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# The Endodontic Treatment of a Sinus Tract

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## Ⅰ. Introduction

A dentoalveolar sinus tract develops as a route of drainage from a chronic periapical inflammatory lesion to the alveolar mucosa, or rarely, onto skin.

The term of "Dental fistula" has become synonymous with "sinus tract" through popular usage, but the more proper term "sinus tract" should be used. Early studies have reported that sinus tract are lined with epithelial tissue, providing the basis for the surgical treatment. However, Bender, Seltzer(1961) and Grossman(1966) reported an absence of epithelial tissue and they also described that such tracts are generally lined with granulation tissue. Recent studies estimate that epithelium lines the tract 10% to 30 %.

It would be important to know the origin of the sinus tract to facilitate correct treatment.

Diagnosis is facilitated by the tracing of a gutta-percha point or a fine stainless steel orthodontic ligature wire. In the past, some authorities have indicated that the presence of epithelium in a sinus tract necessitates special treatment. Today, most studies, however, have maintained that a fistula requires no special treatment and will close as soon as the root canal system is adequately cleansed.

Although in most case the drainage occur through an intraoral sinus tract, sometimes it may lead to creation of an cutaneous sinus tract. The opening of a sinus tract intraorally or extraorally depends on the location of the osseous opening in the alveolar plate in relation to the facial muscle attachment.

The purpose of this case reports is 1) to confirm the closure of sinus tract through non-surgical endodontic treatment and 2) to observe the healing appearance of sinus tract.

## Ⅱ. Clinical case

### • Case 1

A 60-years-old male was referred from the division of periodontics for an endodontic consultation with a sinus tract emerging on the buccal mucosa of the left maxillary first molar.

The patient complained of a gumboil and a bad taste in the mouth. He reported no pain or swelling although he had been aware of the formation of a nodule several months before this visit. He stated that he had received the

full coverage gold restoration and root canal therapy of the left maxillary first molar 2 years previously. A medical history was not significant.

On intraoral examination, The tooth showed slight sensitive to palpation and percussion, but no pathological mobility was observed. Radiograph inserting gutta-percha point into sinus tract revealed that its origin was the mesiobuccal root of the left maxillary first molar. On radiographic examination, the periapical lesion and incomplete treated canals were observed. The lesion was diagnosed as a sinus tract secondary to chronic periapical periodontitis of the left maxillary first molar.

Root canal system was prepared biomechanically under irrigation with 3% sodium hypochlorite and normal saline, and filled by calcium hydroxide, vitapex as intracanal medicament. 2 weeks after the initial canal preparation, the area was asymptomatic and there was a slight reduction in the size of the gumboil, but a sinus tract persisted.

After cautiously determining the location of the orifices, Second mesiobuccal orifice was identified and the canal was prepared biomechanically. At next visit, 4 canals were obturated with gutta-percha and AH-26 sealer using the lateral condensation technique. The patient was symptom-free, and the complete closure of sinus tract was noticed.

After this, follow up check will be necessary.

• Case 2

A 17-years-old female was referred from the department of plastic surgery for the evaluation of facial cutaneous draining fistula. This patient had a medical history that she had been in the plastic surgery clinic for the draining lesion and the lesion had been then excised 2 years previously. 4 months after the operation, the cystic lesion of the operation site ruptured and the lesion discharged pus persistently. In the department of plastic surgery, MRI was taken and Osteocutaneous fistula was ruled out by MRI.

On clinical examination, a draining sinus tract on the right submandibular area below the inferior border of the mandible was noted. Intraorally, the gold full coverage restoration of the right mandibular second molar tooth was observed. She state that had received the root canal therapy and restoration in her right mandibular second molar in a local dental clinic 3 years previously. Upon radiographic examination, a possible capping material under the restoration was seen in the tooth and periapical lesion was observed. A radiograph : panoramic view and periapical view was taken with a gutta-percha point inserted into the sinus tract, and the tip reached the mesial root lesion of the second molar.

Based on these findings, the patient was diagnosed as having odontogenic cutaneous sinus tract secondary to chronic periapical periodontitis of the right mandibular second molar tooth. Root canal system was cleaned and shaped biomechanically. At a subsequent visit, the complete closure of sinus tract was noticed, the canals were obturated with gutta-percha and AH-26 sealer using the lateral condensation technique.

4 weeks after treatment, the patient was asymptomatic with no recurrence of the previous drainage, and a cutaneous healing with pink scar formation was observed.

## Ⅲ. Discussion

Most studies report that the spontaneous closure of a sinus tract should be expected within 5 to 14 days after the root canal system has been throughly cleansed. Two presented cases show the complete closure of a sinus tract after the conservative endodontic treatment.

The persistence of a sinus tract following Endodontic treatment may be a cause of failure, but rather a sign of

other problems. In all case of a persistent sinus tract, a differential diagnosis must be made to ensure not only that the tract is coming from the treated tooth, but also that specific anatomic location of the tract can be identified. Some studies report that this persistence may be due to the presence of an epithelium-lined channel. Although it may be that the longer a sinus is present, the greater the probability of epithelial ingrowth and the less well it will resolve after conservative endodontic treatment, The clinical significance of presence of an epithelium lining in a sinus tract is uncertain. Regardless of an epithelium lining, Endodontic treatment should be the therapy of choice.

In the case of a cutaneous sinus tract, surgical revision of the scar occasionally may be indicated to provide better cosmetic results.