Endodontic Management of Extra Oral Sinus in Mandibular Canine with CBCT and 6 Month Follow - Up

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Abstract: A sinus tract of endodontic origin is caused by pulp necrosis secondary to caries or trauma followed by invasion of microorganisms causing periapical inflammation of the affected tooth. The suppuration from the periapical inflammatory process then follows the path of least resistance creating trajectories which spread through the bone marrow, periosteum, loose connective tissue among the fascial planes, and finally drain onto the epithelial tissue through either a mucosal or, occasionally, a cutaneous sinus tract ¹, ². The sinus tract of odontogenic origin is often misdiagnosed by physicians as that of dermatologic origin. The most common cause of a cutaneous sinus tract is a chronic periradicular abscess. These abscesses arise from bacterial invasion, chemical irritation or trauma. The most common initiating factor of the periradicular abscess is carious exposure and subsequent bacterial invasion of the tooth pulp³. This process of destruction begins within a necrotic pulp and eventually spreads in the surrounding periosteum. The first change seen clinically is apical periodontitis. In later stages, the inflammation spreads apically leading to bone destruction and subperiosteal abscess formation. The periosteum is pierced, and depending on factors such as gravity, virulence of microorganisms or most importantly, anatomical arrangement of adjacent muscles and fasciae, either a cutaneous sinus or an intraoral sinus will form ⁴.

1. Introduction

This paper describes the clinical course of a case with extra oral sinus tract formation, from clinical and radiographic diagnosis using periapical radiographs and CBCT scan and treatment to 1 week, 1 month and 6 months follow - up. The tooth involved had periradicular radiolucency noted on radiographic examination and extra - oral sinus tract appearing on the chin with exudation and unpleasant aesthetic appearance.

Cone Beam Computed Tomography scan (CBCT) is used to reconstruct a three - dimensional (3D) image of the following regions of the patient's anatomy: dental (teeth); oral and maxillofacial region (mouth, jaw, and neck); and ears, nose, and throat. In this case, CBCT was used to confirm the diagnosis of extra oral sinus involving lower left canine. The adopted treatment protocol included treating the sinus tract surface subsequently with root canal therapy.

2. Case Report

A 32 - year - old female patient came to, MGDCH, Jaipur, for an opinion. The patient's chief complaint was the presence of an unaesthetic nodule in her mandibular left mental area and preauricular pain that resolved a few months back. On further history taking, the patient revealed the presence of intermittent pus drainage from this lesion and history of toothache in the mandibular left anterior region one year back which resolved by itself. Intraoral examination revealed the presence of deep caries approaching pulp and tender on percussion with respect to 33 which on radiographic examination revealed a diffuse periapical radiolucency which was the probable cause of extra oral sinus fistula. Thus, the diagnosis of pulpal necrosis with chronic periradicular abscess and cutaneous draining extra oral sinus was established. This was further confirmed by the negative response to electric pulp test and cold stimuli.

Following isolation with a rubber dam, an endodontic access opening was made under magnification using an Endo -Access bur (Dentsply Maillefer, Ballaigues, Switzerland). Conventional access was prepared and patency was checked using a size 10 K - file (Dentsply Maillefer, Ballaigues, Switzerland). The working length was determined using an electronic apex locator (Root ZX). The electronically determined working length was confirmed radiographically using a size 15 K - file. Biomechanical preparation of the root canals using F1 file (Dentsply Maillefer, Ballaigues, Switzerland). Irrigation during instrumentation was carried 5.25% sodium hypochlorite out with (Dermus, Floriano'polis, SC, Brazil) and final irrigation was done using EDTA (Dermus, Florianópolis, SC, Brazil) and saline. CaOH is placed for 1 week. F1 master cone is used and obturation is done by AH plus sealer (Dentsply). Core build up is done using composite (Dentsply Maillefer). Patient is recalled after 7 days for follow up. Slight healing is observed. On consequent 1 month and 6 month follow - up, sinus tract healing can be observed clinically and radiographically.



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Extra Oral view Intraoral view



Pre - operative radiograph irt 33





CBCT view





Access Cavity Working Length





Master Cone Obturation

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6 months Follow up





Before treatment 1 week Follow up





One month follow - up 6 month follow up

3. Discussion

The evaluation of a cutaneous sinus tract must begin with a thorough medical history and awareness that any cutaneous lesion of the face and neck could be of dental origin ^{5, 6, 7}.

Patients, unaware that the cutaneous sinus could be related to dental infection, often seek treatment from a dermatologist or family physician ⁸. Therefore, careful questioning of the patient about past symptoms (including dental caries, oral trauma, and periodontal disease) and oral hygiene regimens may help physicians identify dental etiology ⁸.

Cutaneous extravasation tissue or dimpling may be visible. During palpation, production of a purulent discharge confirms the presence of a sinus tract ⁹. On finding a cutaneous purulent discharge around the facial and head and neck region, one must check for potential intraoral odontogenic infection as well. Dental etiology can be confirmed by tracing the sinus tract to its origin with the help of radiographic techniques⁸. If the sinus tract is patent, a lacrimal probe or gutta - percha cone can be used to trace it's path from the cutaneous orifice to the point of origin⁸. The origin is usually a nonvital tooth; in edentulous patients, the origin could be a retained tooth fragment or an impacted tooth⁹. An apical radiograph may determine the origin of the cutaneous sinus tract; a radiolucency is seen at the apex of the infected tooth ¹. The clinical differential diagnosis includes pustule¹⁰, actinomycosis⁵, ⁶, ¹¹, osteomyelitis⁶, ¹², orocutaneous fistula¹³, neoplasms, local skin infections (carbuncle and infected epidermoid cyst), pyogenic granuloma, chronic tuberculosis and gumma of tertiary syphilis.

Pustule is the most common of all purulent draining lesions and is readily recognised by its superficial location and short course¹³. Actinomycosis exhibits multiple draining lesions and characteristic fine yellow granules in the purulent discharge. The tooth is often not involved radiographically¹³. If a sinus tract does not close after appropriate removal of the primary cause, the most common alternative cause is actinomycosis¹².

4. Conclusion

Lesions involving head and neck regions do not always need to be due to medical reasons. Misdiagnosis may lead to poor prognosis and persistence of pain and discomfort even after treatment. In cases where extra oral sinus is observed, it is equally important to consider the odontogenic involvement as well. Proper diagnosis, treatment planning and follow - up leads to good prognosis in such cases.

References

- [1] Kaban LB. Draining skin lesions of dental origin: the path of spread of chronic odontogenic infection. Plast Reconstr Surg 1980; 66: 711–7.
- [2] Al Kandari AM, Al Quound OA, Ben Naji A, Gnanasekhar JD. Cutaneous sinus tracts of dental origin to the chin and cheek. Quintessence Int 1993; 24: 729–33.

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- [3] Stoll HL, Solomon HA. Cutaneous sinuses of dental origin. JAMA 1963; 184: 120 - 124
- [4] Laskin DM. Anatomic considerations in diagnosis and treatment of odontogenic infections. J Am Dent Assoc 1964; 69: 308 - 316
- [5] Lewin Epstein J, Raicher S, Aziz B. Cutaneous sinus tracts of dental origin. Arch Dermatol 1978; 114: 1158 - 1161.
- [6] Cioffi GA, Terezhalmy GT, Parlette HL. Cutaneous draining sinus tract: an odontogenic etiology. J Am Acad Dermatol 1986; 14: 94 - 100
- [7] Cohen PR, Eliezri YD. Cutaneous odontogenic sinus simu - lating a basal cell carcinoma: case report and literature review. Plast Reconstr Surg 1990; 86: 123 -127
- [8] Cantatore, J. L., Klein, P. A., & Lieblich, L. M. (2002). Cutaneous dental sinus tract, a common misdiagnosis: a case report and review of the literature. CUTIS -NEW YORK - , 70 (5), 264 - 275.
- [9] Tidwell E, Jenkins JD, Ellis CD, et al. Cutaneous odonto - genic sinus tract to the chin: a case report. Int Endod J.1997; 30: 352 - 355
- [10] Wood G. Pitts, fistulas, and draining lesions. In: Wood NK, Goaz PW (eds). Differential diagnosis of oral lesions, ed 3. St. Louis, MO: CV Mosby Co, 1985: 199 201.
- [11] Spear KL, Sheridan PJ, Perry HO. Sinus tracts to the chin and jaw of dental Origin. J Am Acad Dermatol 1983; 8: 486 - 492
- [12] Braun RJ, Lehman JAA. Dermatologic lesion resulting from a mandibular molar with periapical pathosis. J Oral Maxillofac Surg 1981; 52: 210 - 212
- [13] Wood G. Pitts, fistulas, and draining lesions. In: Wood NK, Goaz PW (eds). Differential diagnosis of oral lesions, ed 3. St. Louis, MO: CV Mosby Co, 1985: 199 201.