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Surgical Management of an Odontogenic Cutaneous Sinus Tract

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Abstract

Odontogenic cutaneous sinus tract is an uncommon condition, that is easily misdiagnosed and confused with non-odontogenic facial and cervical area sinus tracts. In fact, the affected patients are more likely to consult a dermatologist than a dentist due to clinical symptoms and lack of dental symptoms. The aim of this article is to report a case of an odontogenic cutaneous sinus tract in a 15 years old male patient, and that was managed surgically in the department of the oral surgery of the dental consultation and treatment center in Casablanca.

Subject Areas

Dentistry

Keywords

Extraoral Fistula, Cutaneous Sinus Tract, Odontogenic Cutaneous Fistula

1. Introduction

Extraoral fistula, also known as odontogenic cutaneous sinus tract (OCST) or odontogenic cutaneous fistula, is a rare condition characterized by the formation of a fistulous tract, that serves as an excretory pathway of odontogenic infection and pus drainage, communicating the oral cavity and the skin [1] [2].

OCST are often misdiagnosed and as a result, incorrectly treated [3] [4]. This may be due to their varied morphologies and locations or asymptomatic chronic dental infection [5].

The aim of this paper is to illustrate, through a clinical case, the diagnostic and the surgical treatment of an odontogenic cutaneous fistula.

2. Case Report

A 15-year-old male patient with no systemic disease was referred to the Oral Sur-

gery department, with a complaint of a persistent nonhealed cutaneous lesion on the right submandibular area. The lesion occurred 2 months ago, after several recurrent episodes of swelling and intermittent pus discharging in the same area, which led to the extraction of the causal teeth.

The exobuccal clinical examination revealed a smooth, lobulated, exophytic and erythematous lesion with a pedunculated base in the submandibular area. The palpation was very tender and painful. A slight depression was observed in the distal of the lesion (Figure 1).

Figure 1. Extra-oral image showing an exophytic erythematous lesion.

The endobuccal examination showed the absence of the tooth 46, 26 and didn't show any vestibular swelling.

Orthopantamography showed a coronal radiolucency involving the pulpe in both of the tooth 46 and tooth 36, as well as a radiolucency associated with the apical area involving the furcation (Figure 2).

Figure 2. Pre-operative orthopantomography.

In light of these clinical and radiological findings, we considered the diagnosis of a cutaneous sinus tract related to a previously pulpal necrosis and periapical infection of the tooth 46.

The cordlike tract situated in the lingual apical area was removed blindly after the reflection of a full thickness flap (Figure 3).

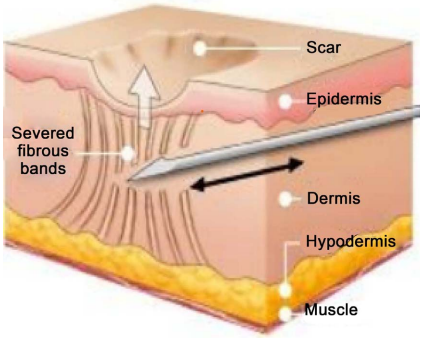

Figure 3. Schema showing the principle of elimination of the cord-like tissue [schema from Whitsunday cosmedics skin clinic].

Extraoral surgical excision followed by a curettage was decided on in order to speed up the healing process and to maximize the aesthetic result. An extraction of the tooth 36 was planned (**Figure 4**).

Figure 4. Post-operative image showing two openings of the OCST.

At 7-day follow-up, a tissue relaxation at the distal of the lesion was noted, the lesion was currently healing and its appearance was improved (**Figure 5**).

An anti-scar healing cream was prescribed.

Figure 5. 7-day follow-up image showing the two openings in the process of healing.

At 3-month follow-up, a tissue relaxation was observed, along with a discreet and barely visible scar, that didn't cause any discomfort for the patient (**Figure 6**).

Figure 6. 3-month clinical follow-up showing a discreet scar.

3. Discussion

OCST is an extraoral manifestation of pulpal-periapical infection [6]. When it is left untreated, the purulent exudates perforate the bone, extend through the subcutaneous tissue and then reach the external skin forming a fistula. This occurs via a path of reduced resistance within the fascial planes, as a result of increased hydrostatic pressure [2] [4] [7].

OCSTs are more likely than intraoral sinus tracts when the apices of the teeth are above the maxillary muscle attachments or below the mandibular muscle attachments [6] [8].

A search in the Japan Medical Abstracts Society database revealed that OCSTs occur in men (59.1%) slightly than in women. Concerning the location, OCSTs affect the mandibule in 73.3% of cases. In younger patients under 50, the mandibular molar region, particularly the mandibular first molar is frequently involved [2]. These findings are consistent with those reported by other authors [8] [9]. According to Chen *et al.* mandibular OCSTs develop in the submandibular area in 80% of cases [6]. Our case shows the same findings as those reported in the literature.

The formation of the fistula depends on several factors: the tooth's location, its relationship with muscle attachments, bacterial virulence, the patient's defense mechanism, and the low resistance of connective tissues in the facial region [4] [8].

The position of the mylohyoid muscle plays a key role in the development of submandibular fistulas. The apices of mandibular molars are often located below the mylohyoid muscle attachments, and the periradicular infection of these teeth spreads mostly under that muscle directly to the submandibular area [3], as observed in our patient.

Clinically, OCST appears as a smooth, erythematous, crusted, and non-tender nodule of diameter up to 20 mm with periodic drainage or without drainage presenting skin retraction secondary to healing [3] [5]. Our patient presented with a non-active fistula associated with a painful erythematous exophytic lesion.

Chronic purulent discharge prevents pressure build up, swelling and pain, so

most patients are asymptomatic [6] [8], which can make the diagnosis very challenging.

OCST are often confused with different conditions such as skin lesions, traumatic injury, osteomyelitis, tuberculosis, actinomycosis, deep fungal infections, salivary gland fistulas, carcinoma, epidermal cysts and pyogenic granulomas [1] [4] [10].

Diagnosis is confirmed by tracing the sinus tract with gutta-percha, dental examination, and radiologic assessment [3].

The treatment of choice of OCSTs is the non-surgical conservative endodontic therapy, possibly followed by endodontic surgery or the extraction of the causative tooth considered as the last resort [8] [11] [12].

Once the appropriate dental treatment is carried out, drainage ceases and the fistula spontaneously closes within 2 weeks [1] [13].

Healing often results in a small pit or dimple and hyperpigmentation, which fades over time. Sometimes the dimple persists, thus, fistulectomy or subcision may be required to release the skin [1] [5]. It is a minor surgical procedure that consists on the elimination of the cord-like fibrous tissue, and it is recommended for depressed skin scars [14].

In some cases, surgical management of the lesion may also be needed to improve the esthetic outcomes. The patient presented with a slight depression and an unaesthetic exophytic lesion, so fistulectomy and the excision of the lesion were performed to optimize the result. At the 7-day follow-up, the patient still presented a depression around the two openings. This can be explained by the destruction and the absence of the supporting tissue over the area caused by the chronic infection. At 3-month follow-up, a tissue relaxation was obtained without depression, along with a faint and barely visible scar.

4. Conclusion

OCTSs are rare. The early accurate diagnosis allows prompt resolution and prevents unnecessary treatments, biopsies, long-term antibiotic courses, and facial deformity.

Patient Consent

Both written and oral informed consent were obtained from the patient's parent for the publication of this case report and any accompanying images.

Conflicts of Interest

The authors confirm that this article content has no conflict of interest.

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