Cutaneous sinus tracts: An endodontic approach

Diagnosis and treatment for a successful outcome

The differential diagnosis of the case in question included the following:

- Localised infection of the skin, such as pyoderma, pimples, inflamed hairs and obstructed sweat glands;
- Traumatic or iatrogenic lesions; osteomyelitis;
- Tuberculosis; and
- Actinomycosis.

Careful review of the axial slides in the area of tooth 47 (#006) offers an idea about the amount of bone destruction in the lower lingual area. The axial slide under tooth 46 reveals the communication between the lesion under the mesial root and the mandibular nerve tract (Fig. 4).

Next, we established a clear diagnosis that the lesion was an extra-oral cutaneous fistula of dental origin. The patient was referred to me under double antibiotic therapy (amoxicillin 1000mg twice daily, Metronidazole 500mg twice daily). The patient presented to my clinic the following day, where we started with a detailed questionnaire to collect all the information about the history of the wound. The patient reported that he had been suffering from this fistula for some time already with intermittent phases of discharge of an exudate and nummular of the lower lip. No dental pain was reported.

A panoramic X-ray showed some bone rarefaction under teeth 47 and 46, but no invasion of the mandibular nerve tract was evident (Fig. 2a). A dental scan with 0.5 mm increment was performed in order to gain a better idea of the clinical situation. One of the sagittal slides (#154) clearly shows the lesion around the distal root of tooth 47, surrounding the apical part and destrroying the cortical bone invading the lower soft tissue (Fig. 3b). Furthermore, the mesial root of tooth 46 showed apical radiolucency, invading the tract of the lower mandibular nerve (#14). This pathology explains the numbness of the lower lip, while the pathology around the distal root of tooth 47 explains the extra-oral fistula.

Obviously, these fistulae must be distinguished from congenital fistulae of the neck, both lateral arising from the second brachial cleft-and medial arising from the thyrocervical tract—which are lined by an epithelium. Such fistulae are of a different aetiology and definitely do not resolve spontaneously but only after careful surgical excisions of the tract.
An intermittent paste was injected inside the shaped root canal system. The paste of two different antibiotics (Augmentin and Metronidazole) was manually mixed and injected with a paste filler. A hermetic temporary filling was placed for a week. The wound was covered with a dressing of steroids and antibiotic paste to prevent further external infection. A week later, the patient was already showing good progress. The wound had started to close and less inflammation and swelling were observed (Fig. 5). The root canal was re-opened and cleaned, and no internal fluids were coming from the periapical region. Root canal material was used as obturation material in a vertical condensation using RCPSL (Hu-Friedy) and an immediate build-up was performed. Thereafter, the patient was invited for regular control check-ups. A few weeks later, a post-op X-ray (Fig. 6) and photos were taken. The wound seemed to be in good condition and some skin and fibrous tissues were forming.

While I was writing this article, the patient visited Beirut and decided to come in for a check-up. He complained of a muscle disturbance of his lower lip, but all the previous numbness had disappeared. He agreed to perform an i-Cat scan in order to find out what was going on and to detect any pathology. I was amazed by the bone formation and complete healing (Figs. 7–9). The wound had also healed very well (Figs. 10a & b). I contacted a plastic surgeon and asked his opinion regarding the muscle disturbance. He pointed that such symptoms may be caused by the tremendous loss of structure.

Discussion
An important diagnostic modality is the determination of the nature of fluid draining (if any) from the cutaneous sinus. During palpation, an attempt should be made to milk the sinus tract. Any discharge obtained should be scrutinised to determine its nature (saliva, pus or cystic fluid). Culture and sensitivity testing are superior to the maxillary muscle attachments or inferior to the mandibular muscle attachments.

A pustule is the most common of all purulent draining lesions and is readily recognised by its superficial location and short course. Actinomycosis exhibits multiple draining lesions and characteristic fine yellow granules in the purulent discharge. The tooth is often not involved radiographically. If a sinus tract does not close after appropriate removal of the primary cause, the most common alternative cause is actinomycosis. (Fig. 5)

The challenge in these kinds of cases is to assemble all the pieces of the puzzle and build up a full idea of the clinical situation. Assembling the pieces means that all the diagnostic materials, such as a history questionnaire, X-rays, CT scans, and sometimes biopsy and bacteria culturing must be provided in order to establish a correct diagnosis. Most of the time, the solution will only be a simple routine that must be performed in certain conditions. Turning to solutions that are more complicated—and that certainly can be more profitable—is not always the right choice, nor the most ethical one.

The author would like to thank Yulia Vorobyeva, PhD, interpreter and translator, for her help with this article.

About the author
Dr Philippe Sleiman received his DDS from the Lebanon University School of Dentistry in 1988. He conducted a DDS in the endodontic programme at St Joseph University and a PhD at the Lebanon University Dental School. He has authored several international articles. He has his own line of instruments with the Hu-Friedy company and contributed in several project developments, and he has lectured internationally. Dr Sleiman is an instructor at the Lebanon University and an international trainer for the University of North Carolina. He is a fellow in the ICD and the AAE. Dr Sleiman maintains a private practice in Beirut, Lebanon, and in Dubai, UAE. His email can be reached at phil@sleiman@helmaill.com.

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