

## Oro-Cutaneous Sinus Tract: A Case Report

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**Abstracts:** Common dental causes of odontogenic sinus tracts include endodontic or periodontal infections, trauma, retained roots and residual chronic infection of the jaws. They are uncommon, and often misdiagnosed. The sinus tracts are most frequently associated with mandibular teeth, which have been documented in 80 to 87% of the reported cases. Extraoral fistulas typically present as erythematous, symmetrical, crusting, smooth and non-tender nodules with periodic drainage. Cutaneous sinus tracts of odontogenic origin represents one among the many types of sinus tracts that may form on the face and neck region. They are usually present on the chin and cheek region. The cutaneous sinus resolves rapidly if the lesion is recognized early and diagnosed properly followed by surgical excision of sinus tract, removal of offending tooth and cutaneous closure is performed. [Patil R NJIRM 2016; 7(2):119-122]

**Key Words:** Oral, Cutaneous sinus tract, Excision.

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**Introduction:** Cutaneous sinus tracts of the face and neck are formed by many conditions that occur inside and outside the oral cavity of these, dentoalveolar abscess is the most common lesion encountered by the dentist. Dentoalveolar abscess can be periapical, periodontal or pericoronal, and all of them may occur as draining lesions. However, cutaneous sinus tracts are associated more with periapical abscess than with the other types of dentoalveolar abscesses.<sup>1</sup>

Sinus tracts are most frequently associated with mandibular teeth, which have been documented in 80-87% of the reported cases. However, only 50% of the patients experienced dental pain and the involved teeth are not always tender to percussion.<sup>2</sup> A sinus tract of endodontic origin is caused by pulp necrosis followed by invasion of microorganisms causing an inflammatory lesion in the periapical area of the affected tooth. The microbiologically induced inflammation may penetrate the alveolar bone and spread along the path of least resistance. Eventually, the inflammatory process can reach the surrounding soft tissue and form a path for drainage. The site of extraoral drainage depends on which tooth is diseased, and on specific factors such as the virulence of the microorganism and the relation between anatomy and facial muscle.<sup>3</sup> In the medical literature, approximately half the patients reported as having a cutaneous sinus tract of dental origin have undergone multiple unsuccessful attempts at incision and drainage and numerous lengthy trials of antibiotics.<sup>4</sup> When a draining lesion is observed on the facial skin, an endodontic origin should always be considered in the differential diagnosis, including suppurative apical periodontitis,

osteomyelitis, pyogenic granuloma, congenital fistula, salivary gland fistula, infected cyst, and deep mycotic infection.<sup>5</sup> Odontogenic sinus tracts appear as a papule or nodule with purulent discharge usually in the chin or jaw region.<sup>6</sup>

The treatment of choice for cutaneous sinus tracts of dental origin is excision of the sinus tract and cutaneous lesion followed by removal of offending tooth and usually resolve within 1-2 weeks. The area usually heals with slight dimpling and hyperpigmentation, which frequently diminish with time. Cosmetic surgical revision may be required if there is significant cutaneous retraction or dimpling from a residual tract.

**Case report:** A twenty eight year old male patient visited to our unit with complaint of pain and frequent fluid discharge from right mandibular posterior region since 5 months. On extraoral examination cutaneous wound discharge was observed over right mandibular posterior region in relation to first molar region (Fig. 1).

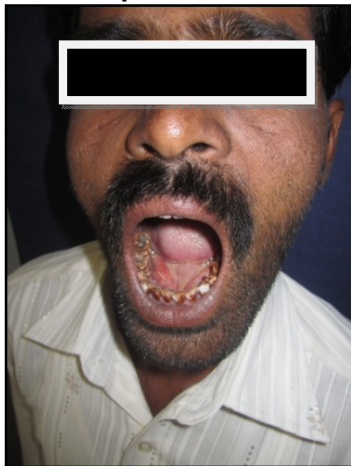
**Figure 1: Preoperative right profile view**



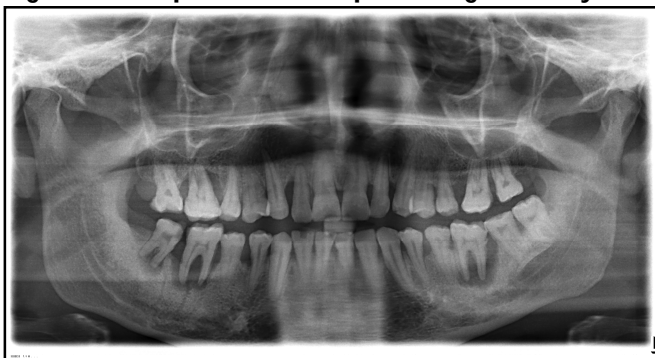
Intraoral examination presented with poor oral hygiene, decayed first and second molar teeth. No

altered vestibular depth and sinus opening intraorally in relation to molars region (**Fig.2**). On palpation skin over and around cutaneous infected wound was firm and fixed to underlying structure and intraorally first and second molar teeth were tender with periodontally weak. Provisional diagnosis was confirmed as oro-cutaneous sinus tract. Radiographic features showing radiolucency of crown and periapical region of first and second molar teeth in fourth quadrant confirms deep proximal caries involving distal portion of first and second molar, and apical infection as well (**Fig.3**). A detail case history, extraoral and intraoral examination with radiographic features confirmed with final diagnosis as oro-cutaneous sinus tract.

**Figure 2: Preoperative intraoral view**



**Figure 3: Preoperative Orthopantomogram X ray view**



Blood investigations revealed normal study and case was planned for surgical excision of sinus tract along with necrotic cutaneous part and removal of affected tooth followed by cutaneous approximation under local anaesthesia. Local anaesthesia 2% Lignocaine with 1:80000 adrenaline was deposited around the healthy region of cutaneous sinus tract, followed by placing of the elliptical incision (**Fig.4**). Necrotic skin was dissected

and identified the sinus tract followed by deep dissection along the sinus tract to reach near apical region of an involved tooth or teeth (**Fig.5**). After dissection and separation around the sinus tract, excision of necrotized cutaneous part and sinus tract was removed completely through and through from extraoral to intraoral followed by extraction of first molar tooth (**Fig.6 and Fig. 7**) only as patient was not willing for the extraction of second molar tooth on the same day even after insisting for the extraction of second molar tooth. After complete excision of sinus tract, surgical site was cleaned with betadine and saline solution (**Fig. 8**) and followed by layer by layer closure of wound extraorally and intraorally (**Fig. 9**). During the followup extraction of second molar was performed after informing the patient about reinfection due to involvement of second molar tooth. Sutures are removed on after a week postoperatively.

**Figure 4: Elliptical incision**



**Figure 5: Dissection and identification of cutaneous wound and sinus tract without separation**



**Figure 6: Excision of oro-cutaneous sinus tract with extracted tooth**



**Figure 7: Intraoral view showing extracted site**



**Figure 8: Wound showing complete excision of oro-cutaneous sinus tract through and through**



**Figure 9: Closure of wound with vicryl and prolene suture material**



**Discussion:** Cutaneous sinus tracts of the face and neck may present a diagnostic problem, because they

represent numerous pathologic conditions ranging from the common periapical abscess to rare developmental anomalies such as the first branchial arch fistula. Cutaneous sinus tracts are seen more often in adults than in children. They are usually present on the chin and cheek and 80% of the reported cases are associated with the mandibular teeth.<sup>1</sup>A sinus tract prevents swelling or pain from pressure build-up, because it provides drainage from the primary odontogenic site.<sup>3</sup>Evaluation of a cutaneous sinus tract must begin with a thorough history and the awareness that a cutaneous lesion of the face and neck could be of dental origin. Patients may not remember an acute or painful onset, and only half recall having a toothache. In addition, many patients with dental sinuses have a history of diffuse periodontal disease and gingivitis. 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 a dental etiology.<sup>4</sup>However, such cutaneous lesions do not always reveal the origin of the infection, and only few patients' report toothaches and other symptoms, complicating definitive diagnosis.<sup>5</sup>

Cutaneous retraction or dimpling may be visible because of the fixation of underlying tissues through a sinus tract. Palpation of the tissues surrounding the sinus may reveal a cordlike tract attached to the underlying alveolar bone in the area of the suspect tooth. During palpation, production of a purulent discharge confirms the presence of a sinus tract. In addition, finding any discharging cutaneous lesion on the face or neck calls for an intraoral examination, which may lead to discovery of one or more severely decayed teeth or a healthy-looking tooth. A lacrimal probe or gutta-percha cone can be used to trace its path from the cutaneous orifice to the point of origin. Dental aetiology can be confirmed by tracing the sinus tract to its origin with the help of radiographic techniques. An apical radiograph may determine the origin of the cutaneous sinus tract; a radiolucency is seen at the apex of the infected tooth.

The differential diagnosis should include trauma, foreign body reaction, pyogenic granuloma, furuncle, and inflamed pilar or epidermal cysts. Consideration should also be given to neoplastic processes (eg, basal and squamous cell carcinomas) and infectious causes (eg, osteomyelitis, actinomycosis, tuberculosis, gummata of tertiary syphilis). Rarely, developmental

defects (eg, brachial cleft and thyroglossal duct cysts) may cause a cutaneous sinus tract to develop.<sup>4</sup>

The histology of these tracts is often characterized as fragments of granulation tissue that are focally lined by epithelium. Most infections are polymicrobial, and culture often yields growth of anaerobes or facultative anaerobes, such as *Streptococcus* species.<sup>6</sup>

It has been observed that system antibiotic therapy will result in a temporary reduction of the drainage and apparent healing. Surgical excision of cutaneous sinuses tract followed by extraction of offending tooth is the choice of treatment.

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