

## CASE REPORT

# MANAGEMENT OF ENDODONTIC INFECTION WITH AN EXTRA ORAL SINUS TRACT: A CASE REPORT

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### ABSTRACT

Acute periodontitis can become chronic apical periodontitis, which can then drain into the sinus tract, as a result of minor carelessness and incorrect diagnosis of ongoing oral infections brought on by trauma, caries, or periodontal disease. Although an intra-oral drainage is more typical, this sinus may be extra-oral or intra-oral. The goal of this case report is to discuss how extra oral sinuses are managed following successful endodontic therapy. The patient was sent to us after receiving many antibiotic prescriptions as a result of a misdiagnosis. Following clinical assessments, root canal therapy was carried out. During the follow-up period, the indications and symptoms resolved, confirming the accurate diagnosis. Elimination of dental infection leads to complete recovery in such patients.

## INTRODUCTION

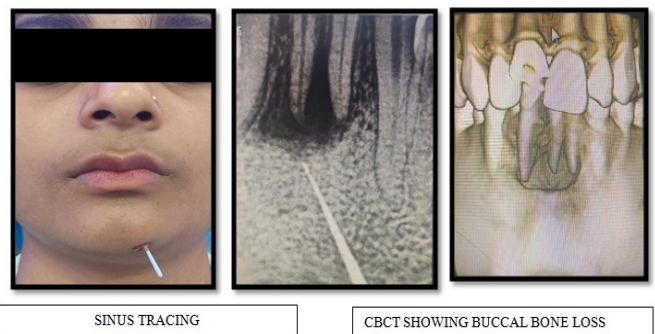
The hallmarks of chronic apical periodontitis include invasion, destruction, and repair of connective tissue, and it can manifest as a periradicular cyst or dental granuloma (1). In certain instances of persistent inflammation, a sinus tract may develop (2). A communication channel between a limited inflammatory location is known as a sinus tract (3). The location of the sinus tract entrance might be extraorally or intraorally, depending on which approach presents the least amount of resistance. The sinus tract may open anywhere on the face or neck in the extraoral type. The extraoral sinus tract can be mistaken in differential diagnosis with a wide range of other medical and dental disorders, including tuberculosis, actinomycosis, osteomyelitis, ingrown hair or obstructed sweat gland ducts, local cutaneous infections, and congenital midline sinus of the upper lip. Giving importance to diagnosis and management of these lesions and avoiding unnecessary treatments, the case report of misdiagnosed extraoral sinus tracts of odontogenic origin in different parts of the face and neck.

## CASE REPORT

A 25-year-old female patient was referred to our department, complaining of an extraoral pus drainage below the chin since last 3 months. The patient's medical history was unremarkable, and she was categorized as ASA I.

The patient gave history of trauma to mandibular incisors 2 years earlier, which lead to discoloration of tooth 31 and 41. The patient visited normal physician upon noticing it. The physician had prescribed antibiotics i.e., daily use of 100mg doxycycline for 3 months. The patient underwent ultrasound, which revealed a hypoechoic mass with unclear margins and no calcification. Due to continuation of pus discharge, patient was referred to department of conservative dentistry and endodontics.

The extraoral examinations revealed that the sinus tract had active pus discharge. The intraoral examination revealed that the patient had crowding of mandibular anterior teeth 31,32,41,42. The incisal edge of tooth 31 had chipping and discoloration but tooth was not mobile.



Tooth responded negatively to pulp vitality tests. The radiographic examination revealed a radiolucent lesion with ill-defined borders in the periapical region of 31,41. Local anesthesia was induced by the injection of 2% lidocaine 1:80,000 epinephrine.



WORKING LENGTH RADIOGRAPH



MASTERCONE RADIOGRAPH



EXTRAORAL HEALING AFTER 2 WEEKS



PERIAPICAL HEALING AFTER 4 MONTHS

An access cavity was prepared, and working length was determined. Biomechanical preparation was performed and the canal had no pus discharge. A mixture of calcium hydroxide was applied as an intracanal medicament. Patient was recalled 2 weeks later. The extra oral sinus tract was healed and another sitting of calcium hydroxide was given for next 2 weeks. Significant healing of periapical lesion was noticed. Thus, the root canal was filled with gutta-percha and AH-Plus sealer. At 4 months follow up sessions, the patient had no complaint of pus discharge from extraoral sinus tract, and the opening has been completely healed. Radiograph showed the initiation of trabeculation in the periapical region.

## DISCUSSION

Major reason for misdiagnosis is that these lesions may mimic some cutaneous lesions; therefore, at first, the patient often refers to a general surgeon or a dermatologist instead of a dentist, which often leads to mismanagement. Precise intraoral and extraoral examinations are imperative for the correct diagnosis and treatment planning. A previous clinical study assessed periradicular inflammation and its relationship with the development of sinus tracts and showed that sinus tracts with endodontic origin commonly manifest intraorally. Extraoral sinus tracts are related to the mandibular teeth in 80% of the cases, and pus discharge often occurs through an opening in the chin or the submandibular region (24). Calcium hydroxide in combination with CHX is applied to root canal system as an intracanal medicament until the resolution of extra oral sinus tract. Calcium hydroxide is commonly used as an intracanal medicament due to its potent antibacterial properties against the majority of endodontic microflora (25). Antibacterial and bacteriostatic properties, enhancement of healing, high pH, which leads to subsequent stimulation of fibroblasts, inhibition of internal root resorption, neutralization of acidic pH, low cost, and easy application are among other advantages of calcium hydroxide (27). CHX is a broad-spectrum antimicrobial agent, which is effective against Gram-positive and Gram-negative bacteria and yeasts. One major drawback of calcium hydroxide is its inability to eliminate *Enterococcus faecalis*. Evidence shows that CHX can effectively eliminate the *Enterococcus faecalis* biofilm from the root canal system when used as an intracanal medicament (30, 31). Evidence shows that a combination of calcium hydroxide and CHX has optimal antimicrobial efficacy against *Enterococcus faecalis* (31,32).

## CONCLUSION

Root canal therapy by using antimicrobial irrigants and intracanal medicaments is the treatment of choice in these instances. At first, no surgical intervention is recommended.

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