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# Non surgical endodontic treatment of cutaneous extraoral sinus tract: Report of 2 cases

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**ABSTRACT**

A cutaneous sinus tract of dental origin is a commonly misdiagnosed lesion. The inability to arrive at proper diagnosis due to absence of symptoms and its rare occurrence leads to inefficient treatment planning involving antibiotic regimens, multiple biopsies and surgeries. This lesion usually occurs as a result of long standing inflammatory process of the pulp that is necrotic. It is usually seen in the chin, cheek and sub-mandibular area. The patient is usually unaware of the underlying dental problem and tends to approach a general physician or a dermatologist for the same. An improper diagnosis results in recurrence of the lesion again and again. The present article aims to report two cases of cutaneous sinus tracts of dental origin in the sub mental area which were non-surgically treated with conservative endodontic therapy.

**Key Words**: Cutaneous Sinus tract, Non surgical treatment, Periapical Lesion

## Introduction

A diagnosis of cutaneous fistula of odontogenic origin can be challenging for various reasons. [1] It is often seen that, the chronically draining sinuses of head and neck are misdiagnosed.[2] It is very common for the patients to consult a general physician or a dermatologist, and undergo surgical interventions or antibiotic therapies for the same before taking a dentist's opinion. Any chronic draining sinus of the head and neck must be thoroughly evaluated for dental origin. [3] Often, only half of the patients complain of toothache and thus, a lot of times dental relevance is ruled out due to the absence of tooth related symptoms. [4] A majority of the sinus tracts appear on the jaw-line. The cutaneous lesions make a striking resemblance to the other disorders, such as basal cell carcinoma or furuncle, and several surgical interventions are undertaken and courses of antibiotics are prescribed before a definitive diagnostic and treatment plan is established.[2][3]

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## Case Report 1

A 28-year-old female presented with a chief complaint of extra-oral intermittent pus discharge on her chin region since 4 months. She suffered from no other medical condition and was not on any medication and had no allergies. Clinical examination showed draining lesion approximately 3×3 cm in diameter in the sub mental area [Figure 1]. Intraorally, the mandibular anterior teeth had normal appearance concerning integrity of its crowns, lingual vestibular swelling was present irt to 31, 41, and 42. Pulp vitality showed a negative response with 41,42,31,32. An intraoral periapical radiograph showed radiolucency surrounding mandibular central incisors [Figure 4].A diagnosis of chronic suppurative periodontitis was made. After local anesthesia and rubber dam placement, root canal treatment was initiated with removal of necrotic content of pulp chamber and root canal. Working length was established and biomechanical preparation was performed with nickel-titanium rotary using crown-down techniques. Root canals were irrigated using 5.25% sodium hypochlorite in abundance. Calcium hydroxide was used as intracanal medicament. Only one week after

endodontic treatment drainage from sinus tract was canal were obturated with AH plus sealer and corresponding gutta percha by cold lateral condensation technique [Figure 5].Complete healing of the extraoral sinus tract was observed with minimal stopped [Figure 2]. Three weeks after first visit the root scar formation three months after the treatment [Figure 3] and the radiographic examination revealed healed radiolucent lesion.

Fig 1: Pre operative extraoral sinus tract

Fig 2:Healing sinus tract (After 1 week)

Fig 3:Post operative healed lesion (After 3 months)

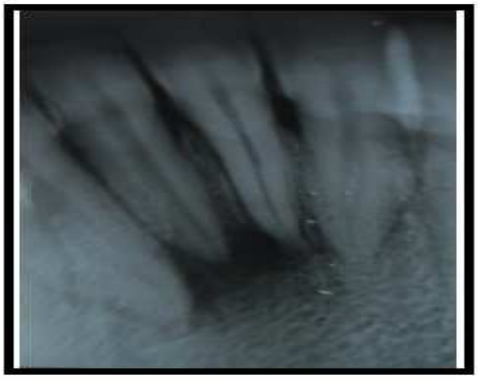

Fig 4.Periapical radiograph

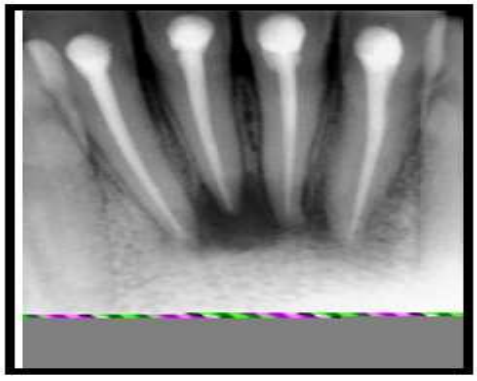

Fig 5. Post obturation radiograph

**Case Report 2**

A 20 years old female reported to department of oral & maxillofacial surgery with a chief complaint of extraoral nodular growth on her chin for the past 6 months. The medical history was non-contributory. Extraoral examination revealed nodular growth with continuous drainage in the submental area. The nodule was soft on palpation and it elicited a purulent discharge [Figure 1]. She also stated that when the lesion started to discharge purulent fluid, she visited a physician who prescribed antibiotics. However pus recurred each time the therapy was interrupted. Intra oral examination revealed discolored mandibular central & lateral incisors with reduced crown height. Intra orally no swelling was observed. Radiographic examination showed peri radicular radiolucency associated with apical region of 31, 32, and 41 [Figure 4]. The clinical diagnosis of chronic apical periodontitis with extraoral sinus was made. Non surgical endodontic treatment was initiated and calcium hydroxide was administered as intracanal medicament. The lesion resolved within 7-10 days of initiating endodontic treatment [Figure 2]. Patient was recalled after three month. Clinically lesion healed completely without scar [Figure 3, 5].

Fig 1:Pre operative extraoral sinus tract

Fig 2:Healing sinus tract (After 1 week)

Fig 3:Post operative healed lesion (After 3 months)

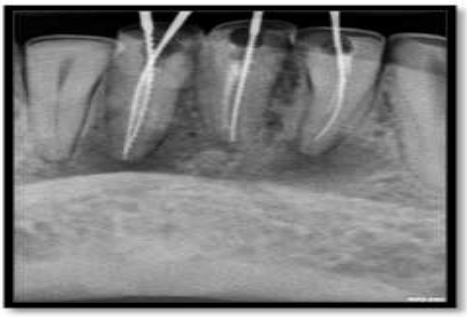

Fig 4:Working length radiograph showing radiolucent lesion

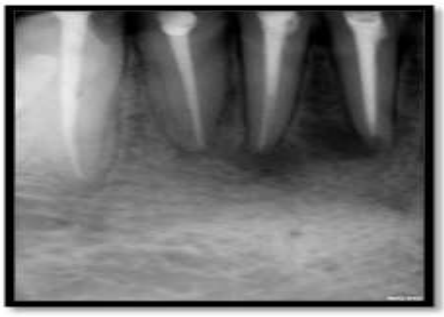

Fig 5:Post obturation radiograph showing signs of healing

**Discussion**

The odontogenic cutaneous sinus tract is caused by the caries which deepens leading to pulpal degradation or necrosis, which ultimately results in chronic apical periodontitis. [5] The infection from the tooth reaches the alveolar bone. It then travels the path of least resistance, resulting in perforation.[6] Lewin-Epstein J., Taicher S., Azaz B.[7] in their study observed that the sinus tracts can be classified into two types, extra-oral and intra-oral. This is determined by the course of inflammation, which is further dependent on the muscular attachments and facial planes i.e. perforation is above the level of muscular attachment, and then it results in an intra-oral sinus. & if below the level of muscular attachment, it then results in an extra-oral sinus. [7] In our both the cases the sinus tracts were extra oral. This becomes a diagnostic challenge. Spear K.L., Sheridan P.J., Perry H.O. [8] stated that the most common site of occurrence is the chin, mandibular and submandibular region which is in accordance to our case reports where the site of occurrence was chon area. Wood N.K [4] Wilson SW *et al* [9] Cantatore JL *et al* [10] in their studies observed that the clinical findings of extra-oral cutaneous sinus can resemble that of an endodontic lesion, suppurative apical periodontitis, pyogenic granuloma, infected cyst, salivary gland fistula, congenital fistula, osteomyelitis and deep mycotic infection so thorough intraoral examination becomes quintessential in making the diagnosis. Chidyllo SA. [11] Gutmann J.L [12] suggested that a holistic examination should be carried out that includes looking for a carious tooth, restorations or periodontal involvement & if possible microbial culture test should also be carried out to know the exact nature of pathogenicity of microorganism so that the clinician can treat the case more efficiently. Calışkan M.K [13] suggested that inspection and palpation of the lesion and the medical history of the patient should also be considered along with pulp vitality tests coupled with intraoral radiographs are essential. A probe or gutta-percha is inserted through the fistula to take radiographs to effectively determine the involved tooth. From treatment point of view our case studies are in accordance with Calışkan M.K [13] in which they suggested that the treatment of choice for a restorable tooth is non-surgical endodontic therapy and for a compromised tooth is ideally an extraction. Non surgical endodontic treatment is carried out using

calcium hydroxide as an intracanal medicament after the root canal therapy of the teeth. In our case the treatment of choice was non surgical treatment i.e. the teeth with calcium hydroxide. Only non-healing cases should be considered for surgery. Before arriving at the confirmatory diagnosis the differential diagnosis procedure should be taken up to avoid the over diagnosing of the lesion. In the present case the differential diagnosis on the basis of clinical appearance includes traumatic lesions, infections of fungal and bacterial origins, and neoplasms like squamous cell carcinoma, presence of foreign body, local skin infection, furuncle, pyogenic granuloma, chronic tuberculosis lesion, osteomyelitis, actinomycosis and gumma of tertiary syphilis. Rarely, defects of thyroglossal duct origin or branchial cleft, epidermal cyst, salivary gland and duct fistula and suppurative lymphadenitis may also be taken into consideration for differential diagnosis. [4-8]

## Conclusion

Chronic dental infection is one of the most common causes of fistulae of the face and neck, it must be considered while diagnosing cutaneous sinus tracts of head, neck and face. Elimination of odontogenic cutaneous sinus tract infection by conservative endodontic therapy results in resolution of the sinus tract without need for surgical excision. The present case report demonstrates non surgical conservative endodontic management which resulted in the elimination of a cutaneous sinus tract of dental origin with minimal scar formation.

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