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(CASE REPORT)

Case Report: Management of Young Girl with an Odontogenic Cutaneous Fistula

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Abstract

Background: A persistent tooth infection may cause an odontogenic cutaneous fistula. Odontogenic cutaneous fistulas, which are frequently misdiagnosed and treated inadequately, may cause the formation of a fistula tract to facial skin. Surgical revision with fistulectomy becomes the suggested treatment when fistulous tracts fail to terminate.

Case Presentation: A female 14-year-old patient complained of feeling embarrassed because about a wound on their left cheek that has existed since elementary school and is persistent and not healed. This case has been diagnosed as fistula of the orocutaneous regio submandibularis ec. chronic periodontitis apicalis with 36 gangren radiks embedded. A fistulectomy procedure with continuous subcutaneous suture method was chosen. The treatment results showed better wound closure and facial scar repair at the H+13 post-treatment control.

Conclusion: Treatment planning for odontogenic cutaneous fistula correction might require a fistulectomy surgery. An examination and observation of the infection surrounding the face sinus tract is required for determining the diagnosis.

Keywords: Odontogenic Cutaneous Fistula; Fistulectomy; Subcutaneous Suture

1. Introduction

Chronic tooth infections lead to odontogenic cutaneous fistulas, which are abnormal connections between different parts of the body [1]. One potential location for bacterial colonization is a necrotic tooth pulp, which can cause the infection to spread to the periapical area and cause apical periodontitis. This infection may then migrate to the soft tissue and bone's path of least resistance. The direction and site of the fistula are determined by the location of muscle attachments and the position of root tips. The perradicular infection may cause the cortical wall of the alveolar bone to disappear, and the fistula can penetrate to interstitial spaces and reach the oral mucosa or the skin of the facial area. Untreated infection can cause a facial fistula tract and affect a young woman's appearance [1].

According to Lee Eun's (2016) research, odontogenic infections are uncommon in young people ≤19 years of age. Odontogenic cutaneous fistulas develop between 6- 37 weeks. 70.6% of odontogenic infections occur in the lower third of the face. The most common location was the mandibular body. Compared to maxillary teeth, mandibular teeth frequently leak drainage extraorally. Previous misdiagnosis and inadequate medical treatment result in ineffective treatment and potential repeated recurrence. Lee Eus's study showed 27 of 33 patients were transferred from general practitioners and had experience of one or more recurrences [2].

Odontogenic cutaneous fistulas are frequently misdiagnosed and treated inadequately due to their rarity and absence of dental symptoms[3]. According to several authors, removing the primary cause of the infection by endodontic or

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extraction therapy may lead to spontaneous closure of the fistulous tract within as much as 2 weeks. Surgical revision with fistulectomy becomes the suggested treatment when fistulous tracts fail to terminate and for those patients with aesthetically unpleasant hyperpigmented scarred tissue [4]. The purpose of this article is to explain the sequence procedure of fistulectomy in a young girl with an odontogenic cutaneous fistula.

2. Case presentation

A female 14-year-old patient complained of feeling embarrassed because complains about a wound on their left cheek that has existed since elementary school and is persistent and not healed. The patient came on referral from a general practioner dentist. The patient has a history of recurrent lower left back tooth pain. Although there are now no complaints of pain or swelling. The patient wanted to make the disturbing appearance on the lower left of the face better. Her have no any systemic disease, there is no history of diabetes mellitus, hypertension, asthma, or allergies.

An extraoral examination showed an erythematous chronic fistula in the left angle of the mandible. Facial scar that is oval in shape, approximately 2-3 cm in diameter, appears dry, and has no hyperemia. The surrounding area was puckered, indurated, and sensitive to the touch. The intraoral examination showed no intraoral fistula, root retention of 36, palpation positive, mobility of 1 degree, and percussion sensitive [Figure 1]. A panoramic radiograph shows radiolucency with a diffuse border, lamina dura discontinuity, and alveolar crest decrease. radiolucency that extends from tooth 36's apical region to the inferior mandible. This image appears to be a sinus tract image of the expansion of an abscess from 36 to the submandibular area [Figure 2]. This case has been diagnosed as fistula of the orocutaneous regio submandibularis ec. Periodontitis Apikalis Kronis Gigi 36 gangren radiks embedded, with differential diagnosis extraoral fistule of osteomyelitis, the patient was scheduled for a fistulectomy and tooth 36 root extraction under general anesthesia.

Figure 1 Pre-treatment Photographs, (A)(B) an erythematous chronic fistula in the left angle of the mandible , (C) 36 gangren radiks embedded

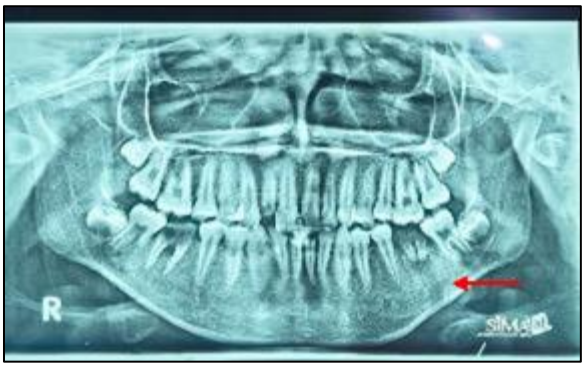

Figure 2 A panoramic radiograph, (Red arrow) a sinus tract image of the expansion of an abscess from 36

Fistulectomy and extraction with general anesthesia was planned. Prophylactic antibiotics were administered with 1000 mg of intravenous cefazolin given 30 minutes before incision. The procedure was performed by an oral and maxillofacial surgery specialist and a pediatric dentist. The patient was prepared for surgery after signing the informed consent. Asepsis was performed by using 10% providone iodine. The first steps in the fistulectomy technique are skin incision and opening the surgical area. A trapezoidal mucoperiosteal flap was created in the area of regio 36, and an oval-shaped incision was performed in the left facial submandibular region. The exploration finds an orocutaneous

fistula in the left submandibular region, with embedded root remnants of tooth 36 and socket 36 through and through the mandibular defect. The fistulectomy procedure is the next step, followed by extraction of tooth 36 using GA. The closure of the surgical wound and skin was performed using the continuous subcutaneous suture method on the facial skin area using Prolene 4.0 subcutis. Intraoral suturing post tooth extraction 36 was chosen with Vio 3.0 in 5 sutures. Post-operative patients are given an 8-hour intravenous drip of cefazolin and analgesics as recommended by an anaesthesiologist. Patients are given post-procedure education and are recommended to consume a soft diet high in calories and high in protein if they have not had nausea or vomiting for two days. The patient was advised to avoid eating or drinking hot or warm foods, sucking the wound, gargling forcefully, playing with the wound with their tongue, and drinking with a straw. The patient also avoided eating anything sticky or tasteless for three days, including spicy foods [Figure 3].

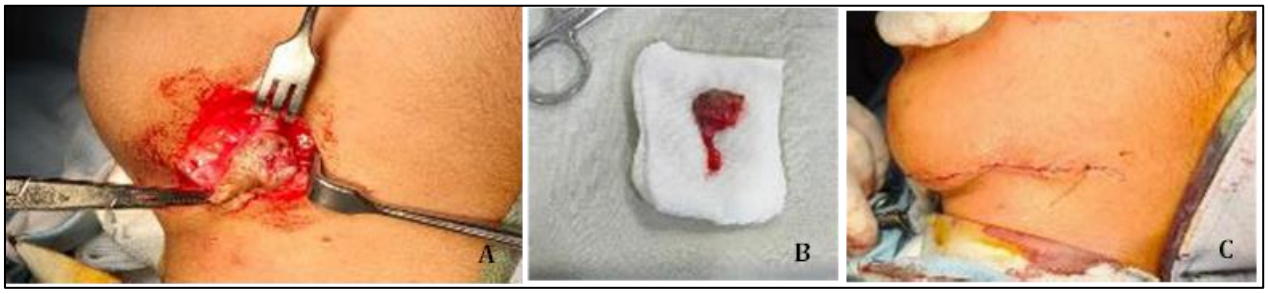

Figure 3 (A) Fistulectomy procedure, (B) the specimen, (C) an extraoral condition pasca suturing

Control of H+1 post the fistulectomy procedure showed that the patient's overall health was good and stable. An extraoral examination revealed a dry gauze bandage and a well-sutured wound with no active bleeding. Intraoral examination showed no secondary bleeding, some debris, mild hyperemic edema, and minimal tenderness. The patient was discharged with a prescription for Amoxiclav 625 mg tablets, ibuprofen 400 mg, and Betadine mouthwash. The patient was scheduled to come to the clinic on H+3 post-surgery for wound debridement and irrigation. The patient's status was stable and satisfactory on H+13 after surgery. An extraoral examination showed a well-sutured wound with no visible dehiscence. An intraoral examination revealed a well-sutured wound with mild hyperemic edema and minimal pain, and the dentist made the decision to remove the intraoral and extraoral sutures (Figure 4).

Figure 4 H+13 Post fistulectomy

3. Discussion

A periapical abscess may develop as an effect of both severe untreated dental caries and persistent apical periodontitis[5]. When a periapical abcess is not properly treated, it may spread throughout the alveolar and spacial areas, creating a odontogenic orocutanous. A characteristic feature of odontogenic orocutaneous fistulas is the persistence of a cutaneous lesion; there may also be associated bleeding or drainage complaints. The cutaneous lesion features are depression and withdrawal below the normal surface. The retraction and cavitation of the facial skin caused on by uncontrolled fibrous tissue growth, which resulted in hyperthrophic scars and keloid[1]. This progression of the fistula tract can be asymptomatic or less painful. They tend to be misdiagnosed and mismanaged, leading to delayed management[6]. The diagnosis of odontogenic cutaneous fistula can be challenging by a number of differential diagnoses, including epidermal cysts, furuncle, carbuncle, branchial cleft fistula, pyogenic granuloma, salivary gland,

fistula, actinomycosis, thyroglossal tract fistula, basal cell and squamous cell carcinoma, osteomyelitis, and foreign body reaction [4].

The diagnostic accuracy of odontogenic cutaneous fistulas is determined by examining the communication between the skin and the oral cavity or by analyzing the inflammation surrounding facial scars. The fistula can develop in various locations based on the affected tooth [7]. This case's fistula appears in the mandibular angle close to the chin. Clinical evaluation showed a retained dental root that was preserved close to the fistula skin. radiographic assessment showed a radiolusen tract connection between the mandibular first molar to the mandibular body. Chronic dentoalveolar abscess causes are frequently polymicrobial, involving various facultative anaerobes. An untreated dental abscess may lead to serious complications such as cavernous sinus thrombosis. This infection may penetrate to the cortical plate, and the sinus tract exits as an intraoral or extraoral sinus, depending on where muscle attachments and facial sheaths are located [6]. Surgical management with complete fistulectomy may be indicated for excision of the fistula tract and correction of facial skin [7]. Retained roots must be extracted following the treatment to prevent recurrence.

Fistulectomy, the complete excision of the fistulous tract, was observed to reduce the risk of possible secondary tracts. Fistulectomy were performed by creating an incision pattern on the right mandible. fistulectomy procedure with dissection of the fistula tract from the surrounding tissues with undermining dissection, then the flap was elevated to correct the facial skin [8]. Fistulectomy was performed to remove granulation tissue and the existing scars and to improve the outcome of the treatment. The odontogenic cutaneous fistula may close within 5–14 days or a few weeks. This pathology usually heals by forming a small pit and hyperpigmentation, followed by decreasing cavitation of facial skin [9].

Post fistulectomy suturing will be a crucial procedure to improve the physical appearance of the facial scar. The correct suturing method will encourage early wound healing, which is a crucial step in facilitating the growth of scars, and appropriate suture can reduce wound complications and scar hyperplasia [10]. The continuous subcuticular suturing method used in this case. The decision method of this method considers the aesthetic outcome of facial skin. Suture techniques can be divided into continuous and interrupted. Benefit of Continuous subcutaneous sutures were stitches positioned immediately below the external skin layer. This technique will have the advantage of improved aesthetics and uniform tension through the whole width of the wound[11]. According to Lou (2022), the continuous suturing technique has superior clinical and cosmetic results compared to interrupted skin sutures based on all case studies[10]. Furthermore, the continuous sutures improve cosmetic satisfaction, minimize superficial wound dehiscence, and reduce wound opening complications. The continuous subcuticular suturing method used in this case. The decision method of this method considers the aesthetic outcome of facial skin.

4. Conclusion

Odontogenic cutaneous fistula may be caused by chronic tooth infections. The direction and site of the fistula are determined by the location of muscle attachments and the position of root tips. The fistulous tract may spontaneously close, but in some cases, persistent infection and inadequate treatment lead to hypertrophic scars and keloids on the skin of the face. Treatment planning for odontogenic cutenous fistula with facial scar might require a fistulectomy surgery. Fistulectomy was performed to remove granulation tissue and the existing scars to improve aesthetic outcome of facial skin.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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