



EXTRAORAL SINUS TRACT OF ODONTOGENIC ORIGIN – A CASE REPORT

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ABSTRACT Inflammation from the pulp can naturally extend into the periapical tissues through to the root canals. Periapical inflammation is one of the conditions in dentistry that can cause tooth loss. This case report describes a 33 year old patient who reported to the Department of Conservative dentistry and Endodontics with a chief complaint of pus discharge from an ulcer on the left side of the face. On clinical examination and radiological evaluation, a carious pulpally affected lower posterior tooth was identified as the etiology for the same. Endodontic therapy led to complete resolution of the sinus tract within weeks.

KEYWORDS : Sinus Tract, Endodontic Therapy, Periapical Abscess

INTRODUCTION

A buildup of exudate in the alveolar bone around the root due to an infection arising from the pulp is known as a dental abscess[1]. Among the contributing factors are bacteria, trauma, and inflammation. However, bacteria that live in the necrotic pulp tissue are the most frequent etiological contributors. Toxic substances can enter the peri-radicular tissues through the apical foramen if the infected pulp tissue is left untreated [1].

Necrotic tissues, intra-canal microbes, and chemicals from pulpal deterioration all trigger immune system reactions. Furthermore, the inflammation caused by microbes may enter the alveolar bone and go down the least-resistant path. This makes it possible for the inflammatory event to spread across the soft tissue around it and open a drainage channel [2]. Drainage is affected by the tooth, pathogenicity of the microorganisms and the interaction of the tooth with facial muscle attachments [1]. Additionally, the drainage and fistulation associated with an extraoral sinus tract can impair the patient's esthetic appearance and quality of life.

Case Report

A 33 year old male patient reported to the Dept of Conservative Dentistry & Endodontics at D Y Patil University School of Dentistry with a chief complaint of pus discharge from an ulcer on the lower left side of the face since a month (fig 1a). History revealed presence of a Silver Amalgam restoration in the lower left posterior region, which was 2 months old. Medical history was not contributory.

On examination, a silver amalgam restoration was observed with 36 (fig 1b) and it was not tender to percussion. The electric pulp vitality test was performed and it showed a negative response. On radiographic examination, a restoration involving the mesial pulp horn and periapical widening was seen with respect to the mesial and distal root of 36. Provisional diagnosis was made as chronic periapical abscess w.r.t to 36 with an extraoral sinus tract. Fig 1a shows the clinical presentation of the patient and fig 1c shows the radiograph at the time of initial presentation.

Root canal treatment with tooth 36 followed by post endodontic restoration with prosthesis was planned. The treatment was explained to the patient and written consent was obtained. After rubber dam

application, the old silver amalgam restoration was removed (fig 1d) and access opening was achieved (fig 2a) under local anesthesia (2% lignocaine with 1:80000 adrenaline). Working length was estimated with a size 10 k file (Fig 2b). Patency was checked with #10 K and #15K hand file (Mani, India), and the pulp tissue was extirpated. Cleaning and shaping of the canal was done by conventional method using 6% rotary files (Azure) completed after reaching a size of #25-6%. The canals were copiously irrigated alternatively with normal saline (Dennis, India), 3% NaOCl (prime dental, India) and final rinse with 17% EDTA (prime dental, India). The canal was dried with sterile paper points (Dia dent, South Korea). An intracanal Ca(OH)₂ dressing (prime dental, India) was placed and cavity was sealed with temporary cement (fig 2c) for 4 weeks.

During next appointment, a master cone of size #20 06 for mesial canal and #25 06 for the distal canal was selected and the apical fit/snug fit of the cone was confirmed clinically and radiographically (Fig3a). Obturation was carried out using resin-based sealer (AH plus, Dentsply Sirona) using lateral compaction technique (fig 3b).

Post obturation restoration was done after 7 days with composite resin (Ivoclar) (fig 4a). The patient was asymptomatic at the 2 months follow-up (fig 4b) and there was complete clinical resolution of the sinus tract along with closure of the cutaneous opening and normalization of the surrounding skin as seen in fig 5a. The patient reported no further drainage or discomfort.

Patient was recalled for a prosthesis. An indirect all ceramic (Zirconia) prosthesis was planned, fabricated and was cemented using Type 1 Glass Ionomer Cement (Wizdent) as seen in fig 4c. By the 20-week there were no signs of reinfection or recurrence of the sinus tract. The extraoral site remained fully healed (fig 5b).



Fig. 1a: Initial Clinical Presentation

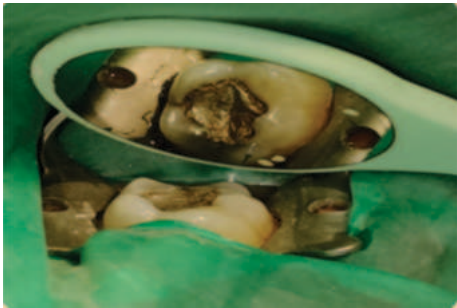
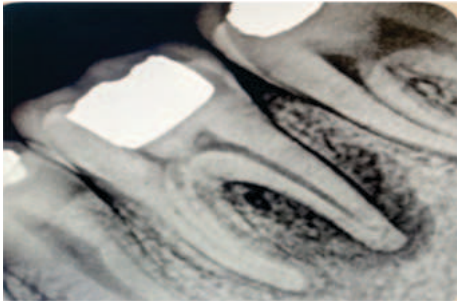


Fig 1b: Old Silver Amalgam Restoration



1c: Radiographic Presentation.

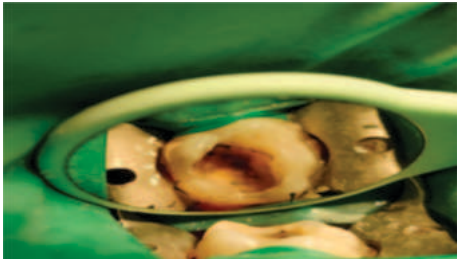


Fig 1d: Old Silver Amalgam Restoration Removed

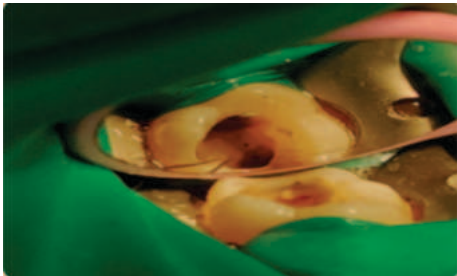
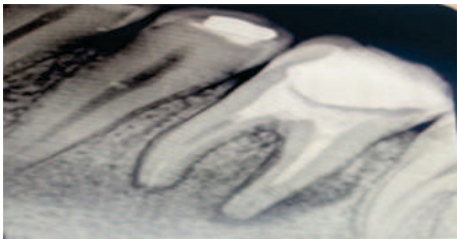


Fig2a: Access Opening



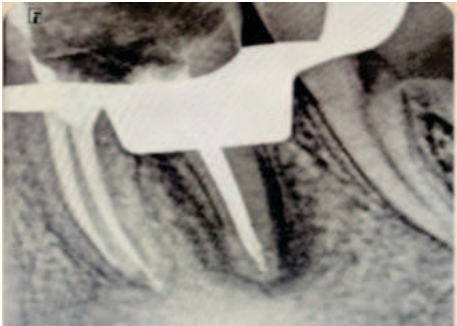
Fig. 2b Working Length Determination



C: Calcium Hydroxide Dressing



Fig 3a: Mastercone Selection



3b: Obturation

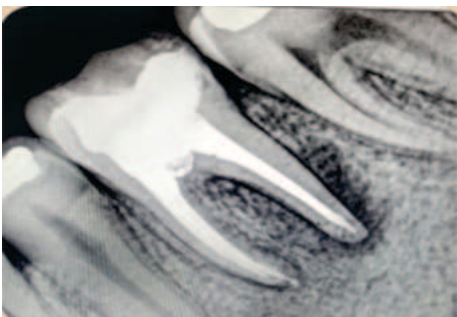


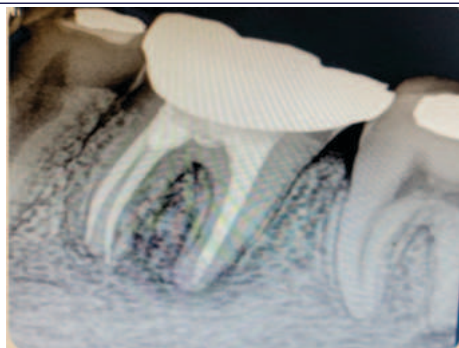
Fig 4a: Post Obturation Restoration



Fig 4b: Healing After 8 Weeks



Fig 4c: All Ceramic Prosthesis

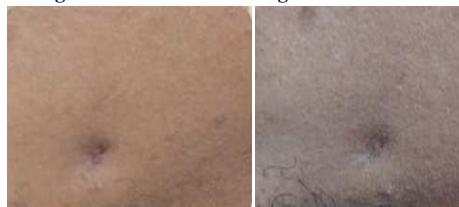


Follow Up



Fig 5a: After 8 Weeks

Fig 5b: After 20 Weeks



DISCUSSION

Clinically, extraoral sinus tracts of endodontic origin may be confused with a wide variety of diseases. The differential diagnosis of this clinical dilemma is of paramount importance in providing appropriate clinical care because misdiagnosis of this condition may result in healing failure or unnecessary treatments[3].

Suppurative apical periodontitis, osteomyelitis, congenital fistulas, salivary gland fistulas, an infected cyst, and deep mycotic infections of the face are all mimicked by the cutaneous sinus of odontogenic origin. The patients usually seek help from a dentist after failed antibiotic therapy in the early phase. [9].

5% of the 117 patients with head and neck sinuses and tracts that Chowdri et al. documented had a dental component. 75% of patients had medical care for 4–28 months prior to receiving a dental diagnosis [9,10].

Chronic periradicular abscess is the most frequent cause of cutaneous sinus tract infections on the face. These abscesses develop as a result of trauma, chemical irritation, or bacterial invasion. Carious exposure and subsequent bacterial invasion of the tooth pulp are the most frequent causes of periradicular abscesses [12]. From the periapical region, the purulent exudate of the odontogenic infection will migrate toward the path with the least amount of resistance. Depending on where the muscle attachments and fascial sheaths are located, the sinus tract exits as either an intraoral or extraoral sinus after the cortical plate has been breached [4].

Sinus tract tracing with a gutta-percha point remains a valuable technique to confirm the communication between the skin lesion and the affected tooth. In this case, radiographic and clinical findings confirmed the involvement of a non-vital tooth, leading successful endodontic management [6]. If the tooth can be restored, nonsurgical endodontic therapy is the preferred course of treatment. Teeth that cannot be restored should be extracted [5]. The treatment approach should focus on eliminating the source of infection.

A thorough approach to oral examination and history-taking aids in the precise identification of odontogenic disease by reducing the number of possible causes. Successful identification and etiology elimination with suitable endodontic therapy are essential for the successful management of odontogenic extraoral sinus tracts [11].

CONCLUSION

Extraoral sinus tracts of odontogenic origin can present a diagnostic challenge due to their uncommon appearance and frequent misidentification as dermatological or systemic conditions [7]. In the case reported here, the elimination of infection through nonsurgical root canal treatment led to the resolution of the sinus tract and promoted periapical healing of the tooth involved. Accurate diagnosis through detailed clinical examination, radiographic assessment, and sinus tract tracing is essential to identify the odontogenic source[6]. A multidisciplinary approach is often the key to timely diagnosis and effective management[8].

REFERENCES

1. Treatment of an extraoral cutaneous sinus tract with endodontic intervention: a case report Recai Zan, I Fatma Kanmaz, I Kerem Engin Akpınar, I İhsan Hubbezoğlu
2. Kaban LB. Draining skin lesions of dental origin: the path of spread of chronic odontogenic infection. *Plast Reconstr Surg* 1980;66:711–7.
3. Treatment of extraoral cutaneous sinus tracts with non-surgical endodontic intervention: report of six cases Ağız Dışı Deri Fistüllerinin Cerrahi Olmayan Endodontik Tedavi ile İyileştirilmesi: Altı Olgu Bildirisi
4. Management of an Endodontic Infection with an Extra Oral Sinus Tract in a Single Visit: A Case Report KriShnamurthy SatiSh Kumar, arunajateSan Subbiya, ParamaSivam viveKananDhan, venKatachalam PraKaSh, ramachanDran tamilSelvi
5. Treatment of Extraoral Sinus Tract with Endodontic Intervention: A Case Report Ektraoral Fistülün Endodontik Müdahale İle Tedavisi: Olgu Sunumu
6. Pasternak-Junior B, Teixeira CS, Silva-Sousa YT, Sousa-Neto MD. Diagnosis and treatment of odontogenic cutaneous sinus tracts of endodontic origin: Three case studies. *Int Endod J*. 2009;42(3):271–6.
7. Gupta M, Das D, Kapur R, Sibal N. Odontogenic cutaneous sinus tracts: a report of three cases. *Int Endod J*. 2004;37(9):679–83.
8. Cohenca N, Karni S, Rotstein I. Extraoral sinus tract misdiagnosed as an endodontic lesion: a case report. *J Endod*. 2003;29(12):912–4.
9. Diagnostic Error of an Extraoral Sinus by Interdisciplinary Bridge Gap and Its Dental Management: A Case Series Imam Azam I, Zeba Ambreen2, Divya S Sharma3
10. Chowdri NA, Sheikh S, Gagloo MA, et al. Clinicopathological profile and surgical results of nonhealing sinuses and fistulous tracts of the head and neck region. *J Oral Maxillofac Surg* 2009;67(11):2332–2336. DOI: 10.1016/j.joms.2008.06.084
11. Non-surgical management of an extraoral cutaneous sinus tract of odontogenic origin: an endodontic challenge - Pallav Mahesh Patni, Pradeep Jain, MB Prashanth, Neeta Jain, Mona Jain Patni