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CASE REPORT

Massive cutaneous fistula secondary to an odontogenic submandibular abcess in an immunocompromised patient: a case report

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ABSTRACT

Extraoral sinus tracts of dental origin often are a diagnostic challenge. A delay in correctly diagnosing these types of lesions can result in ineffective and inappropriate treatment. A 64 year-old immunocompromised female with a huge cutaneous draining tract was referred to our clinic complaining of a purulent discharge from her skin on her right submandibular area. In clinical examination and radiographic assessment, periapical lesion associated with roots of lower right first molar was noticed. According to the patient history, she had kidney transplantation 17 years ago. Following the identification of the source of infection, it was surgically and medically resolved, and skin closure was performed. Her postoperative healing period was supported with hyperbaric oxygen therapy as well. Sinus tract was successfully treated.

INTRODUCTION

Extraoral sinus tract may happen in consequence of an inflammatory process connect to the necrotic pulp. Cutaneous sinus tracts on the face from odontogenic infection are commonly misdiagnosed and subsequently incorrectly treated. The differential diagnosis includes local skin infection, pyogenic granuloma, osteomyelitis and basal or squamous cell carcinoma.[1-5] Therefore many patients apply numerous physicians to evaluate their sickness. They sustain several inappropriate surgeries and courses of antibiotics before conclusive therapy is established.[6-8] Early correct diagnosis and treatment of these lesions can help prevent unnecessary and ineffective antibiotic therapy or surgical treatment. Cutaneous sinus tracts are most commonly appear in the submandibular or submental regions and rarely in the

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nasal area.[9,10] These tracts usually appear as suppurative lesions of the chin or neck. The inner surface of sinus tracts may be partially lined with either granulomatous tissue or epithelium.[11-13]

The goal of this case report was to present a case of immunocompromised female patient with a huge cutaneous draining tract which was successfully managed by surgical techniques, antibiotics and hyperbaric oxygen therapy.

CASE REPORT

A 64-year-old female was referred to our department (Gülhane Military Medical Academy, Department of Oral and Maxillofacial Surgery) on December 2008, with the complaint of purulent discharge from a skin fistula on her right submandibular area (Figure 1). Medical history was significant for chronic renal failure, and the patient had had hemodialysis from 1990 to 1993. In 1993, she was submitted to a renal transplantion. The patient received a kidney from her sister and, after the transplantation, immunosuppressant (cyclosporin-A (Max.500 mg/day), azathioprine (Max.150 mg/day) and steroid drugs were prescribed for prevention of transplant rejection. Her postoperative healing period was uneventful and she had a good renal function. No rejection episode was occurred. She also stated that she had received a tooth filling on her lower right first molar tooth at a dental clinic 5 years ago. Afterwards, she didn't have had any complaints about her teeth until 4 months before she referred to our clinic. She felt an induration on her right mandible and left it untreated because she had no pain. However, as the lesion started to discharge pus during the following months, then she had several treatments from different dentists as an outpatient. The dentist, who she visited last, extracted her tooth but the lesion did not heal and the dentist recommended surgery, therefore, she referred to our clinic. We took a computerized tomography (CT) imaging from the affected area. CT showed a large periapical radiolucenct lesion around the root of the right first lower molar (Figure 2). Based on these findings, the patient was diagnosed as having an odontogenic cutaneous sinus tract secondary to chronic periradicular infection of the right mandibular first molar. We prescribed antimicrobial drugs and extraoral lesion was irrigated by saline solution. Then, it was irrigated by an iodine solution diluted with saline every other day to control of the infection (Figure 3). At

Figure 1. Extra-oral appearance of the patient presenting a sinus tract on the right submandibular area.

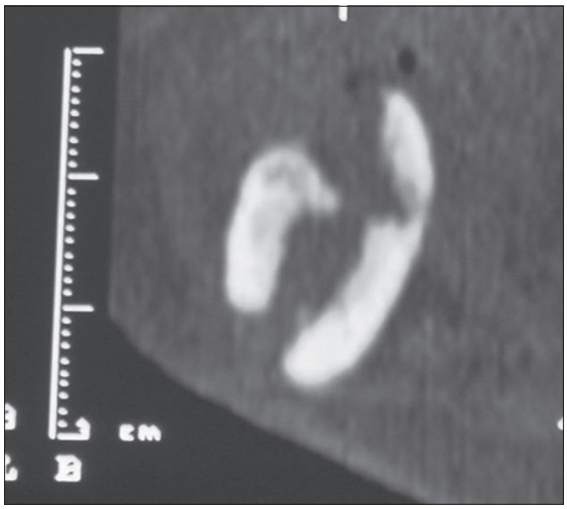

Figure 2. Bucco-lingual CT images further demonstrate perforation of the buccal cortical bone.

the same time, extraoral lesion was tried to close with 3/0 silk sutures (Figure 4). Intraorally, a full-thickness flap was carefully reflected under local anaesthesia (Figure 5). Intraosseous lesion surrounding the root of extracted tooth was excised and region was curetted (Figure 6). Afterwards, mucoperiostal flap was replaced to its original position and was sutured with 3/0 silk suture. The lesions improved rather quietly over the next 3 months, owing to usage of immunosuppressant and steroid drugs. The patient was therefore transferred to Gülhane Military Medical Academy, Department of Under Water and Hyperbaric Medicine, for hyperbaric oxygen therapy. Twenty periods of the hyperbaric oxygen therapy were given to the patient over 20 days, each consisting of 120 minutes 100% oxygen at 2.4 ATA, and with appropriate time allowed for the safe decompression of the in-chamber attendant (Figure 7). The area of mandible and mucosa over the intraoral lesion had reverted to well-perfused tissue by the end of the course. At the end of treatment, the infection was surgically and medically resolved, and skin closure was successfully performed (Figure 8).

DISCUSSION

Dental infections may create periapical abscesses that are capable of spread, leading to dental sinuses. Such sinuses were recognised in the early part of the 20th Century, in association with dental infection, osteomyelitis of the mandible and syphilis.[14] The person may not be always aware of his/her original dental infection,[15] especially if the infection was chronic, low-level natural state.[16]

Figure 3. Extraoral irrigation.

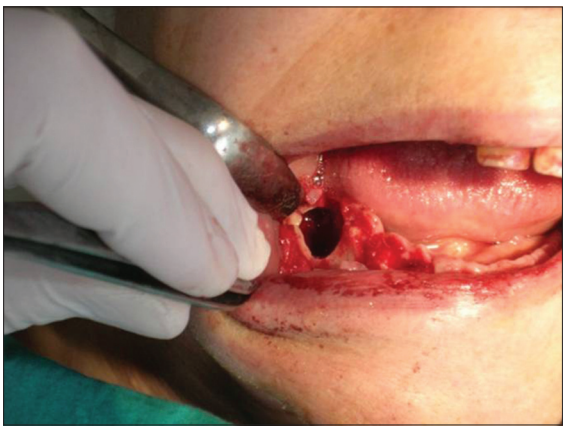

Figure 5. İntraoral view after the curettage.

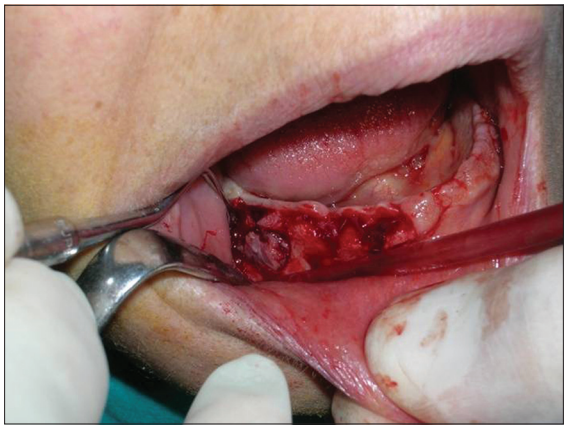

Figure 4. İntraoral view.

Figure 6. İntraoral view with sutured.

Figure 7. Hyperbaric oxygen chamber.

Figure 8. The cutaneous sinus tract was completely healed with only a minimal scar after five-months postoperatively.

Spread of the infection may be intraoral or exteraoral, depending on whether the infection tracks deep or superficial to the buccinator or mylohyoid muscles.[1,17] Pain may be a symptom during the initial dental infection but usually resolves once the infection discharges externally. It should be noted that the edentulous mandible can contain dental cysts or impacted teeth, both of which can act as a focus of infection.[18,19] On the other hand, if the patient has an systemic disease depressing his/her immune system, patient will have an increased susceptibility to have dental infections likely to be a risk factor for chronic facial sinuses of dental origin. Dentists may encounter patients who have an odontogenic infection that drains onto the skin. These are often seen after the patient has been given many courses of antibiotics, been seen by various professionals, and received various treatments. The attending clinician must look carefully for a potential odontogenic infection; chronicity, lasting for weeks, months, and even years and the recognition of the lesion as a sinus tract are keys to making the correct diagnosis. Diagnostic errors can result in multiple surgical excisions and biopsies, long-term antibiotic therapy, and even radiation therapy. This case illustrates the relationship for this patient and the methods for addressing the problem. The treatment of odontogenic cutaneous sinus tract comprises: Maintenance of good oral hygiene by frequent saline irrigations; giving antibiotics to prevent secondary infection; using hyperbaric oxygen;[20] surgical debridement once the boundaries of necrotic are clear and later reconstruction may be necessary using dentures, implants, local flaps, free flaps and bone grafts.

CONCLUSION

Cutaneous facial sinus tracts of dental origin are often initially misdiagnosed and inappropriately treated. Correct diagnosis and treatment will result in predictable and rapid healing of these lesions. All patients with sinus or fistulous tracts in the head and neck region should be properly assessed and evaluated for proper diagnosis and treatment, to prevent the recurrence and chronicity of these lesions. Medical practitioners from other disciplines should

be aware that dental extraoral sinus tracts can be confused with skin lesions.

- A dental aetiology, as part of a differential diagnosis, should be kept in mind with orofacial skin lesions.
- If an extraoral sinus tract is of endodontic origin, then elimination of infection through effective endodontic treatment will lead to resolution of the sinus tract.
- Early correct diagnosis can prevent unnecessary and ineffective antibiotic therapy and/or surgicalintervention.

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