



Non- Surgical Management of an Odontogenic Cutaneous Sinus Tract: A Case Report

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ABSTRACT: The odontogenic cutaneous sinus tract on the facial and cervical skin is known to occur as a result of pulp necrosis and chronic periapical periodontitis. Sinus tracts of endodontic origin usually respond well to endodontic therapy. The present case report discusses diagnosis and successful management of an extraoral cutaneous sinus tract of odontogenic origin in relation to a mandibular right permanent first molar using non-surgical endodontic therapy.

Keywords: Cutaneous sinus tract, odontogenic infection, root canal treatment, non-surgical endodontic therapy.

I. INTRODUCTION

The odontogenic cutaneous sinus tract on the facial and cervical skin often develops as a result of chronic apical periodontitis caused by pulpal degeneration or necrosis [1, 2, 3, 4, 5]. The apical infection may spread through the marrow space, then perforate the cortical bone. In soft tissue, the infection may spread through the path of least resistance between facial spaces and finally perforate a mucosal or cutaneous surface [2, 6]. Calýskan [7] et al. also reported a case of cutaneous sinus tract originated from a fractured crown caused by trauma.

Cutaneous sinus tracts most commonly present on the chin and the cheek area [6]. These tracts usually appear as suppurative lesions of the chin or neck. The inner surface of sinus tracts may be partially lined with either granulomatous tissue or epithelium [7, 8, 9].

Cutaneous sinus tracts of dental origin have been well documented in the medical literature [5]. However, these lesions continue to be a diagnostic dilemma [5, 6]. The differential diagnosis is of prime importance. The differential diagnosis should include traumatic lesions, fungal and bacteriologic infections, neoplasms, presence of foreign body, local skin infection, pyogenic granuloma, chronic tuberculosis lesion, osteomyelitis, actinomycosis and gumma of tertiary syphilis. Rare entities to be included in the differential diagnosis are defects of thyroglossal duct origin or branchial cleft, salivary gland and duct fistula and suppurative lymphadenitis [1, 5, 6, 7, 10, 11, 12, 13].

The principle of managing such lesions is to remove the source of dental infection [2, 6]. Conventional root canal treatment and occasionally periapical surgery and extraction are effective in providing disappearing sinus tract in a very short duration [5, 6, 12, 13].

The purpose of this report is to present a case of cutaneous sinus tract successfully managed with only conventional root canal treatment in a few weeks.

II. CASE REPORT

A 15-year-old female patient reported to the department of conservative dentistry and endodontics with a chief complaint of purulent discharge from extraoral sinus tract on his right cheek. On clinical examination, an extremely large carious lesion was seen in mandibular right first molar. A draining sinus tract on the right cheek, 1 cm below the inferior border of the mandible was detected. On palpation, a nodal swelling around the fistula was found (Figure 1a). The tooth was not tender under percussion or painful on biting and didn't respond to thermal pulp testing. Radiographic examination revealed periapical radiolucent lesion associated with the roots of mandibular right first molar (Figure 1b). The diagnosis of suppurative apical periodontitis was established.

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Under the rubber dam isolation, access opening was done and the necrotic content of pulp chamber and root canal was removed. Working length was established using apex locator and was confirmed radiographically (fig 2a). Biomechanical preparation was performed with rotary nickel-titanium Protaper next instruments using crown-down techniques. Root canals were irrigated using 5,25% sodium hypochlorite in abundance. Calcium hydroxide was used as intracanal medicament. The sinus tract disappeared one week later and root canals were obturated with sealer (AH Plus) and Protaper gutta-percha X2 points using lateral condensation technique (fig 2b, 2c).

Complete healing of the extraoral fistula was observed with minimal scar formation two months after the treatment and the radiographic examination revealed complete disappearance of the radiolucent lesion (fig 3a, 3b).

III. DISCUSSION

Odontogenic cutaneous sinus tracts in the face and neck region are rare [2] and present a diagnostic challenge to clinician as they may present a wide variety of diseases [2, 5, 6]. Patients with such lesion generally go to plastic surgeon and dermatologist rather than dentists for treatment. They may undergo unnecessary multiple biopsies, multiple surgical excision or multiple antibiotic regimens, however recurrence of the sinus tracts becomes unavoidable [2, 5], because the primary dental aetiology is never correctly diagnosed or addressed.

Misdiagnosis and delay in accurate treatment protocol may often be encountered [2, 3, 5]. Therefore, when diagnosing and treating sinus tracts of unknown aetiology in the head and neck region, dermatologist or plastic surgeon should always consult dentists to rule out a dental cause even though there is no dental complaint. This is because the cutaneous sinus tract caused by chronic infection is often painless and may develop over a long period of time without alarming the patient [2, 5, 6]. Patients rarely relate the symptoms to dental infection [2] Therefore, early and proper diagnosis is essential. An accurate diagnosis should include medical history of the patient, inspection and palpation of the lesion, pulp vitality test and intraoral radiographs [1, 5, 6]. In addition, the insertion of a probe or gutta-percha through the fistula to take radiographs is an effective method for determining the involved tooth [6].

As suggested in literature, nonsurgical endodontic therapy is the treatment of choice of such lesions and should be attempted first [6]. In the present case, only nonsurgical endodontic therapy was carried out and the sinus tract was successfully treated with minimal scar formation. Calcium hydroxide was used as an intracanal medicament in the present case due to its beneficial effects [7, 14, 15]. The advantages of calcium hydroxide treatment are stimulation of bone repair and bactericidal effects due to its high alkalinity. Usage of calcium hydroxide paste was advocated for rapid and successful treatment of sinus tract associated with necrotic teeth [7].

IV. IMAGES



Fig 1a Pre-operative clinical view



Fig 1b Pre-operative IOPAR



Fig 2a Working Length IOPAR



Fig 2b Master cone try-in IOPAR



Fig 2c Post-obturation IOPAR



Fig 3a, 3b 2 month post-operative clinical and radiographic view

V. CONCLUSION

The key to a successful treatment of cutaneous sinus of dental origin must lay in healthy communication between the dentist and the physician in order to provide for timely recognition and treatment of such cases. In the case reported here the elimination of infection through nonsurgical root canal treatment led to the resolution of the sinus tracts and promoted periapical healing of the tooth involved.

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