Primary orofacial granulomatous involvement of lip and gingiva only: A diagnostic challenge

Shweta Bansal, Arun Garg, Richa Khurana, Archisha Bansal

Abstract:
Wiesenfeld described orofacial granulomatosis (OFG) as a group of noncaseating granulomatous disorders affecting the different parts of the body including oral and maxillofacial region, which can have variable etiology. The involvement of oral and maxillofacial region can be exclusive or primary before the involvement of other organs. OFG is a multifactorial clinicopathologic disorder, and its clinical manifestation mimics the various systemic conditions making its diagnosis tough for a dentist. Delay in diagnosis and evaluation of OFG may cause indurated, swollen lips that may compromise cosmetic face value, speaking, and eating functions, and other possible systemic granulomatous disorders can be missed. Here, we present a case of OFG with tooth-associated infection without any recognizable systemic cause. This article presents the diagnostic challenges that a dentist may face in diagnosing such cases, and thus treatment planning should be of the multidisciplinary approach. Regular follow-up is very essential for proper care and management.

Key words:
Cheilitis granulomatosa of Miescher, gingival enlargement, lip swelling, Melkersson–Rosenthal syndrome, odontogenic infection, orofacial granulomatosis

INTRODUCTION

Wiesenfeld (1985) introduced the term “orofacial granulomatosis” (OFG) that encompasses a group of nonspecific, noncaseating granulomatous inflammatory conditions that may present clinically in a different manner. It includes a group of diseases including Melkersson–Rosenthal syndrome (MRS) and cheilitis granulomatosa of Miescher.[1]

Clinically, OFG presents variably depending on the organs affected; most commonly, lips are involved that demonstrate a nontender and persistent swelling involving one or both lips.[2]

Intraoral sites can also be affected. The tongue may develop fissures, edema, paresthesia, erosions, or taste alteration. Gingiva can develop swelling, erythema, pain, or erosions. Buccal mucosa often exhibits a cobblestone appearance of edematous mucosa or focal areas of submucosal enlargement. The involvement may be limited to the gingiva and upper lip, as found in this case.

CASE REPORT

A 12-year-old male reported to the outpatient department of periodontology, with a complaint of pus discharge from the labial aspect of maxillary left central incisor for the past 4 months. Furthermore, he complained of long-standing, painless swelling of the upper lip and recurrent enlargement of the gums for 8 months. The overgrowth was not interfering with mastication, speech, or other oral functions and not much of cosmetic concern to the patient.

Dental history revealed that the patient had undergone root canal treatment (RCT) for maxillary left central incisor 2 years back, and the same tooth was cemented with porcelain-fused-to-metal (PFM) dental crown. He had inflammatory gingival enlargement 10 months back, for which scaling and root planing (SRP) followed by gingivectomy was performed.

Medical and drug histories were noncontributory. No history of local trauma, allergy, asthma, or...
ectopic eczema was found. Gingival enlargement was not familial in nature.

Extraoral examination revealed upper lip swelling which was diffuse and slowly progressive, as stated by the patient. On palpation, swelling was nontender, firm in consistency, no bruise was found, and the temperature was normal. The surrounding facial skin was normal. The contour of the lip was regular without any signs of erythema [Figure 1]. There were no signs of Bell’s palsy. Lymph nodes were not palpable in the head-and-neck region.

Intraoral examination revealed generalized inflamed and erythematous gingiva which was shiny and soft in consistency, and stippling was lost. There was a diffuse gingival enlargement of maxillary and mandibular anterior regions, extending up to the middle third of the crown [Figure 2]. There were an intraoral sinus opening and spontaneous exudation of pus from the buccal aspect of the maxillary left central incisor. PFM crown margins were improper with gingival contour, and the same acted as foci for plaque retention. Periodontal pocket probing showed bleeding on probing with mild local deposits and the presence of pseudo-periodontal pockets.

The dorsum of the tongue and the rest of the oral mucosa were normal.

Orthopantomograph (OPG) showed no bony involvement in either of the arches [Figure 3].

Differential diagnosis included OFG, MRS, Crohn’s disease, sarcoidosis, tubercular gingival enlargement, and allergic angioedema.

Further investigations were carried out, such as complete hemogram, erythrocyte settling rate (ESR), C-reactive protein (CRP), serum folate, iron, Vitamin B12, serum angiotensin-converting enzyme (serum ACE), and Mantoux test. Chest radiograph was also performed. No abnormalities were found on investigations. All the investigations were within the normal range. Periodic acid-Schiff stains for fungal infection and acid-fast bacilli (AFB) staining for tuberculosis were negative. No foreign body was identified clinically or histopathologically. Serum (immunoglobulin E) values were within the normal range. Path test to evaluate for allergic reaction to common food items or additives was found to be negative.

Excised gingival tissue was sent for histopathologic examination [Figure 4]. Report showed chronic inflammatory cell infiltrate, peri- and para-vascular aggregation of lymphocytes, and noncaseating granuloma formation with epithelioid cells [Figure 5].

Meanwhile, the patient was referred for medical consultation, in particular for pulmonary, gastrointestinal, dermal, ophthalmologic, and neurological evaluation, and the findings were unremarkable.

MRS was ruled out, as there was no facial palsy and no fissured tongue.

Crohn’s disease was then not considered based on history, normal CRP, serum folate, and Vitamin B12 levels.

Sarcoidosis was ruled out, as there was no hilar lymphadenopathy on chest radiograph and normal serum ACE levels.

Tuberculosis was also ruled out as ESR, Mantoux test, and chest radiograph were normal. AFB staining was negative.

A final diagnosis of OFG was made after correlating clinical, hematological, radiological, and histopathological findings and by excluding other possible conditions owing to their negative findings. This case had a curious tooth that acted as a focus of infection, as observed in intraoral periapical radiograph and OPG.

Case management
In our case, treatment was aimed to reduce the emotional and cosmetic embarrassment due to unsightly swelling of the upper lip and to treat the dental pathology. Oral prophylaxis and oral hygiene instructions were given. The dental crown was removed, and re-RCT of the same tooth was carried out. Phase 1 therapy comprising SRP was done, and after 1 month, when the inflammatory component subsided, fibrotic gingiva was excised by gingivectomy. The patient was advised to rinse with 10 ml of 0.2% chlorhexidine mouthwash twice daily for 3 weeks. Thereafter, the patient was given intravenous triamcinolone injections 40 mg/ml at four equally distanced sites of the affected lip (left labial corner and next to midline, right labial corner and next to midline) twice a week for 4 weeks, followed by a slow tapering dose of 20 mg for 2 weeks, 10 mg for 2 weeks, and then the drug was discontinued, following Reddy et al.[5] Furthermore, oral metronidazole 400 mg three times a day for 7 days and oral doxycycline 100 mg for 21 days were prescribed.[14] At 3-month follow-up, the patient showed marked improvement [Figure 6].

DISCUSSION

OFG should be kept in the mind while diagnosing facial and lip swellings, and meticulous diagnostic workup is pivotal. Just treating the presenting symptom should not be the goal. The clinical challenge is making the correct diagnosis, ruling out systemic involvement, and then making the appropriate treatment plan.

OFG is an entity of exclusion. The exact etiology of OFG is still unclear and is multifactorial. It may be a manifestation of Crohn’s disease (oral lesions may manifest as an extraintestinal site of disease involvement and may precede the gastrointestinal lesions in as many as 30% of the cases), tuberculosis, sarcoidosis, leprosy, systemic fungal infections, foreign-body reactions, and genetic predisposition. Tooth-associated infections, allergy to dental materials such as amalgam fillings, hygiene products, food additives, or contact allergens have been reported as causative agents.[5] Food preservatives containing benzoates, cinnamon, chocolate as well as products containing glitter (lip gloss), perfumes, and flavorings, have been proposed as potential triggers for OFG.[4]

Therapeutically, local or systemic corticosteroids are considered the first line of treatment in the cases of OFG and avoiding
contact with any allergen or any triggering environmental factor. The most prominent properties of corticosteroids are their anti-inflammatory, anti-allergic, and analgesic effects. If the disease is recognized early, intralesional corticosteroid injections (triamcinolone injections) are very effective. This synthetic glucocorticoid is preferred, as it possesses a potent anti-inflammatory effect (eight times more potent than prednisone). Moreover, the synthetic characteristics of this molecule induce a metabolic effect and result in less sodium retention than that of hydrocortisone. Systemic corticosteroid administration using prednisone is also effective but is not used because of frequent relapses upon discontinuation and other side effects associated with long-term use of the systemic drug.
Sakuntabhai et al. used high-volume intralesional triamcinolone acetonide injections (3–10 ml of 10 mg/ml), but it required nerve block anesthesia, and because of high volume injected, it resulted in dramatic increase in lip size, initially.[8] Recently, Mignogna et al. suggested small volume, high concentrate (40 mg/ml), delayed-release, intralesional injection of triamcinolone acetonide in patients with OFG.[9] The higher concentration offers the advantages of reducing the volume of fluid injected, the administration of a higher dose, and the maintenance during remission. Besides, the delayed release of the drug and its high concentration work in synergy and are effective for both resolution of acute swelling and prevention of recurrence for a long period.

The use of monoclonal antibodies and tumor necrosis factor-α inhibitors (thalidomide, infliximab, and adalimumab) is the second line of treatment and is effective in some cases refractory to topical and systemic anti-inflammatory treatments.[7]

Recently, corticosteroid–antibiotic combinations with minocycline or oral doxycycline and roxithromycin have also been used because of the possible anti-inflammatory effect in these two antibiotics.[10] In some cases, low-energy laser treatment has shown promising results. Plastic surgical treatment, cheiloplasty, should be considered in recurrent/refractory cases.

Other therapeutic measures have been reported in the literature, including hydroxychloroquine, methotrexate, clofazimine, metronidazole, minocycline alone or in combination with oral prednisone, thalidomide, dapsone, and danazol.

CONCLUSION

Every patient should be meticulously tested for other chronic granulomatous diseases. Dentists should have good knowledge and clinical acumen to evaluate the cases of the swollen lip in conjunction with recurrent gingival enlargement. The disorder should not be considered a final diagnosis but a potential sign of an underlying systemic disease, and thus multidisciplinary treatment approach is indispensable. Further emphasis should be given on long-term follow-up, and thus patients should be kept under clinical surveillance.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her consent for the publication of his/her clinical information in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Rana AP. Orofacial granulomatosis: A case report with review of literature. J Indian Soc Periodontol 2012;16:469-74.
2. Bansal M, Singh N, Patne S, Singh SK. Orofacial granulomatosis affecting lip and gingiva in a 15-year-old patient: A rare case report. Contemp Clin Dent 2015;6:94-6.
3. Reddy S, Rakesh N, Ramadoss T, Jatti D. Orofacial granulomatosis – A rare case report with review of literature. J Clin Exp Dent 2010;2:138-41.
4. Gupta A, Singh H. Granulomatous cheilitis: Successful treatment of two recalcitrant cases with combination drug therapy. Case Rep Dermatol Med 2014;2014:509262. doi.org/10.1155/2014/509262.
5. Joshipura V, Mahantesha S, Subbaiah SK, Lakkasetty YT. A rare case of primary orofacial granulomatosis of gingiva during pregnancy. J Oral Maxillofac Pathol 2015;19:408-12.
6. Razdan R, Newby MD, Carr MM. Orofacial Granulomatosis in a Child. Case Rep Pediatr 2019;2019:7519267. doi.org/10.1155/2019/7519267.
7. Feugueur G, Konstantinou MP, Croze J, Laurencin S, Coutey S. Management of orofacial granulomatosis: A case report. J Oral Med Oral Surg 2018;24:40-3.
8. Sakuntabhai A, MacLeod RI, Lawrence CM. Intrallesional steroid injection after nerve block anesthesia in the treatment of orofacial granulomatosis. Arch Dermatol 1993;129:477-80.
9. Mignogna MD, Fedele S, Lo Russo L, Adamo D, Satriano RA. Effectiveness of small-volume, intralesional, delayed-release triamcinolone injections in orofacial granulomatosis: A pilot study. J Am Acad Dermatol 2004;51:265-8.
10. Dhawan SR, Saini AG, Singh PD. Management strategies of melkersson-rosenthal syndrome: A review. Int J Gen Med 2020;13:61-5.