



Presentation of Multifactorial Gingival enlargement

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ABSTRACT:

One of the common symptoms of gingival disorders is gingival hypertrophy. However, the doctor finds it difficult to diagnose these entities because of their diverse manifestations. Gingival enlargements can be classified based on etiopathogenesis, location, size, and extension. Multi-factorial gingival enlargement diagnosis is challenging though treatment principles follow the same established guidelines. A 34-year-old female patient complained of being unable to eat and appeared with enlarged gingiva, bleeding gums, deep pockets, and movable teeth. The periodontal inflammation was not proportional to the extent of local irritants. Routine scaling and periodontal remedy failed to bring any enhancement. The systemic condition of the patient was compromised. Histopathology reports of the biopsy established the Opinion of actinomycosis. Although conservative measures were taken, the bone loss was too great and worsened by systemic and socioeconomic factors. The patient underwent rehabilitation with complete dentures.

Introduction:

Actinomycosis is a granulomatous infection caused by bacteria that can spread and create abscesses and sinus tracts that release sulfur granules.¹ This infection is noted more in young to middle-aged adults; however, it can affect people of all ages. Actinomyces israelii, the causative organism of actinomycosis, can infect the gums, jaws, neck, pleura, and lungs as part of the disease process.^{2,3} The mandible, tongue, lips, and oral mucosa may be involved in the oral cavity, but the gums are rarely affected.⁴ The paradox is that Actinomyces are a part of normal oral flora.³ Actinomycotic infections are seen more in males than females in the ratio of 4:1, which favors the mandible as opposed to the maxilla in the ratio of 4:1.⁵ An increase in the gingiva's size indicates gingival

enlargement or overgrowth, a typical feature of gingival disease. Accurately determining the reason for enlargement is necessary for appropriate therapy. To distinguish between the many gingival enlargements that can be categorized based on etiologic reasons and pathologic modifications, according to location and distribution, and based on the degree of enlargement, a clinician's abilities are put to the test.⁶ A unique and diverse set of disorders known as gingival fibromatosis causes slowly growing, localized, or diffuse enlargements in the interdental papilla or the connected marginal gingiva. In extreme situations, the extra tissue may cover the crowns of the teeth, leading to periodontal issues like bleeding and bone loss because of the development of pseudopockets and plaque buildup.⁷ These lesions, often confined, may spread to



other parts of the mouth if untreated. To completely treat an illness, antibiotics are frequently employed. They can also be used to prevent recurrences. In some cases, surgery may be necessary to remove the infection.

Case History:

A 34-year-old female patient from a poor socio-economic background reported to the dental OPD with a complaint of swollen gums, and mobile teeth. (Fig 1) She was also seeking a replacement for missing teeth. She complained of a lack of appetite and an inability to eat. The patient was lean, lightly built, and with a sallow complexion. She is a mother of 2 kids aged 6 and 2. She had a history of being anemic, detected during her pregnancy, for which she received a combination medicine of Niacinamide (200 mg) + Folic Acid (15 mg) + Cyanocobalamin (500 mcg) injection. She also complained of overall malaise and weakness. She attributed it to her inability to eat. No other relevant medical history was recorded. She made it very clear that she has not had any extractions as of yet. Her missing teeth had all fallen out on their own. The gums and teeth are completely healthy in her parents, siblings, and children. She is the only one in her family that suffers from this condition. Intraoral examination revealed diffuse, generalized gingival enlargement. (hypertrophy/hyperplasia) The gingiva looked bulbous, enlarged, and inflamed. There was a good amount of plaque and oral debris but no significant calculus accumulation. The amount of local irritants did not warrant the presence of such advanced periodontal conditions. All the teeth exhibited mobility ranging from grade II to grade III. Her OPG revealed a generalized bone loss in all areas extending to the apical third in several teeth. (Fig 2) Her hemoglobin level was 8.3, prompting her admission to the hospital and administering Vitcofol injections. She developed some form of an allergic response and left the hospital of her own accord against medical advice. She reported again after three months. Her HB status was 9.7. However, during the blood tests, she was Covid 19 positive. She was treated for the same and discharged after 15 days. She was recalled after a six-week wait, and she got many sittings of intensive scaling and root planing over a month. Her periodontal health did not improve. We had all her blood parameters evaluated to see if there were any underlying systemic causes for the same. We again drew a blank. After receiving medical clearance,

a gingival biopsy was done, and the tissues were processed. Histopathology reports revealed the presence of actinomycosis. (Fig 3 a,b,c) We opted to perform total extraction followed by complete dentures after considering all of the circumstances and the cost. Extraction was performed, as well as gingivectomy in certain regions. (Fig. 4 & 5) The patient was given antibiotics, anti-inflammatory drugs, and antacids during this time. The entire upper and lower jaw took more than five months to heal. (Fig 6 & 7) The patient was rehabilitated with complete dentures. (Fig 8)

Discussion:

Actinomyces are a regularly occurring, vital part of the oral flora, yet localized Actinomyces-associated lesions at the oral mucosa or gingiva are very infrequent.⁸ About 60% of human actinomycotic infections occur in the cervicofacial area.⁹ In addition to intraoral infections, which are extremely rare, cervicofacial infections are usually prevalent.¹⁰ Actinomycosis typically affects the tongue and oro-alveolar mucosa, among the oral mucosal membranes. It is relatively uncommon in the gingival region, which often shares characteristics with tongue and oral mucosa lesions. On rare occasions, the disease may start with this lesion.^{11,12} Actinomycotic lesions generally appear following a tooth infection or a head, face, or mouth injury. Our patient had no recent history of dental extractions or mechanical trauma.¹³ She exhibited minor alveolar bone resorption and attachment loss, two symptoms of chronic periodontitis. Gingival fibromatosis is an uncommon, benign, non-hemorrhagic fibrous growth of gingival tissue. Previously known as hypertrophic gingiva, elephantiasis gingivae, and hereditary gingival hyperplasia¹⁴, It could be congenital or hereditary. Gingival overgrowth can range from segmental, consistent, and apparent enlargement affecting one or both jaws to modest, isolated interdental papillae expansion.¹⁵ According to the dental literature, actinomycosis instances that only impact periodontal tissues are rare. Nagler et al. highlighted the need for early and differential actinomycosis detection by the dental profession in a recent study by presenting a case of a juvenile periodontitis-like lesion that was restricted to the left mandibular molar region.¹⁶ Periodontitis and poor dental hygiene, according to some sources, can make it easier for bacteria to reach the oral tissue.¹⁷ Chronic inflammation known as periodontal disease,



affects the tooth's gums and supporting tissues. It is brought on by a bacterial infection that causes the alveolar bone and periodontal ligament to be destroyed, which leads to mobile teeth and eventually tooth loss. In addition, periodontal disease has been associated with systemic conditions such as anemia, diabetes, and cardiovascular disease. There was no systemic illness, hypertrichosis, mental retardation, epilepsy, or medication use in the patient's past that might have caused gingival overgrowth in the current case. She was not pregnant, nor was there a history of recent miscarriage or abortion. The patient's general physical examination revealed no syndromic associations that might have caused gingival overgrowth. She did, however, have mild attachment loss and alveolar bone resorption, which are signs of chronic periodontitis. The patient's poor socio-economic background may be a contributing factor to her oral health status, as access to dental care and education on oral hygiene practices may be limited. Furthermore, her history of anemia may suggest a lack of proper nutrition, which can further contribute to her overall health status.

Actinomyces spp., according to Rüdiger et al., are primarily found on exposed root surfaces.¹⁸ We assume that the patient's poor oral hygiene and the exposed root surfaces caused by chronic periodontitis in the current case contributed to the development of actinomycotic lesions. Actinomyces-associated lesions can be diagnosed by tissue culture testing, but pathogens may not always be visible microbiologically.¹⁹ Actinomyces is primarily contaminated with the oral flora, making culture-based Actinomyces diagnosis procedures challenging.²⁰ The current case report highlights the value of a multidisciplinary approach and differential diagnosis to ensure proper diagnosis and treatment planning. It is important for the dental provider to thoroughly assess and diagnose the patient's oral health condition and provide appropriate treatment, which may include scaling and root planing, antibiotic therapy, and possible tooth extraction or replacement. Additionally, the patient should be counseled on proper oral hygiene practices and referred for medical evaluation to address her anemia and overall malaise.

Conclusion:

A young patient's multifactorial gingival enlargement, which caused severe bone loss and mobility, was treated. Although conservative

measures were taken, the bone loss was too great and worsened by systemic and socioeconomic factors. The patient underwent rehabilitation by using entire dentures and thorough extraction. The patient is doing well 24 months after surgery.

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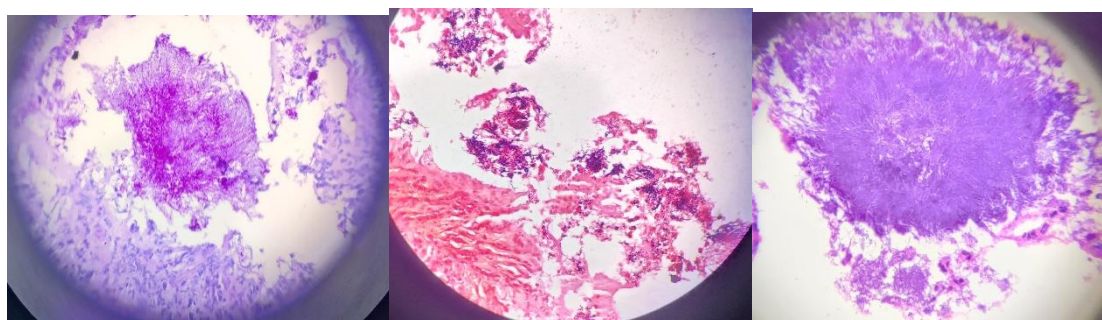
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Fig. 1 Preoperative photograph



Fig. 2 Preoperative OPG



(a)

(b)

(c)

Fig. 3 Histopathologic examinations showing Actinomyces colonies
a) Periodic acid Schiff (PAS) staining b) Gram staining c) H & E staining

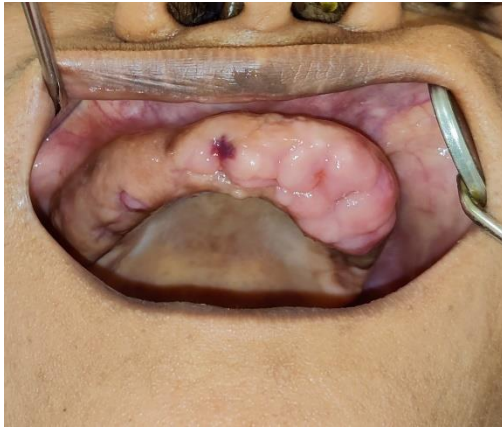


Fig. 4 Edentulous bulbous upper ridge



Fig. 5 Edentulous bulbous lower ridge



Fig. 6 Well healed upper arch



Fig. 7 Well healed lower arch



Fig. 8 Rehabilitation with complete denture