

Orofacial granulomatosis associated with gingival enlargement: a case report

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Orofacial granulomatosis (OFG) is an uncommon condition with varying clinical presentation. Gingival enlargement in children could be due to a varied etiology. The present case report is of an adolescent female with initial presentation of generalized gingival enlargement, lip swelling and perioral discoloration without any known etiopathological factors or systemic involvement. Conservative excision of the enlargement was performed and histopathological examination revealed a non caseating granulomatous lesion. Diagnosis of orofacial granulomatosis in context to sarcoidosis was arrived after excluding other granulomatous diseases. Follow up after 18 months showed no recurrence and regression of lip swelling and perioral discoloration. Gingival enlargement can be considered as one of the presenting features of sarcoidosis.

Keywords: Orofacial granulomatosis, Gingival enlargement

INTRODUCTION

Orofacial granulomatosis consists of a group of diseases characterized by non-caseating granulomatous lesions of hard and soft orofacial tissues. It is often associated with systemic involvement. Sarcoidosis, inflammatory bowel disease, tuberculosis, leprosy, granulomatosis with polyangiitis, merkelson Rosenthal disease and meishners chelitis¹. Sarcoidosis is a systemic disease characterized by non-caseating granuloma formation. Although the etiology is unknown, it is thought to be due to inherent genetic predisposition, exposure to certain environmental agents and infectious organisms (viruses, mycobacterium, propionibacterium acnes, borrelia burgdorferi) and allergens². One of the recent theories of development of sarcoid granulomatosis suggests that the disease develops in an individual who are genetically predisposed to it with the infectious or environmental agent acting as a triggering factor for the host immune response^{3,4}. Diagnosis is based on clinical presentation, system involved, clinical and radiographic assessment, and laboratory tests.

The present case report describes the methodical exclusion of other granulomatous diseases to arrive at conclusion of sarcoid granulomatosis of orofacial region. Clinical presentation of sarcoidosis varies greatly due to multi organ involvement, and thus non-specific constitutional symptoms could emerge early. Sarcoidosis is basically a disease of early adulthood, and occurs in acute and chronic forms. The disease may be progressive or regress spontaneously². However its occurrence in children is rare.

Oral involvement in sarcoidosis has been uncommon. There have been only seventy well-documented cases of oral sarcoidosis reported in literature. However, when the primary

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site of sarcoidosis presentation was oral cavity, only four cases presented as gingival enlargement⁵.

The present case is a report of unusual presentation of primary oral sarcoidosis in a young adolescent female.

CASE REPORT

A 11 year old female patient of Asian origin and Dravidian descent presented with a chief complaint of swollen gums since one year, which had gradually covered her teeth (Fig. 1). It was associated with pain while brushing her teeth, with occasional bleeding and difficulty in chewing food. The patient was accompanied by her mother who initially noticed the condition when the patient was 10 years old. History revealed that the patient attained puberty at the age of 10 years and six months. There was no history of spontaneous gingival bleeding or drug intake. The patient appeared to be healthy with no history of consanguineous marriage between her parents, or family history of a similar complaint.



Figure 1: Enlarged gingiva extending onto clinical crowns of incisors.

Extra oral examination showed competent lips and a straight facial profile. The lips appeared to be swollen and non tender with perioral skin discoloration. Intra oral examination revealed mild crowding of dentition together with generalized diffuse enlargement of the gingiva involving both facial and palatal/lingual aspects of all teeth. Gingival enlargement was greater in the anterior than the posterior regions of the dental arches (Fig. 1). The enlargement was profound in relation to the mandibular anterior region. Gingival enlargement was red, smooth and shiny in appearance. There was loss of stippling and obliteration of gingival contour. The inter dental papilla appeared to be swollen and lobulated. The gingiva in relation to lower anterior teeth covered most of the clinical crown and showed signs of bleeding on probing (Fig. 1). On palpation, the gingival enlargement was predominantly fibrotic, but with a superimposed inflammatory component. The patient had poor oral hygiene and expressed difficulty in brushing the teeth. Panoramic radiograph revealed no abnormalities except for minimal interdental bone loss in both arches. Routine hematologic examination showed all values to be within the normal range.

Gingival enlargement may be caused by poor oral hygiene, hormonal changes, systemic illness, metabolic diseases, hematologic disorders, nutritional deficiency or it may be hereditary, drug induced or idiopathic⁵. Inflammatory

gingival enlargements are plaque induced, characterized by swelling with redness and a tendency to bleed on probing. In the present case, oral hygiene was not good, but the quantity of plaque deposits did not commensurate with the quantum of gingival enlargement. There was crowding of the dentition which could have further aggravated the inflammation. Pubertal gingivitis was ruled out as the patient had attained puberty a year ago. The parent gave a negative family history for similar condition and no intake of any systemic medication. Thus, hereditary gingival enlargement and drug induced hyperplasia were excluded. The lip swelling did not show any regression or relapse on history taking, and further was not associated with any facial paralysis and fissured tongue thus ruling out possibility of Melkersson-Rosenthal Syndrome⁷.

A provisional diagnosis of idiopathic gingival enlargement was made. Oral prophylaxis was carried out and oral hygiene instructions were given. Child was advised to rinse twice daily with 0.2% chlorhexidine mouthwash, 10 mL, and 1:1 dilution for two weeks. The gingival tissue showed no improvement in its presentation and surgical excision was planned. Lower anterior region was chosen for surgical excision first as the enlargement was most profound in this region. Under local anesthesia, surgical excision was performed using the external bevel gingivectomy technique. The excised tissue was sent for histopathologic examination.

Histopathologic examination: Excised tissue stained with Hematoxylin and Eosin, viewed at 10 × magnification revealed non-caseating granulomatous nests of epithelioid histiocytes with numerous multinucleated Langerhans giant cells (Fig. 2A–C) and the presence of Schumann bodies (Fig. 2D). Thus, it was suggestive of a granulomatous lesion.

Based on the above histological findings, other investigations were undertaken, to differentiate between various granulomatous diseases including tuberculosis, Crohn's disease and sarcoidosis. Mantoux test and sputum test were negative for tuberculosis. Chest radiograph showed absence of hilar lymphadenopathy. Following thorough medical history and clinical examination Crohn's disease was excluded by the physician. The patient did not give any history of gastrointestinal disturbances, or changes in bowel habits¹. The patient was also referred to a pediatrician for further medical examination. There was no pulmonary involvement and no other systemic features of sarcoidosis. Differential count of white blood cells revealed mild eosinophilia (5%). Biochemical analysis showed elevated levels (1048.35 nkat/L) of serum Angiotensin Converting Enzyme (sACE). Serum and urinary (1 hour and 24 hours) calcium levels were in normal range.

The clinicopathologic picture and biochemical laboratory investigations strongly indicated a diagnosis of orofacial sarcoidosis. Gingival excision was completed as planned previously. The child was kept under observation for six months and was not under any systemic medication. Patient was followed-up at 1 week and later at 1, 6, 12 and 18 months (Fig. 3) following completion of full mouth gingivectomy. Gingival tissue showed healing with no signs of recurrence. Further levels of sACE were evaluated which showed a reduction to normal levels (36.40 U/L) after fourteen months follow-up. Although increased levels of sACE is not a con-

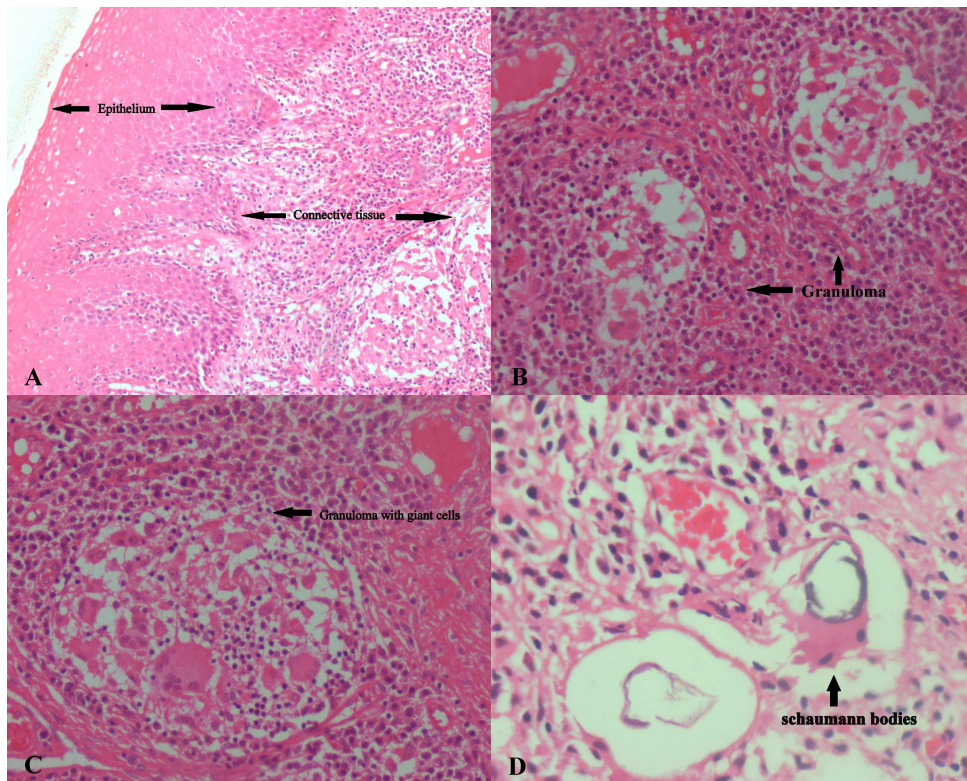


Figure 2: Excised tissue stained with Hematoxylin and Eosin, viewed at 10 × and 20 × magnification showing. A: keratinized epithelium and connective tissue; B and C: non-caseating granulomatous nests of epithelioid histiocytes with numerous multinucleated Langerhans giant cells; D: presence of Schumann bodies.



Figure 3: Post-surgical follow up at 18 months.

firmatory for sarcoidosis, in the present case other possible conditions were excluded (including Gaucher's disease, psoriasis) apart from those mentioned above.

DISCUSSION

There are no pathognomic clinical features of oral sarcoidosis. Clinically, the disease can affect any site of the mouth and most often it is asymptomatic. Clinical appearance could vary as redness, swelling, papule or submucosal nodule with or without ulceration or presence of perforation⁸. In the present case there was generalized enlargement of gingiva and swelling of the lips. A similar case with features of painless swelling of lips and gums were reported by Bansal⁹ in a 15

year old girl.

Diagnosis of sarcoidosis is challenging as there are no definite diagnostic criteria. The diagnosis of sarcoidosis is established when clinical features are supported by histopathological evidence of typical non-caseating epithelioid granulomas and elevated serum Angiotensin Converting Enzyme (sACE) levels². Elevated levels of sACE have been suggested as marker/clinical indicator for diagnosis, severity and course of sarcoidosis^{10,11}. Age and gender differences have been reported in sACE levels. Higher mean levels of sACE have been found in boys (143.7 ± 57.1 IU/L) and increased with age; whereas girls (130.2 ± 54.9 IU/L) had lower mean values and decreased with age (8–18 years)¹². Granuloma-forming epithelioid cells are thought to secrete ACE, thus the elevated levels of sACE¹¹.

Cases of systemic sarcoidosis may involve tissues in maxillofacial region. (Salivary glands, mandibular lymph nodes and ocular area) Sarcoidosis has a female predilection with bimodal presentation during second to third decade and fourth to sixth decades of life. In a review of 68 cases of oral sarcoidosis, only four cases were seen in children within the age of 5 to 16 years⁵. Corticosteroids, anti malarial drugs and certain immunosuppressant drugs have been shown to be beneficial in the treatment of systemic sarcoidosis^{5,13}. However there is a lack of information regarding the treatment of oral sarcoid lesions. The choice of treatment mainly depends on tissue in-

involved, severity and extent of the disease. Treatment modalities range from no specific therapy to surgical excision. No systemic medication was advised to the patient since it was localized to the gingiva, which was surgically excised. A long-term follow up is advisable as there is a genetic component involved.

However, the literature presents a link between orofacial granulomatosis and crohn's disease. Further, some postulate OFG to be the initial manifestation of crohn's disease and these individuals can in future present with manifestations of crohn's disease¹⁴. Although the child was asymptomatic and had no history of abdominal pain or gastrointestinal disturbances; future follow up is recommended. The present case was followed up for a period of eighteen months, with no recurrence of gingival enlargement and no new complains related to general health and well-being of the child. Thus, when the etiology is unknown it is suggested to use terms as 'idiopathic OFG' as the diagnosis. When associated, the diagnosis should be in context to the condition¹⁵. This shall attempt to solve the enigma/dilemma of orofacial granulomatosis. Thus, based on the clinical, biochemical and histological evidence the present case is of 'orofacial granulomatosis—sarcoid type/sarcoidosis'. Orofacial granulomatous disease in context of sarcoidosis should be considered as one of the differential diagnosis for gingival enlargements in young individuals when the other causes are ruled out and the patient appears apparently healthy. However, a definitive diagnosis can be arrived only after ruling out other granulomatous conditions.

CONCLUSION

Orofacial sarcoidosis in children is a rare condition manifesting as generalized gingival enlargement and non-tender lip swelling. Pediatric dentist and oral health physicians should be aware of this condition and its management.

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ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was approved by the institutional review board of The Oxford Dental College, and informed written consent was taken from the parents of the patient.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFERENCES

1. Troiano G, Dioguardi M, Giannatempo G, Lainol L, Testa NF, Cocchi R, *et al.* Orofacial granulomatosis: clinical signs of different pathologies. *Medical Principles and Practice.* 2015; 24: 117–122.
2. Newman LS, Rose CS, Maier LA. Sarcoidosis. *New England Journal of Medicine.* 1997; 336: 1224–1234.
3. Wu JJ, Schiff KR. Sarcoidosis. *American Family Physician.* 2004; 70: 312–322.
4. Costabel U. Sarcoidosis: clinical update. *The European Respiratory Journal. Supplement.* 2001; 32: 56s–68s.
5. Suresh L, Radfar L. Oral sarcoidosis: a review of literature. *Oral Diseases.* 2005; 11: 138–145.
6. Dean JA, Avery DR, McDonald RE. McDonald and Avery's dentistry for the child and adolescent. 9th ed. Mosby elsevier: St. Louis. 2011.
7. Bhagde P, Bhavthankar J, Mandale M. Orofacial granulomatosis: a disease or a concealed warning.?? *Indian Journal of Pathology and Microbiology.* 2017; 60: 556–559.
8. Bouaziz A, Le Scanff J, Chapelon-Abrie C, Varron L, Khenifer S, Gleizal A, *et al.* Oral involvement in sarcoidosis: report of 12 cases. *QJM.* 2012; 105: 755–767.
9. Bansal M, Singh N, Patne S, Singh SK. Orofacial granulomatosis affecting lip and gingiva in a 15-year-old patient: a rare case report. *Contemporary Clinical Dentistry.* 2015; 6: S94–S96.
10. Baudin B. Angiotensin I-converting enzyme (ACE) for sarcoidosis diagnosis. *Pathologie Biologie.* 2005; 53: 183–188.
11. Ueda E, Kawabe T, Tachibana T, Kokubu T. Serum angiotensin-converting enzyme activity as an indicator of prognosis in sarcoidosis. *The American Review of Respiratory Disease.* 1980; 121: 667–671.
12. Landazuri P, Granobles C, Loango N. Gender differences in serum angiotensin-converting enzyme activity and blood pressure in children: an observational study. *Brazilian Archives of Cardiology.* 2008; 91: 352–357.
13. Paramothayan S, Jones PW. Corticosteroid therapy in pulmonary sarcoidosis: a systematic review. *JAMA.* 2002; 287: 1301–1307.
14. Simonsen AB, Deleuran M. Orofacial granulomatosis in children can be the initial manifestation of systemic disease: a presentation of two cases. *Dermatology Reports.* 2014; 6: 5039.
15. Kauzman A, Quesnel-Mercier A, Lalonde B. Orofacial granulomatosis: 2 case reports and literature review. *Journal of the Canadian Dental Association.* 2006; 72: 325–329.