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Diagnostic Pitfalls: An Odontogenic Cutaneous Sinus Tract Masquerading As Chromoblastomycosis

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Abstract:
Odontogenic cutaneous sinus tracts occurring in the facial and neck areas are uncommon and pose a diagnostic difficulty for clinicians due to their potential association with various conditions. This case report details the successful management of a non-healing odontogenic sinus tract in the chin area, which had previously been histopathologically diagnosed and treated as chromoblastomycosis. The patient was presented with a persistent sinus tract with purulent discharge that had not responded to previous treatments. A thorough clinical examination and radiographic imaging revealed an underlying dental infection as the cause of the sinus tract. The excision of the sinus tract was performed, along with extraction of teeth to address the underlying infection. The patient experienced complete resolution of the sinus tract and remained asymptomatic during follow-up visits. This case highlights the importance of a comprehensive approach to diagnose and treat odontogenic sinus tracts, successful outcomes achievable through a combination of surgical intervention and dental management.
Keywords: *Odontogenic cutaneous sinus tract, Chromoblastomycosis, Comprehensive approach*

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I. Introduction

A non-healing odontogenic sinus tract over the chin region can be a challenging and frustrating condition to manage. Odontogenic sinus tracts are typically caused by chronic dental infections and can result in persistent draining fistulas that can be difficult to resolve. The diagnosis of cutaneous sinus tracts from odontogenic causes is often challenging as it can mimic symptoms of bacterial infections, furuncles, traumatic injuries, osteomyelitis, and congenital fistula. The dental origin is frequently disregarded since many patients do not exhibit any dental issues. Additionally, the appearance of cutaneous lesions may not always correlate with the location of the underlying infection [1].

In this case report, we present the successful management of an odontogenic cutaneous sinus tract over the chin region initially misdiagnosed as chromoblastomycosis which is a chronic fungal infection. The patient presented with a longstanding sinus tract with pus discharge that had failed to heal despite multiple treatment attempts. Utilizing a combination of extraction of odontogenic foci, surgical excision and appropriate antimicrobial therapy, we were able to successfully resolve the sinus tract and achieve complete healing. This case highlights the need for a comprehensive approach in evaluating and ruling out possible dental foci prior to treating orofacial sinus tracts.

II. Case Report

A 67 years old female patient reported to department of oral and maxillofacial surgery with a chief complaint of pus discharge from chin region. The patient stated that she has been experiencing persistent and draining acne on her chin for the past 10 months. She has previously undergone various treatments, including oral antibiotics and antifungals prescribed by her general surgeon, who based the treatment on a histopathological report indicating chromoblastomycosis with a giant cell reaction. Unfortunately, there has been no improvement. She has history of coronary artery disease (under antiplatelet medication), Type 2 diabetes (under Oral Hypoglycemic Agents), Hypertension (under Anti- hypertensive medication).

On extraoral examination a sinus opening with purulent discharge was noted with respect to submental region (Fig1a). Pus was collected with sterile swab stick and sent for culture and sensitivity test. Intraoral examination revealed multiple root stumps, deep dental caries in relation to lower incisors and premolars with features of chronic generalized periodontitis (Fig1b). Serial periapical radiographs revealed hypodense periapical lesion with respect to lower canines and generalized horizontal bone loss. Cone beam computed tomography

(CBCT) was indicated, oblique sagittal view showed ill-defined radiolucency apically in relation to lower canines and right lateral incisor and break in the buccal cortical plate noted apically in relation to right canine (Fig 1 c&d). An endodontic and periodontic evaluation was done for the offended teeth but they were deemed non-salvageable. Excision of the cutaneous sinus tract and extraction of the teeth with periapical infection and poor prognosis was planned under local anesthesia after achieving good glycemic control.

Patient was aseptically painted and draped. 2% lignocaine with 1:80000 adrenaline injection given. Extraction of mandibular anterior teeth and premolars were done (Fig 2a). The extraoral sinus tract was traced into the socket of lower right canine (Fig 2b). The sinus tract was carefully dissected and excised (Fig 2c). Unhealthy tissue surrounding the extraoral sinus opening was excised and closure was done by elliptically following the Langer's lines on submental region to achieve a more aesthetically pleasing scar during the healing process (Fig 2d).

The excised specimen was sent for histopathological examination and the report was suggestive of granuloma. A fungal culture was performed and resulted in a negative outcome, effectively excluding a fungal etiology. Appropriate antibiotics were prescribed based on the culture and sensitivity of the pus that was collected in the first visit. Clinical follow up was done at 1 week and 1 month post-operatively. Sutures removed after 1 week and patient reports symptomatic improvement. Extraoral and intraoral wound healing was satisfactory (Fig 3).

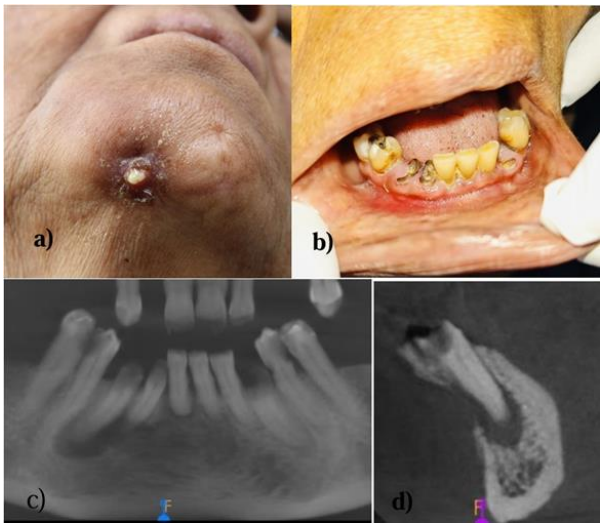

Figure 1: a) Extraoral submental sinus tract b) Intraoral examination revealed multiple root stumps, deep dental caries in relation to lower incisors and premolars with features of chronic generalized periodontitis c) Oblique sagittal view showed ill-defined radiolucency apically in relation to lower canines and right lateral incisor d) Break in the buccal cortical plate noted apically in relation to right canine

Figure 2: a) Extraction sockets of mandibular anterior teeth and premolars b) The extraoral sinus tract was traced into the socket of lower right canine c) Excised sinus tract d) Extraoral closure

Figure 3: Satisfactory healing of extraoral and intraoral wounds

III. Discussion

Odontogenic cutaneous fistulas are of interest to various medical specialties due to their position in the head and neck area. These tracts frequently resemble other skin lesions in their clinical presentation. As a result, dermatologists and general surgeons are often the first to be consulted, who may not consider the role of dental foci while diagnosing and treating such lesions [2]. The initial biopsy of this draining extraoral lesion, performed by a general surgeon, indicated chromoblastomycosis, prompting the initiation of prolonged antifungal treatment. Nonetheless, this diagnosis may have arisen due to a superadded fungal infection resulting from the patient's poor glycemic control.

Chromoblastomycosis is a chronic, granulomatous, and suppurative mycosis affecting the skin and subcutaneous tissues, resulting from the traumatic inoculation of dematiaceous fungi belonging to the family Herpotrichiellaceae. Given the polymorphic nature of chromoblastomycosis lesions, it is essential to consider differential diagnoses that encompass a range of pathological processes with various etiologies, including phaeohyphomycosis, paracoccidioidomycosis, sporotrichosis, lobomycosis (lacaziosis), coccidioidomycosis, blastomycosis, leishmaniasis, and mycetoma [9].

The odontogenic cutaneous sinus tract in the oro-cervicofacial area typically arises from a chronic apical lesion resulting from pulp degeneration or necrosis. The infection at the apex can extend through narrow passages, leading to perforation of the cortical alveolar bone. In the soft tissue, the infection can propagate along the path of least resistance between facial spaces, ultimately perforating either a mucosal or cutaneous surface [3]. Radiographic assessments, whether conventional or advanced, should be indicated to identify any radiolucency in the periapical area of the suspected teeth. The use of advanced 3D imaging is essential, and patients ought to be examined using panoramic radiographs and cone-beam computed tomography (CBCT) to assess the extent of the lesion and ultimately confirm the tooth responsible [1]. In the present case, Cone Beam Computed Tomography revealed ill-defined periapical radiolucency and buccal cortical perforation with respect to right lower canine.

The management of odontogenic cutaneous sinus tracts presents a unique challenge in clinical dentistry and oral surgery. These tracts often result from chronic infections associated with underlying odontogenic source. In our case, the non-healing nature of the sinus tract might have resulted from improper diagnosis and intervention. Patient’s poor glycemic control must be an adjunct factor. Persistence of a cutaneous sinus tract, despite appropriate antibiotic therapy, suggests that the etiology is not isolated to cutaneous bacterial origin but likely involves an ongoing dental process as well. In this instance, thorough clinical evaluation and imaging studies were essential in identifying the primary source of infection that is a necrotic tooth in our patient's case.

If a tooth is restorable and there is no advanced periodontal disease, endodontic treatment should be the therapy of choice [5]. However, the age, periodontal status of adjacent teeth and systemic condition warranted the removal of teeth along with excision of the sinus tract in this case. The excision of the sinus tract removes the path of least resistance for drainage and allows for optimal healing of the overlying soft tissues, thereby reducing the recurrence rates.

Histological examination of the sinus tract may provide insight into the chronic process, often revealing signs of inflammation, granulation tissue, and sometimes remnants of infected dental tissue. In our case, the histopathological analysis and fungal culture revealed a non-fungal etiology of the lesion, overturning the initial misdiagnosis of chromoblastomycosis. This outcome underscores the critical need for a thorough and accurate assessment in determining the true nature of chronic cutaneous sinus tracts.

Post-operative follow-up revealed satisfactory healing and resolution of the sinus tract, which aligns with previous findings that suggest surgical excision and definitive dental treatment lead to excellent outcomes in these cases. Our approach emphasizes the importance of a multidisciplinary strategy, involving both surgical and dental interventions, to achieve lasting results. Moreover, this case highlights the necessity for dental professionals to remain vigilant in diagnosing and managing odontogenic infections. Patient education regarding the signs and

symptoms of potential complications can aid in early intervention, potentially reducing the risk of chronic conditions such as those observed here.

IV. Conclusion:

In conclusion, this report underscores the critical role of oral and maxillofacial surgeons in the accurate diagnosis and management of chronic cutaneous oro-cervico-facial sinus tracts. Prompt and accurate diagnosis, supported by radiographic findings of periapical infections, along with appropriate treatment of these conditions can prevent patients from undergoing unnecessary and ineffective antibiotic therapies or invasive plastic surgeries, ultimately minimizing the risk of additional complications. Furthermore, the potential for superadded fungal infections in chronic cases necessitates a vigilant approach, as prolonged inflammation or antibiotic treatment may create an environment conducive to fungal growth. It is well-established that systemic conditions like diabetes mellitus can elevate the risk of fungal infections by impairing immune function [10]. This serves as a reminder of the value that specialists bring to the multidisciplinary management of complex conditions in the head and neck region, ultimately improving patient outcomes and quality of life.

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