原文題目(出處)：	A review and report of peripheral giant cell granuloma in a 4-year-old child. Case Rep Dent Volume 2016, Article ID 7536304
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報告日期：	2016/7/12

內文：

Introduction:

Solitary gingival enlargements in children are relatively common and usually occur in reaction to local irritation or chronic trauma. One of these enlargements is peripheral giant cell granuloma (PGCG).

Our study is aimed to report a case of PGCG in a young child, which was misdiagnosed and neglected for more than 5 months.

1. Intra bony benign neoplasm of the jawbone.
2. It from the interdental tissues (periosteum or periodontal membrane)
3. Site predilection: gingival or alveolar mucosa but most occur anterior to the molar teeth. Mandible > Maxilla
4. Age predilection: wide age range, the peak incidence in males compared to the females(50)
5. Sex predilection: 2:1 predilection of females to males
6. (1) incipient lesions :painless, lobular, and ulcerated masses with little complications and minor changes in gingival contour,
   (2) Progressive growth in some cases causes a significant swelling interfering normal oral function and resorption of the subjacent alveolar bone and teeth roots.

Case report:

1. C.C.: A 4-year-old Caucasian boy had swelling in left anterior maxillary canine and lateral incisor teeth area. He was referred from a private office
2. P.I:
   (1) 5 months ago: Bilaterally (smaller dimension). The right lesion subsided without any intervention but the left lesion has been enlarging with parents and child manipulation.
   (2) 3 months ago: The central and lateral primary incisors were extracted (periapical abscess by general dentist), but not heal and has been progressively growing.
   (3) Painless and with no associated spontaneous bleeding except for occasional interference of the swelling with mastication. His medical history includes no complication.
3. Clinical examination: (extraoral & intraoral & X-ray finding)
   (1) Slight extraoral facial swelling, without any palpable regional lymph nodes.
   (2) 20× 15 × 12mm pedunculated, lobular soft tissue mass of his left anterior maxillary gingiva (Figure 1. Extends to the alveolar mucosa between teeth #52 and53. #62 and 63) Firm consistency with surface tan, red, and bluish areas with a focal area of ulceration.
   (3) Periapical radiograph revealed superficial erosion of the alveolar bone


Figure1

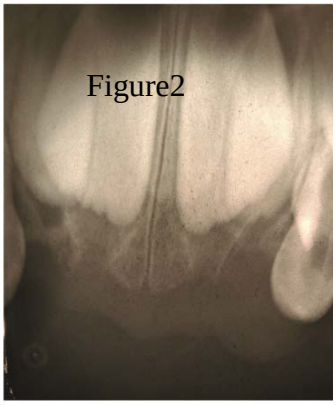
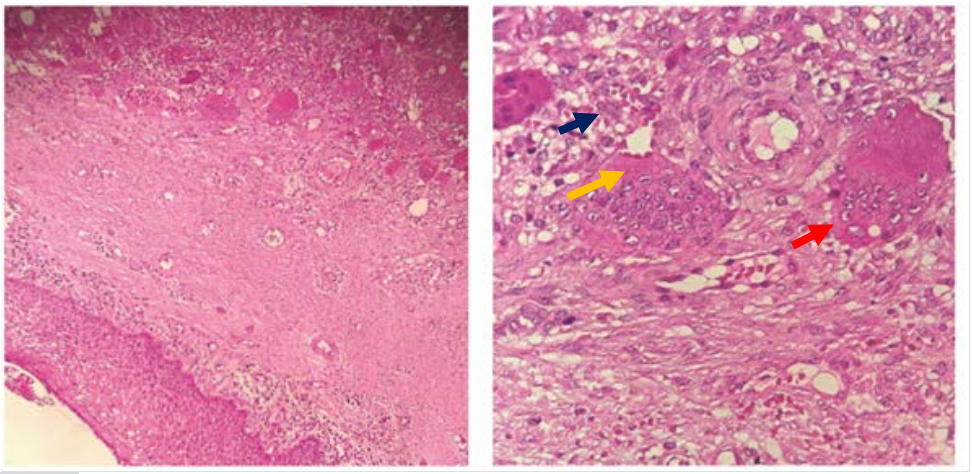


Figure2


Figure 3

4. D.D. & surgical excision &Microscopic examination & Follow-up
   (1) Indicated a benign lesion, considered: parulis, pyogenic granuloma, peripheral ossifying fibroma, PGCG, and peripheral odontogenic fibroma.
   (2) The lesion was excised down to the periosteum (Figure 3)
   (3) Multinucleated giant cell proliferation within a background of spindle-shaped and ovoid mesenchymal cells. Areas of hemorrhage and acute and chronic inflammatory cells are frequently present. A zone of dense fibrous connective tissue separates giant cell proliferation from mucosal surface. Areas of dystrophic calcifications and reactive bone formation are seen around(Figure4).This histopathology confirmed the entity of PGCG.
   (4) Follow-up visits were scheduled at three week intervals and no signs of recurrence during nine months after the excision.



Discussion:

1. While PGCG occurs mostly in adults, some cases have been described in children where a more aggressive clinical behavior has been observed. In a review of 720 cases, 33% < 20 years, another study in which 33of 97 cases (34%) occurred in individuals between 5~15 years. Studies show the clinical features of

peripheral giant cell granuloma in Iranian population are almost similar to those reported by other investigators with age ranged from 6 to75years (mean33years)[10].The case we reported was 4 years old and below minimum threshold for PGCG common age range.

2. PGCG have a rapid growth rate, be more aggressive with infiltration of the interproximal crest area and bone resorption, interfere with eruption of adjacent teeth, produce minor to moderate tooth movement, and have multiple recurrences. Therefore considering the probability of PGCG in gingival enlargements < 5 years.→Reduces its consequences and prevents clinicians' misdiagnosis(unreasonable extraction of primary incisors.)
3. Parulis(牙齦膿腫) is frequently associated with a necrotic tooth or with periodontal disorder.(easily distinguished from PGCG) Radiographs are essential for confirming the oral mucosa origin of the giant cell lesion and refusing a central bony lesion with cortical perforation and soft tissue extension.
   In differential diagnosis four main lesions: pyogenic granuloma, peripheral giant cell granuloma, peripheral ossifying fibroma, and peripheral odontogenic fibroma.

	Peripheral ossifying fibroma	Pyogenic granuloma
Likely	1. Both occur on the gingiva. 2. An unusual response to tissue injury	1. Both occur on the gingiva. 2. An unusual response to tissue injury
Unlikely	1.補 maxilla>mandible 2.PGCG may occur on the alveolar mucosa of edentulous areas	1.補 maxilla>mandible 2.補:pyogenic granuloma related to progesterone or estrogen

   * It is distinguishable from pyogenic granuloma and peripheral ossifying fibroma only on the basis of its unique histomorphology, which is the same as central giant cell granuloma.
   (2) Clinically, peripheral odontogenic fibroma (WHO type) must be considered in the differential diagnosis of dome-shaped or nodular, nonulcerated, growths on the gingiva like PGCG. Peripheral odontogenic fibroma is characterized by a fibrous or fibromyxomatous stroma containing varying numbers of islands and strands of odontogenic epithelium that is clearly distinguishable from PGCG histopathology.
4. Clinically, PGCG features separate it from the fibrous and vascular epulides:
   (1) Consistency: firm, soft
   (2) Shape: bright pedunculated or sessile nodule(various sizes that range from small papules to enlarged masses)
   (3) Size: < 20mm
   (4) Color: dark red to purple or blue
   (5) Others: generally ulcerated surface, painless, induced by repeated trauma
5. Treatment: To avoid recurrence after treatment, in addition to complete simple excision with extensive clearing of the base of the lesion, the source of irritation needs to be removed.
   補:scaling adjacent teeth reduce irritation
6. Recurrence of PGCG:
   (1) Uncommon (5–11%)
   (2) Multiple recurrences: eventual loss of the adjacent teeth
   (3) Early diagnosis(in children): allows for conservative management because of

less risk of destruction for the adjacent teeth and tissues.(pathological analysis)

Conclusion:

1. PGCG should be considered in the cases of gingival enlargements in children.
2. Histopathology is the diagnostic tool for ejecting similar lesions.
3. Surgical excision is a successful treatment for minimizing the recurrence.
4. It is important to eliminate the etiological factors and to examine the tissues histologically for confirmation. Hence, the consideration should also be given to correct diagnosis and proper treatment planning.

Consent: Written informed consent was obtained from the patientfor publication oft his case report and accompanying images.

Competing Interests: No competing interests.

References: As listed in paper

延伸報告:

1. pyogenic granuloma: Highly vascular proliferation that resembles granulation tissue

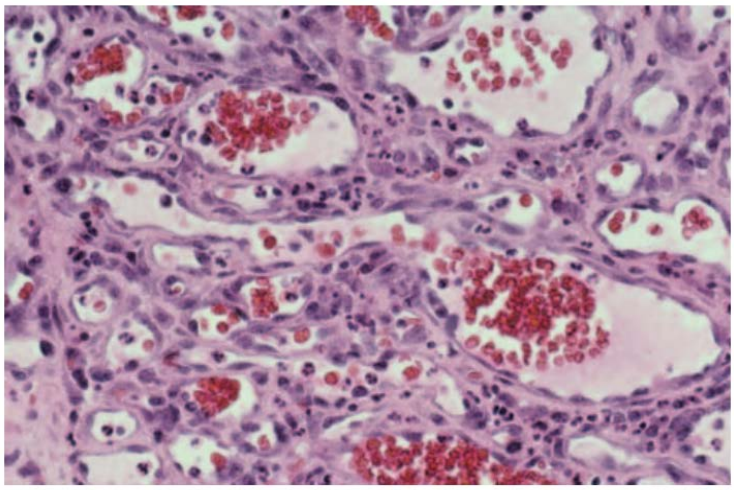
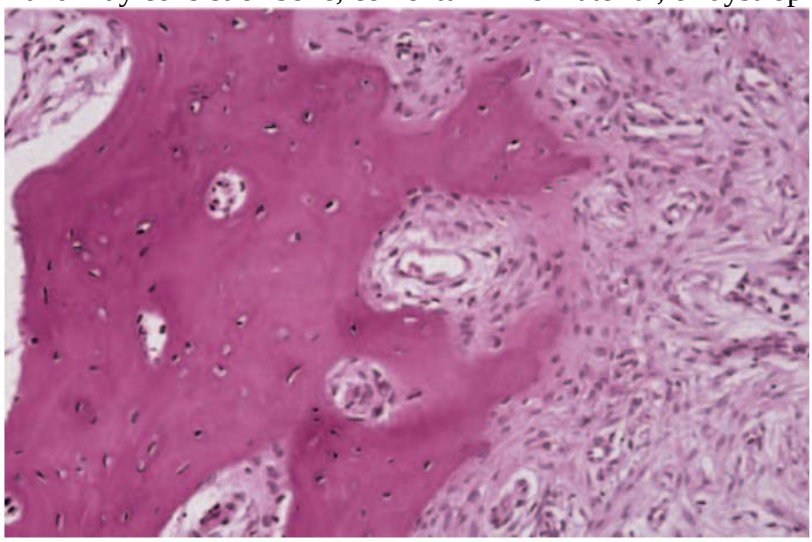
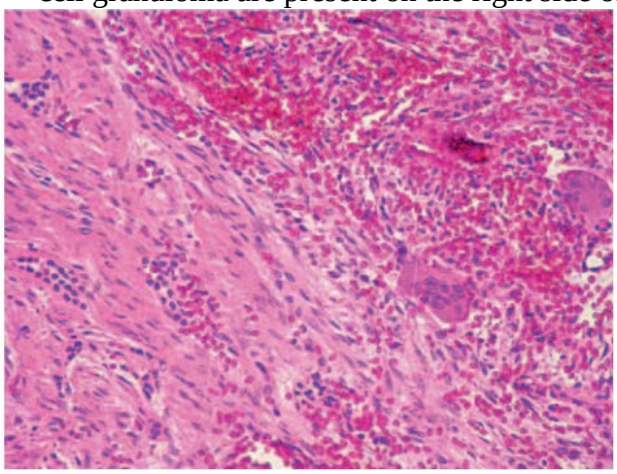


Fig. 12-36 Pyogenic granuloma. Higher-power view showing capillary blood vessels and scattered inflammation.

2. peripheral ossifying fibroma:
   fibrous proliferation associated with the formation of a mineralized. It is variable and may consist of bone, cementum-like material, or dystrophic calcifications.



3. peripheral odontogenic fibroma
   On the left, one can see cords of odontogenic epithelium within a fibrous background, consistent with odontogenic fibroma. Typical features of central giant cell granuloma are present on the right side of the field.



4. reference: Oral and Maxillofacial Pathology, 3e
   http://oralpathol.dlearn.kmu.edu.tw/高醫口病科教學網站

題號	題目
1	下列何者不屬於 Soft Tissue Tumors? (A) pyogenic granuloma (B) peripheral ossifying fibroma: (C) peripheral giant cell granuloma (D) peripheral odontogenic fibroma
答 案 (D)	出處：Oraland Maxillofacial Pathology, 3e Page 726 727 Tumor of Odontogenic Ectomesenchyme.可能來自 gingiva 中的 dental lamina rest
題號	題目
2	有關 PGCG 的特徵(peripheral giant cell granuloma)下列何者錯誤? (A) 女性發生的機率比較高 (B) 與女性荷爾蒙或藥物相關 (C) 病灶皆可能發生在 gingiva 或 alveolar mucosa 上 (D) 玻片上觀察在 spindle-shape 和 ovoid mesenchymal cells.的背景下，有 Multinucleated giant cell 混在其中
答 案 (B)	出處：Oral and Maxillofacial Pathology,3e page 518~520 PGCG probably does not represent a true neoplasm but rather is a reactive lesion caused by local irritation or trauma. Pyogenic granuloma may be related to the increasing levels of estrogen and progesterone as the pregnancy progresses.