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Capillary hemangioma or pyogenic granuloma: A diagnostic dilemma

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Abstract

Pyogenic granulomas and hemangiomas of oral cavity are well-known benign lesions. Although pyogenic granuloma is known to show a striking predilection for the gingiva and capillary hemangioma for lips, check, and tongue, palatal occurrence of these lesions is extremely rare. The clinical diagnosis of such an uncommon occurrence can be quite challenging as they sometimes may mimic more serious lesions such as malignancies. The purpose of this article is to report an unusual case of benign tumor occurring on hard palate which was clinically diagnosed as pyogenic granuloma and histopathologically as capillary hemangioma.

Keywords: Capillary hemangioma, portwine stain, pyogenic granuloma, vascular malformations

Introduction

Pyogenic granuloma and capillary hemangiomas are well known and commonly occurring benign vascular lesions of oral cavity.[1-6]

Pyogenic granulomas of the oral cavity are known to involve the gingiva commonly. It is a misnomer as this condition is not associated with pus and does not represent a granuloma histologically.[7] In fact on the basis of the histopathological picture; it is also called lobular capillary hemangioma.[8]

Hemangiomas are benign tumors composed of blood vessels and are classified on the basis of their histological appearance as capillary, mixed cavernous, or a sclerosing variety that tends to undergo fibrosis.[9] Although hemangioma is a common tumor of the head and neck region, they usually occur in lips, cheeks, and tongue.[10] Hemangiomas occur in skin of 4-10% of Caucasian new born with 3- to 5-fold greater incidence in females. Dark skinned infants have a lower incidence.[11] No details about incidence in the Indian population available.[12] Both these lesions rarely occur on the palatal mucosa,[10] have higher incidence in females, occur in younger age group and histopathologically resemble each other.[5,6,9,11,13]

Thus, the differentiation between a capillary hemangioma and pyogenic granuloma is somewhat unclear at this time.

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Case Report

A 7 year old male patient presented with a swelling on the posterolateral part of hard palate of 1 week duration. The swelling was of the size of a peanut when the parents of the patient first noticed it, but had grown rapidly over the past 1 week to attain the present size. The growth was asymptomatic. The patient's medical history was unremarkable apart from the cough he had since 4 days for which he was under medications prescribed at a general hospital.

The patient gave history of reddish purple pigmentation on the right middle third of face, extending from lower border of orbit to imaginary line joining corner of mouth and earlobe superoinferiorly and from lateral border of nose to temporal region 2 cm from outer canthus of eye anterosuperiorly, since birth [Figure 1]. Intraoral soft tissue examination revealed a solitary, peduncalated, spherical-shaped, reddish pink swelling with distinct border and irregular surface [Figure 2]. Surrounding palatal mucosa was normal and it was located in the posterior part of hard palate just lateral to the midline on right side in area between maxillary permanent first molar and maxillary second deciduous molar measuring 2 cm x

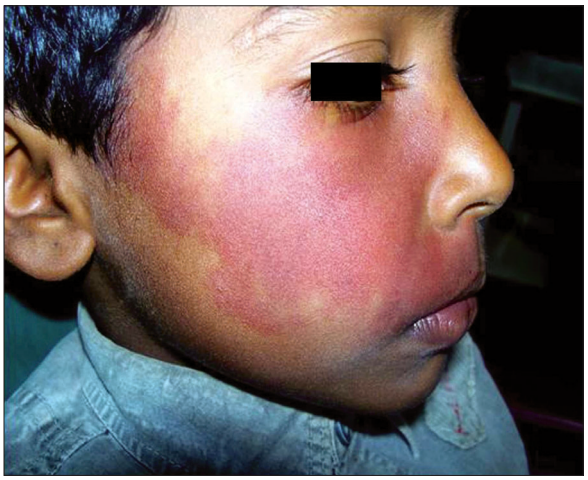

Figure 1: Portwine stain on right side of face

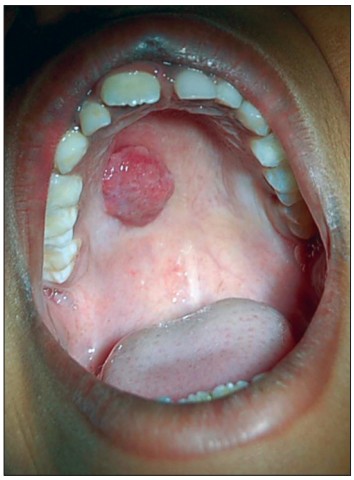

Figure 2: Solitary growth on posterior part of hard palate in area between deciduous maxillary right second molar and permanent maxillary right first molar

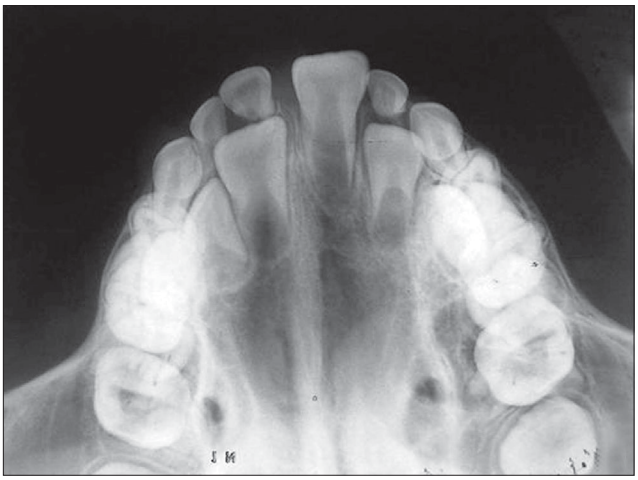

Figure 3: Occlusal radiograph of the area of right maxillary lesion

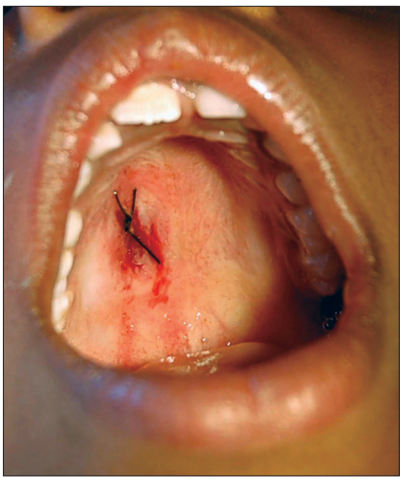

Figure 4: Sutures placed following excision

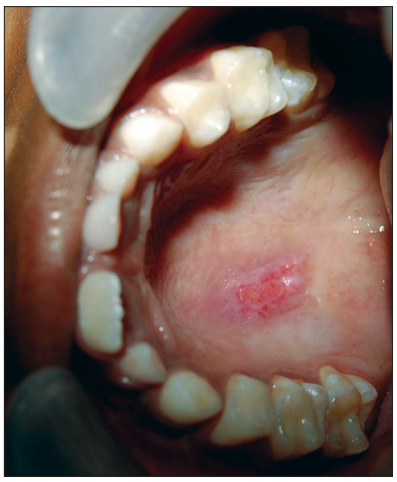

Figure 5: Post-operative healing after one week

1.5 cm in size. On palpation the swelling was non-tender, soft to firm in consistency, blanching on pressure. Intraoral hard tissue examination showed over-retained left deciduous central incisor with erupting right permanent central incisor.

Occlusal and panoramic radiograph revealed no loss of bone in relation to the lesion [Figure 3].

Based on its clinical signs and symptoms, a provisional diagnosis of pyogenic granuloma was established but as differential diagnosis consisted of capillary hemangioma excision under local anesthesia with all necessary emergency equipments at hand under the guidance of a trained anesthetist. The hemogram of the patient was within normal limits except for slightly prolonged clotting time and hence, he was taken for an excisional biopsy. Under local anesthesia, the growth was probed to check its bleeding tendency. When it was confirmed that very little blood was aspirated and the lesion bled minimally, an excisional biopsy with a wide margin down to the periosteum with curettage was performed. As the excision was wide, two sutures were placed for better wound healing [Figure 4]. The sutures were removed after 1 week and the healing was uneventful [Figure 5]. Also, based on radiographic and clinical findings, the over-retained left deciduous central incisor tooth was extracted and patient was recalled after 6 months for routine follow up examination [Figure 6].

The histopathological section of the specimen showed parakeratinised stratified squamous epithelium of varying thickness and areas of ulceration. The fibrous connective tissue showed numerous endothelial lined blood vessels of varied size and few blood vessels, which were yet to be lumenized. Numerous mixed inflammatory components secondary to ulceration were present along with few minor salivary glands [Figure 7]. Surprisingly, the pathology report obtained from the hospital pathologist stated that "histopathological features were suggestive of capillary hemangioma with inflammatory component, secondary to ulceration."

The histopathological diagnosis was given as capillary

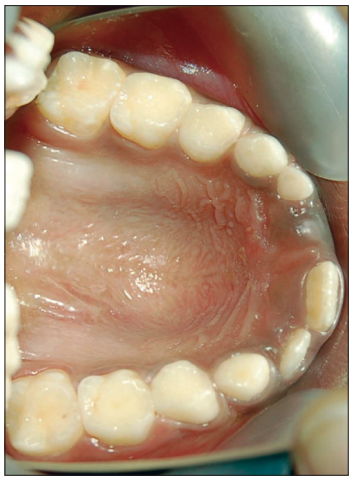

Figure 6: No recurrence of lesion even after 5 months

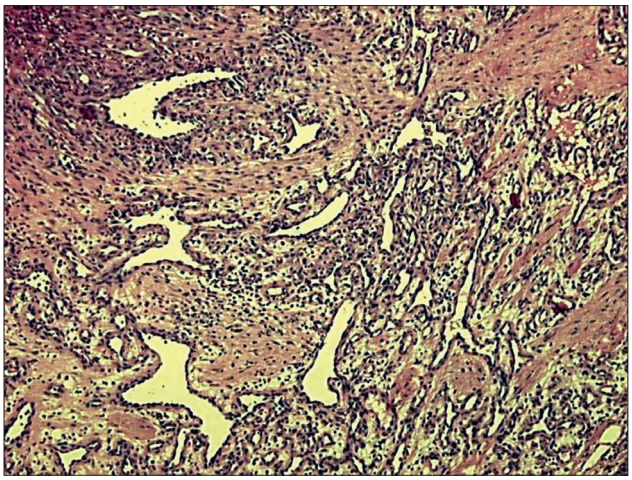

Figure 7: Photomicrograph (×20)

hemangioma by oral pathologist. Due to the dilemma, the specimen was again submitted to the general pathology department, which confirmed the original diagnosis of capillary hemangioma.

Discussion

Hemangiomas constitute 7% of all benign tumors in infancy and childhood.[1] Although hemangiomas of the head and neck region is relatively common, representing atleast a third of all hemangiomas in humans,[6] it is relatively rare in the oral cavity---especially in oral soft tissues---and uncommonly encountered by the dental profession.[9] In addition, confusion with other conditions can occur since hemangiomas may mimic other lesions clinically, radiographically and in some cases histologically.[14]

In general, hemangiomas are developmental whereas vascular malformations are present at birth.[9,11] Hemangiomas are most often recognized at an early age and encountered more frequently in females than males by ratio of 3:1. Vascular malformations occur in equal incidence among females and males. The hall mark of vascular malformations is proportionate growth throughout the life of the individual.[13] Vascular malformations are localized or diffuse errors of embryonic development. These are also classified as capillary, lymphatic, venous, arterial or a combination of these depending on the clinical and histological appearance of abnormal channels. The most common capillary malformation observed clinically is the "Port–wine stains"[12] which are well circumscribed pink or purple macular lesions, often in a unilateral trigeminal distribution. The mucous membranes are often involved contiguously with facial portwine stains. Pyogenic granulomas frequently develop within portwine stained skin; this is particularly common with intraoral stains.[11] Physicians must distinguish these nonproliferative enlargements from the proliferating hemangiomas.[13] The present case was diagnosed as having portwine stain present on right middle third of face.

Vascular anomalies of head and neck historically have confused clinicians over the years, secondary to inconsistent nomenclature. This has resulted in difficult study, improper diagnosis, and inappropriate treatment.[13]Various authors have suggested other names such as even pyogenic granuloma as shown in Table 1.[1]

The classification of hemangiomas is based on histological appearance, therefore histopathological assessment remains the most accurate and satisfactory means of diagnosis.[9] Radiographs are advised to rule out bony destruction suggestive of central variety of hemangioma, malignancy or to identify a foreign body that should need to be removed with the lesion.[8]

As in the present case, pyogenic granuloma ("Lobular Capillary Hemangioma") is a proliferative vascular lesion often clinically confused with hemangioma, unfortunately, as both share the

Table 1: Classification of vascular tumors and tumor-like conditions

Benign neoplasms, developmental and acquired conditions
Hemangioma
Capillary hemangioma
Cavernous hemangioma
Pyogenic granuloma (lobular capillary Hemangioma)
Lymphangioma
Simple (capillary) lymphangioma
Cavernous lymphangioma (cystic lymphangioma)
Glomus tumor
Vascular ectasias
Nevus flammeus
Spider telangiectasia (Osler-Weber-Rendu disease)
Reactive vascular proliferations
Bacillary angiomatosis
Intermediate-grade neoplasms
Kaposi sarcoma
Hemangioendothelioma
Malignant neoplasms
Angiosarcoma
Hemangiopericytoma

histologic designation "Capillary Hemangioma." A pyogenic granuloma appears suddenly. A history of trauma to the area is rarely elicited from the parents. Usually the patient is an older infant or young child, although the lesions also occur in adults. Cheek, eyelids, and extremities are the typical location for pyogenic granuloma. It also presents on the lips, oral mucosa, tongue, and nasal cavity. A curious and not infrequent occurrence is a pyogenic granuloma within a portwine vascular birthmark, either intra or extraorally. An early pyogenic granuloma, with its epidermis intact, bears more resemblance to a tiny hemangioma. The pyogenic lesion usually has a pedunculated shape with a tiny stalk. The pathologist often designates the lesion a "capillary hemangioma, granuloma type" or "lobular capillary hemangioma." It may be difficult to make a light microscopic differentiation between a true hemangioma of infancy and a pyogenic granuloma. However, pyogenic granuloma exhibits immunocytochemical and ultrastructural differences. It is predominantly perithelial, rather than an endothelial tumor.[11]

Such atypical presentations, like the case in discussion can be rather confusing and can lead to erroneous diagnosis of other more serious lesion. Differential diagnosis can include squamous cell carcinoma, Kaposis sarcoma, AIDS-related complex, metastatic carcinoma and benign lesion like bacillary angiomatosis, epulis, telangiectasia, fibroma of mucosa, and pyogenic granuloma.[15]Thus, the clinical diagnosis can be a mind boggling task.

Most small capillary hemangiomas like the one in the present case, reported in the literature, have been treated with curettage.[5] Local complications, which tend to occur in the proliferative phase, include bleeding and ulceration. Bleeding occurs when the epithelial basement membrane has been penetrated by hemangioma. This condition usually responds to local pressure or simple mattress sutures. Ulceration can lead to pain, infection, or recurrent bleeding.[13]Central hemangiomas of jawbone or intraosseous hemangiomas and large lesions would not be a candidate for this mode of therapy. Because of rich collateral circulation in the maxilla, ligation of one or more of the major arteries may not arrest hemorrhage in the area of surgery.[5] Such cases can be treated more conservatively with embolization and sclerosing agents.[14] Other treatment modalities consist of ligation and excision, artificial ulceration, electrolysis and thermocautery, sclerosant therapy, radiation and compression depending on the clinical features and the anatomic considerations. Current management consists of '*primum non nocere*' ie spontaneous involution, steroid therapy and chemotherapy.[11]

The lesion was small, neither was it life threatening in nature on presentation and radiographically as it did not show any bony involvement, and therefore it did not require immediate surgical control of hemorrhage. Hence, it was decided to treat this case by simple excision under necessary precautions. The present case was followed up for 6 months after excision. The wound healing was complete and no recurrence was noted.

Conclusion

The term hemangioma is used inconsistently, some sources including vascular malformations, others classifying vascular malformations separately. Furthermore, not all lesions exhibit similar clinical or histopathological characteristics.[16] Also, capillary hemangiomas are infrequently seen on palatal mucosa and may easily be confused with different lesions---particularly with chronic inflammatory gingival hyperplasia (epulis). Attempts to remove them using simple excision may lead to serious medical problems. Dental surgeons should therefore be aware of these risks during diagnosis and management and should take necessary precautions prior to attempts at excision of apparently innocent lesions. Such situation when a clinician is in dilemma, not cognizant with the possibility of this lesion in its unusual site, can be solved by histopathological assessment which remains the most accurate and satisfactory. Indeed, "The mind sees what it chooses to see!"

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