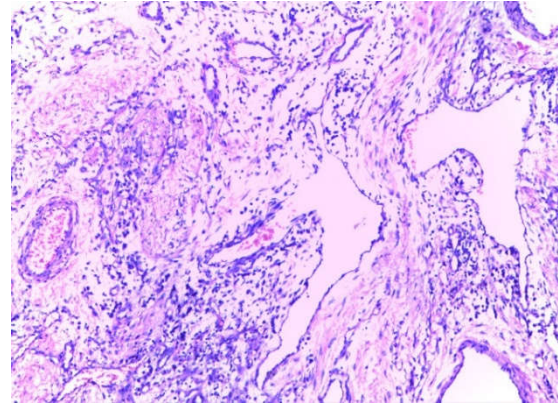
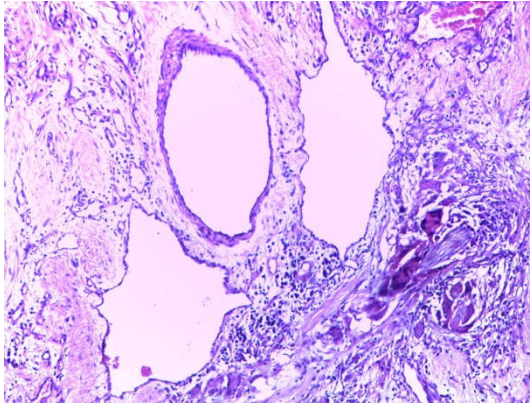


Figure 10. Histology slide with high magnification X10 Figure 11. Histology slide with high magnification X10

DISCUSSION

Hemangiomas are characterized by three phases, specifically, endothelial cell proliferation, rapid growth, and spontaneous involution.^{6,8} It is a soft tissue lesion of the head and neck region that is congenital or develop in the neonatal period.^{5,9} In the case presented here, the occurrence could not be ascertained from patient, but patient insisted it was in adulthood that she first noticed it. Its occurrence in gingival mucosa and palate is rare.¹⁰⁻¹³ This lesion in dark-skinned individuals is less common,¹² whereas, it is commonly seen in Caucasians.¹³ No details are available regarding their incidence in Nigerian population. In the present case, the lesion likely developed in the interdental papillary region of 12 and 13, exaggerated by poor oral hygiene hence the bony involvement, with no extension of the lesion into the palatal mucosa. They rarely occur in adults; in the present case the patient was in the 5th decade of life. It is much more common in females than the males in a ratio of 3:1 to 5:1⁶ and this case was seen in a female. Exact aetiology of hemangiomas is unknown.^{14,15} Imbalance in angiogenesis plays an important role in the development of hemangiomas.^{8,15} Microscopically, the lesion can be grouped into capillary, cavernous, mixed, and sclerosing type.^{12,14,15,17,18} In the present case, the lesion was capillary type of hemangioma. Clinically, hemangiomas are characterized as a soft mass, smooth or lobulated, sessile or pedunculated, and seen in any size from a few millimeters to several centimeters with the color of the lesion ranging from pink to red purple and tumor blanches on application of pressure.¹⁹ This

lesion usually presents as painless growth,¹ as seen in this case report. It is firm and rubbery to palpation and blood could not be drawn by applying pressure.⁶ Clinically, radiographically, and sometimes microscopically, they may resemble other lesions creating problematic diagnosis.^{1,14} Pyogenic granuloma (PG), peripheral giant cell granuloma, peripheral ossifying fibroma, epulis, epulis granulomatosa, and squamous cell carcinoma are the differential diagnosis of hemangiomas.^{13,20} Both PG and CH occur at a young age, with high incidence in females, but pyogenic granuloma is seen commonly in the gingiva, unlike capillary hemangioma which is seen in infants,^{17,18} which presents commonly on the tongue, lips and buccal mucosa and rarely on the gingiva.^{1,10} Pyogenic granuloma is the most common vascular proliferation of the oral mucosa, a reactive lesion that develops rapidly, bleeds easily, and is usually associated with the inflammation and ulceration.⁶ Clinically it is often lobulated, pedunculated, and red to purple in color and it may be hormone sensitive.⁶ These two lesions present a diagnostic problem, and hence microscopic evaluation is mandatory to make a definitive diagnosis.¹³ Capillary hemangioma histologically exhibits a progression from densely cellular proliferation of endothelial cells in the early stages to a lobular mass of well-formed capillaries in the matured phase, often giving the appearance of pyogenic granuloma without the classical inflammatory features seen in pyogenic granuloma.¹¹ Microscopically, PG is classified into two types, namely, lobular capillary hemangioma (LCH) and non-LCH.^{1,12,13,21} Microscopically, LCH type

of PG consists of an attenuated endothelial lining surrounded by somewhat uniform proliferation of plump to spindle cells whereas CH consists of more prominent endothelial cells and an array of capillary-sized blood vessels with lobular architecture. In LCH type of PG, capillaries are frequently arranged perpendicular to the surface.¹² Light microscopic differentiation between true hemangioma of infancy and PG may be difficult; however, the latter exhibits immune-cytochemical and ultra-structural differences.¹⁸ Radiographs are also important and should be carried out to exclude any bony destruction, which might be indicative of either central variety of hemangioma, malignancy or calcifications.^{14,19} In this case report there was signs of bony involvement radiographically.

Certain factors have to be considered for treatment of this lesion, includes the age of the patient, the size of the lesion, extent of the lesion, the site of involvement, and the clinical features.^{1,13,14} If lesions are superficial, not of aesthetic concern, and not disposed to masticatory disturbance it may be left untreated,¹⁹ even though small and superficial lesions may be completely excised with relative ease.¹ The most common treatment modality of capillary hemangioma is surgical excision of the lesion, with or without ligation of vessels and embolization.¹³ Surgical management should be done with caution because of the possibility of the bleeding intraoperatively and postoperatively. Recently developed treatment modalities include steroid therapy, electrosurgery, Nd:YAG laser, CO₂ laser, cryosurgery, and sclerotherapy.¹³ Sclerotherapy is used largely because of its ability and efficiency to preserve the surrounding tissue.⁸ Current management consists of spontaneous involution, steroid therapy, and chemotherapy.^{14, 17} In the reported case, based on the provisional diagnosis of pyogenic granuloma and taking into the consideration patient discomfort of having a lesion disturbing lip seal, masticatory trauma with bony involvement, excisional biopsy was planned. Attempts to remove hemangiomas using surgical excision may lead to serious medical problems such as heavy bleeding. However, in this case, excessive bleeding was not encountered during excision. This may be due to

the fact that the CH might not be in an active proliferative phase and might not have penetrated the epithelium basement membrane interphase.²⁰ The prognosis of hemangioma is excellent since it does not become malignant or recur after adequate removal or destruction.¹⁹ The case described here exhibited that there was no subsequent hemorrhage or other evidence of reoccurrence after follow up of 6 months. Still longer periods are required to provide conclusive statement.

CONCLUSION

Capillary hemangiomas are rarely seen on the gingival region and may be easily be confused with different lesions, particularly with pyogenic granuloma. Increased accumulation of plaque and microorganisms around the gingival overgrowth, and increased susceptibility to oral infections, can also affect the systemic health of the individual. Early detection and biopsy are necessary to determine the clinical behavior, and arrive at the appropriate diagnosis. Awareness of lesions that mimic capillary hemangiomas and possible bleeding risks should be considered so to take necessary precautions during management.

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