

CORRESPONDENCE



Extraoral cutaneous sinus tracts of dental origin: A report of two pedodontic cases

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Abstract

Odontogenic extraoral, cutaneous sinus is described as a path leading from an enclosed area of inflammation to an epithelial surface. The patients visit a physician first for evaluation, diagnosis, and treatment and both do not give consideration most of the times to the dental etiology. The misdiagnosis and mismanagement leading to persistence of infection can cause frustration to the patient. Successful management of the odontogenic cutaneous sinus tracts of pulpal pathology depends on proper diagnosis. However, these lesions continue to be a diagnostic quandary. Two cases of 11-year-old and 13-year-old female patients with cutaneous extraoral sinus tract have been discussed in this article. These patients were not taken seriously by the physicians, and due to their negligence, these pediatric patients had to undergo a lot of trauma. The case report describes how after proper history, diagnosis, and correct treatment by a pedodontist, the infection healed in these two different patients. Proper diagnosis is the basic requirement for the successful management of the odontogenic cutaneous sinus tracts of pulpal origin. Several case reports reveal that the appropriate diagnosis could not be made leading the incorrect treatment offered to the patients. It causes the cutaneous sinus tract to reoccur as the dental etiology is not addressed. The cutaneous sinus tracts are a rare entity in the pedodontic patients. Proper management can lead to treatment at a much earlier stage thus curbing the progression of the disease and also saving of time and expenses of the patient.

Introduction

Sinus tract is a passageway from the enclosed area of inflammation to epithelial surface. Patients visit a physician first for evaluation and treatment and do not give consideration to the dental etiology. Odontogenic cutaneous sinus tract is a rare but well discussed in the dental literature.^[1]

Main etiological cause for odontogenic infections is dental caries followed by periodontitis pericoronitis or other side effects of comprehensive dental procedures. Often, the second and third molar infections lead to these odontogenic infections.^[2]

Pulpitis caused due to the caries, may develop into periodontitis if not treated, finally landing into alveolar otitis and abscess formation in the orofacial region.^[3]

Abscess formation in the orofacial region is relatively rare.^[4,5]

Clinically, a cutaneous sinus tract may resemble a nodule, ulcer, or an infected cyst on the skin. Cutaneous draining sinus tract should be differentiated from infected sebaceous,

osteomyelitis, suppurative apical periodontitis, epidermoid or thyroglossal cysts, actinomycosis pyogenic granuloma, congenital fistula, deep mycotic infection, furuncle, and salivary gland fistula.^[6]

Case Report

Case report I

An 11-year-old female was referred to GDC, Shimla with a chief complaint of purulent discharge from extraoral sinus on her right lower jaw region. She had a history of irreversible pulpitis in relation to lower right back tooth region few months back. The patient was given antibiotics for the swelling at local health center, but it did not subside, so she was referred to Indira Gandhi Medical College, Shimla, from where she was referred to Himachal Pradesh Government Dental College and Hospital, Shimla.

On clinical examination

Extraorally, a walnut-sized soft swelling was present in relation to right side of the body of the mandible. A draining sinus tract which was about 1 cm below the inferior border of the mandible was present on right cheek [Figure 1a]. Intraorally, there was grossly decayed mandibular right first molar tooth, the tooth was tender under percussion. Oral hygiene was poor.

Radiographic examination revealed periapical radiolucent lesion associated with the roots of mandibular right first molar [Figure 1b].

The diagnosis was made of chronic apical periodontitis due to caries that involved the pulp causing its inflammation and spread of infection to the surrounding structures.

Treatment

The extraoral swelling was drained and the extraoral opening of the sinus could be found in relation to the inferior border of the right side of the body of the mandible [Figure 1a]. The tract was irrigated and debrided with Povidone-iodine and normal saline. After placing a rubber dam, the root canal was debrided and the necrotic pulp removed. Working length radiograph was made. Root canals were irrigated using 5.25% sodium hypochlorite and normal saline. Biomechanical preparation was also done in the first appointment itself.

Calcium hydroxide mixed with chlorhexidine was used as intracanal dressing. Extraoral dressing was placed.

The sinus tract disappeared in about 20 days. After 2 months, root canals were obturated using lateral condensation technique. Oral prophylaxis was also done.

Complete healing of the extraoral fistula was observed with minimal scar formation within 2 months [Figure 1c]. The radiographic examination revealed complete disappearance of the radiolucent lesion [Figure 1d].

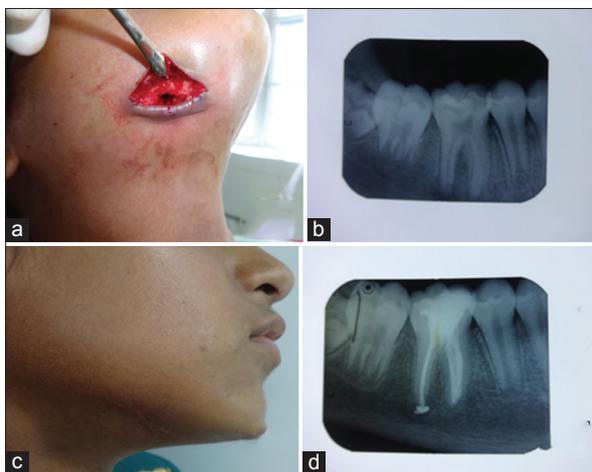


Figure 1: (a) Sinus tract opening visible extraorally, (b) IOPA with periapical radiolucency w.r.t 46, (c) healed scar tissue after 2 months, (d) post-operative IOPA showing healed periapical pathology.

Case report II

A 12-year-old patient reported to the Department of Pediatric and Preventive Dentistry, HPGDC, Shimla with the chief complaint of pus discharge from the right lower jaw region.

She had a history of pain in lower right back tooth region 1 year back. The pain was sharp, shooting, throbbing, radiating in nature, and increased during night and on lying down. After few days pain subsided and occurred intermittently for few months. Later after few months, an extraoral pus accumulation was evident w.r.t lower jaw on right side. For the treatment of extraoral abscess, the patient came to IGMC, where I and D were done 1 year back. The patient was not referred to dental hospital for the needful.

Now, after 1 year, she had again come to IGMC for the same problem and this time she was referred for dental opinion to HPGDC.

Clinical presentation

Extraorally pale, crusted, raised about 8 mm diameter area was seen which was not tender [Figure 2a].

On intraoral examination, carious exposure was seen in the right permanent mandibular 1st molar and carious right mandibular second primary molar. The tooth was not tender under percussion and not painful on biting.

An intraoral periapical radiograph revealed associated periapical infection with grossly decayed right mandibular molars [Figure 2b].

Treatment included extraction of both molars and the sinus tract was treated with to and fro movement of gauze soaked in povidone-iodine [Figure 2c]. H₂O₂ irrigation was done to remove the dead necrotic tissue of the tract and facilitate healing. Coe-pack was given w.r.t extraction sockets [Figure 2d]. Extraoral dressing was also placed.

Discussion

A patient with cutaneous sinus tract should be evaluated with a detailed patient history and physician should be aware that any

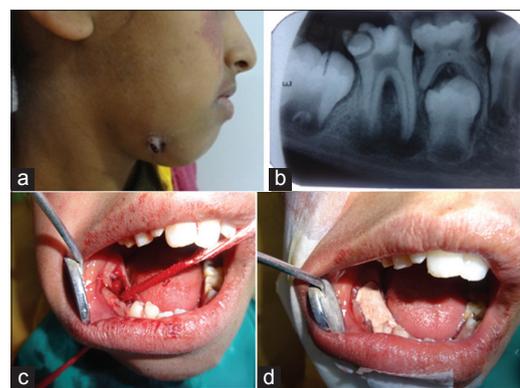


Figure 2: (a) Pre-operative - extraoral sinus, (b) IOPA showing big periapical radiolucency w.r.t 46, (c) cleaning the sinus tract with gauze soaked in povidone-iodine, (d) Coe-pack placed for healing.

cutaneous lesion occurring on face and neck region may have a dental etiology. Patient discomfort, esthetic problems, and complications such as sepsis and osteomyelitis can be reduced by proper diagnosis and treatment.^[5]

Acute periapical abscess drains along a path of least resistance through an intraoral or extraoral opening in the form of a sinus tract or spread to deeper tissues causing fascial space infection. The opening of the intraoral or extraoral sinus tract depends on the path the inflammatory process follows in relationship to muscle attachments of face finally causing the perforation in the cortical plate. The teeth apices located below the muscle attachments of the mandible and above the muscle attachments of maxilla cause the spread of infection extraorally. After formation of a sinus tract, the inflammation at the apex of the root may persist for a long period because of the drainage through the sinus tract, a chronic abscess can remain asymptomatic for extended periods of time.^[7]

Most of the sinus tracts of dental etiology are located intraorally. The extraoral dental sinus tract often is located in close relation to the offending tooth.^[8]

These sinus tracts most commonly are found on the submandibular region and the chin. If there is a closure of the sinus tract, then the chronic abscess may become symptomatic.^[9]

Clinically, the cutaneous sinus tracts present as erythematous, nontender, fixed nodules, or cystic lesions in the skin of the lower face. Cutaneous lesion takes a long time to develop as the chronic infection is located as a distant site than origin of the primary infection. The patient may not remember the pain that occurred due the pulpitis is and oral symptoms may also not develop.^[1]

As soon as the periosteum is perforated, the pain ceases. A "cord" of tissue can be palpated on the skin overlying the involved bone, and a purulent discharge confirms that a tract is present in the region.^[2]

Treatments such as surgical excision, biopsy or surgical revisions, and radiotherapy have been suggested along with the administration of topical and oral antibiotics. However, these all are inappropriate.^[10]

The treatment of these teeth depends on the overall health, cooperation, the tooth position in the oral cavity, clinical and radiographic findings, and sometimes the orthodontic considerations.^[10]

The surgical and non-surgical modalities can be used to treat these cases. A non-surgical approach should be done initially. Appropriate cleaning, shaping, asepsis, sterilization of the root canal, and periradicular region and filling of the root canal determine the success of the treatment and good periapical healing.^[11]

For intracanal placement in primary molars and as an interim procedure for permanent teeth, calcium hydroxide-based paste is a good choice. Conventional endodontic treatment using gutta-percha can be done, preceded by apexification if required. Extraction of the tooth is recommended if prognosis is poor, tooth is not restorable or endodontic therapy cannot be done.^[10,12]

A patent pathway is made for drainage of pus.

Many methods have been propagated, which range from periapically perforating the root of tooth during root canal treatment thus draining the pus through orthograde approach, to creating an extraoral pathway for providing rapid relief to the patient in case of large sinuses. Shoelace technique is one such method, where the sinus is managed extraorally by inserting a gauge piece soaked in Povidone-iodine to make a path for pus drainage.^[13]

Kaban^[6] reported that 80% of the cases of chronic dental infections are associated with mandibular teeth and 20% with maxillary teeth.^[14]

A gutta-percha cone or a lacrimal probe can be used to trace the patent sinus tract from the extraoral orifice to its point of origin in the offending tooth.^[6]

A fibrin clot or a granulation tissue forms during healing of periradicular tissues after the root canal treatment. Inflammation subsides and finally, normal architecture of periodontal ligament is restored. Treatment must be focused on eliminating the source of infection.^[15]

Conclusion

Proper diagnosis is the basic requirement for the successful management of the odontogenic cutaneous sinus tracts of pulpal origin. Several case reports reveal that the appropriate diagnosis could not be made leading to the incorrect treatment offered to the patients. It causes the cutaneous sinus tract to reoccur as the dental etiology was not addressed. These lesions continue to be a diagnostic predicament.

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