

Endodontically declared poor prognosis tooth saved by surgical intervention: a case report

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Abstract: *Odontogenic cutaneous sinus tract is a rare but well-documented condition. It is usually misdiagnosed as a local skin lesion and maltreated by systemic antibiotics and/or endodontic intervention. This is because the primary etiology is incorrectly determined. We came across a 40-year-old patient who presented with a cutaneous lesion of dental etiology in the submandibular region with frequent purulent discharge which was not responding to systemic antibiotics and endodontic treatment. The case history, diagnosis and management of this condition using surgical intervention is presented here.*

I. Introduction

The term sinus tract "refers to a tract leading from an enclosed area of inflammation to an epithelial surface." It also states that the term dental fistula "should be discouraged, and the more proper term sinus tract should be used." In 1961, Bender and Seltzer reported that they found sinus tracts to be lined with granulation tissue not epithelium.¹

The odontogenic abscess may spread to deeper tissues causing fascial space infection or it may establish an intraoral or extraoral drainage in the form of a sinus tract. Intraoral or extraoral sinus-tract opening depends on the location of the perforation in the cortical plate by the inflammatory process and its relationship to facial muscle attachments. After formation of a sinus tract, the inflammation at the apex of the root may persist for a long period of time because of the drainage through the sinus tract, a chronic abscess can remain asymptomatic for extended periods of time. If there is a closure of the sinus tract, then the chronic abscess may become symptomatic.²

However, these lesions continue to be a diagnostic dilemma. A review of several reported cases reveals that patients have had multiple surgical excisions, radiotherapy, multiple biopsies, and multiple antibiotic regimens, all of which have failed, with recurrence of the cutaneous sinus tract, as the primary etiology was dental that was never correctly diagnosed or addressed.³

In the present paper the case was referred from the department of conservative and endodontics for the extraction of 34, 35 tooth and was having extra oral draining sinus in the submandibular region but both the tooth were saved by excision of the draining sinus and following allograft placement and the patient was recalled for follow-up regularly for 6 months.

II. Case report

Forty years old female was reported to the department of conservative and endodontics with the chief complain of pain in the left lower back teeth since 4 months. On examination it was found the involved tooth was 34 which was deeply carious and the endodontic treatment was started and open dressing was given. The patient again reported after 3 days with pain in the same region, then again BMP was done in 34 tooth and root canal treatment was advised in 35 tooth and RCO was done with 35 tooth. After 7 days patient came up with the extra oral draining sinus in the submandibular region. Then extraction was advised for 34, 35 tooth from the department of conservative and endodontics. Then patient reported to the dept. of Oral and Maxillofacial surgery for the extraction of 34, 35. Thorough examination of the patient was done and was decided not to extract the tooth, rather excision of sinus tract was performed intra orally and the infected periapical bone was removed and irrigated thoroughly using H₂O₂, betadine and normal saline. Then DFDB graft in combination of buccal cortical plate crushed and was placed in the cavity and patient was recalled after 7 days for follow-up and was having no complains and pain and swelling was subsided. The follow-up of the patient was done for 6 months.



Fig 1 Pre operative



Fig 2 post operative after 6 months

III. Discussion

Cutaneous sinus tracts typically present as fixed, nontender, erythematous, nodulocystic lesions on the skin of the lower face. The patient is usually unable to recall an acute or painful onset and the lesion is seldom accompanied by symptoms in the oral cavity.⁴ Once the infection from the offending tooth has perforated the periosteum, the tooth may become asymptomatic. Digital palpation

of the involved area frequently reveals a "cord" of tissue connecting the painless skin lesion to the involved maxilla or mandible. During palpation, an attempt should be made to 'milk' the sinus tract; production of a purulent discharge confirms the presence of a tract (Cohen & Eliezri 1990).⁵ Often, both the nodule and perilesional skin are slightly retracted below the level of the surrounding skin surface.⁶ The majority of dental sinus tracts develop intraorally. When an extraoral dental sinus tract occurs, it most often develops in close proximity to the offending tooth.⁷

The cutaneous sinus tract of dental origin is an uncommon but well-documented condition in the medical, dental and dermatological literature.⁸

However, these lesions continue to be a diagnostic begin with a thorough patient history and awareness that any cutaneous lesion of the face and neck could be of dental origin. Winstock⁹ described cutaneous lesions with dental infections. Kaban¹⁰ elaborated the path of spread of chronic dental infections. Approximately 80% of the reported cases are associated with mandibular teeth and 20% with maxillary teeth.¹¹ Most commonly involved areas are the chin and submental region. The other uncommon locations are cheek, canine space, nasolabial fold, nostrils and inner canthus of eye.⁷ If the sinus tract is patent, a lacrimal probe or a gutta-percha cone can be used to trace its track from the cutaneous orifice to the point of origin, which is usually a nonvital tooth.¹²

The pattern of breakdown and repair of periradicular lesions was demonstrated by Fish. He described four reactive zones to the bacteria, which are zone of infection, contamination, irritation and zone of stimulation. The central infection zone consists of microorganisms and neutrophils, second contamination zone contains zone of round cell infiltrate. Irritation zone contains osteoclasts and macrophages and outer stimulation zone contains fibroblasts and forming collagen and bone. Egress of microorganisms into periradicular region causes tissue destruction in the central zone of infection. As the toxicity of irritants is reduced in central infection zone, the numbers of reparative cells increase in periphery. Removal of irritants, proper debridement and obturation permits reparative zone to move inward. The healing of periradicular tissues after root canal treatment is often associated with formation and organization of a fibrin clot, granulation tissue formation, maturation, subsidence of inflammation and finally restoration of normal architecture of periodontal ligament. Hence, treatment must be focused on elimination of the source of the infection.^{13, 14}

IV. Conclusion

It may be concluded that the correct diagnosis is the key to treat sinus tracts. Successful management of odontogenic extraoral sinus tracts with pulpal pathology depends on proper diagnosis and removal of etiological factors by proper bio- and chemomechanical preparation and three-dimensional obturation. In such cases surgical management proves an adjunct for prompt and speedy management of the problem. Root canal treatment and surgical procedures should be used judiciously to make a favorable environment, while effectively eliminating the pathogens and giving the body's immune, healing and repair mechanism a chance to achieve the desired result thus sparing the patient from physical and psychological trauma.

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