

## Non Surgical Management of Long Standing Extra Oral Sinus in Submental Region –A Case Report

Jinoy Anto Jose<sup>1</sup>, Ramesh Kumar M<sup>2</sup>, Jayasree S<sup>3</sup>

<sup>1</sup>(Junior Resident, Dept Of Conservative Dentistry, GDC, Calicut)

<sup>2</sup>(Professor & HOD, Dept Of Conservative Dentistry, GDC, Calicut)

<sup>3</sup>(Associate Professor, Dept Of Conservative Dentistry, GDC, Calicut)

---

**Abstract:** Cutaneous Draining Tracts Are Always A Diagnostic Dilemma Especially If It Occurs Away From The Offending Tooth. Lack Of Tooth Ache Or Other Discomforts Make The Clinician Often Skip Dental Etiology. This Paper Reports A Case Of Submental Draining Sinus Tract Which Was Misdiagnosed And Was Associated With Lower Central Incisors. It Also Confirms The Importance Of Proper Diagnosis And That, Adequate Disinfection Protocols When Followed, Can Lead To The Healing Of Even Long Standing Cutaneous Sinuses.

**Keywords:** Calcium Hydroxide, Cutaneous Sinus, Endodontic Therapy, Extra Oral Sinus

---

### I. Introduction

Cutaneous Sinus Tracts Of Dental Origin Are Often Initially Misdiagnosed And Inappropriately Treated Because Of Their Uncommon Occurrence And The Absence Of Symptoms In Approximately Half The Individuals Affected [1]. Patients Are Often Referred With A Recurrent Or Chronic Cyst, A Furuncle, Or An Ulcer On The Face Or Neck. In General, Patients Are Unaware That There Is An Underlying Dental Etiology As Their First Presentation To Physicians Is Most Commonly For Seeking Treatment Of The Cutaneous Lesion [2]. The Cutaneous Lesions Do Not Always Arise In Close Proximity To The Underlying Infection, And Only About Half Of All Patients Ever Recall Having Had A Toothache [3]. This Often Leads To The Misdiagnosis Of The Condition Resulting In Inappropriate Treatments Often For A Long Period Of Time. Such Patients May Undergo Multiple Surgical Excisions And Biopsies But All Of Them Fail With The Recurrence Of The Sinus Tract. This Is Because The Primary Etiology Is Incorrectly Diagnosed [4].

Furthermore, Because The Cutaneous Lesions Can Mimic Other Disorders, Such As Basal Cell Carcinoma Or Furuncle, Several Inappropriate Surgeries And Courses Of Antibiotics Are Commonly Used Before Definitive Therapy Is Instituted [5]. Appropriate Treatment Results In Predictable And Rapid Healing Of These Lesions.

Here We Present The Case Report Of A Long Standing Extra Oral Draining Sinus Derived From Lower Incisors In The Submental Region.

### Case Report

An 18-Year-Old Female Was Referred To Government Dental College, Calicut With Complaints Of Pus Discharge From The Chin Region. During The Initial Extraoral Examination, An Erythematous Area In The Middle Of Submental Region With Pus Discharge Was Noted (Fig. 1). The Patient Recalled That The Sinus Tract Started 3 Years Ago, As A Small Swelling In The Submental Region, Associated With Mild Discomfort In The Area. Soon After, It Developed To A Small Skin Lesion With Spontaneous Drainage. Following, She Was Treated For The Same As A Skin Lesion For 3 Years By A Homeopathic Physician, With Non Resolution Of The Pus Discharge.

Clinical Examination Revealed Discoloration Of Teeth 31 And 41 with Patient Not Recollecting Any Instance Of Trauma To The Tooth. Teeth Were Slightly Sensitive To Percussion And Palpation. Pulp Vitality Tests, Cold And Electric Stimuli, Were Negative. The Sinus Tract Was Active With Patient Reporting Of Pus Discharge From The Site Occasionally And Itching Associated With Discharge. Radiographic Examination Of Teeth 31 And 41 Revealed Diffuse Periapical Radiolucency Associated With The Apical Third Of Their Roots (Fig 1).

In The Following Appointment, After Local Anaesthesia And Rubber Dam Placement, Root Canal Treatment Was Initiated With Pulp Chamber Access And Chemomechanical Preparation Of The Root Canals For Both Teeth. Length Was Measured With Root ZX Electronic Apex Locator (J. Morita, Kyoto, Japan) And Size 10 K-File (Dentsply Maillefer, Ballaigues, Switzerland) And Confirmed With A Periapical Radiograph, In The Root Canals Of Both Teeth. The Teeth Were Prepared Using Protaper Files And The Final Preparation Was Performed With A Size F2 Protaper File (Dentsply, Tulsa Dental Products, USA).

Next, The Smear Layer Was Removed With 3ml 17% EDTA (Sybronendo, USA) For 3min, And A Final Rinse With 3ml Normal Saline Was Performed. Pure Calcium Hydroxide Was Mixed With Anaesthetic Solution And Placed As Intracanal Medicament Into The Root Canals. Teeth Were Then Temporarily Sealed With Glass-Ionomer Cement (Fuji 9 Gold Label, GC Europe, Belgium), And The Patient Was Scheduled To Return In Three Weeks.

At The Following Appointment, Patient Was Symptom-Free, And The Sinus Tract Mark Was Showing Slight Improvement. However The Patient Complained Of Occasional Itching In The Associated Site. Hence Calcium Hydroxide Intracanal Medicament Was Replaced And Patient Was Scheduled For Follow Up Visit After 3 Weeks. During Follow Up, The Tooth And Site Was Symptom Free And A Dry Canal Was Obtained With Paper Points (Fig 2)

Subsequently Root Canals Were Obturated With Gutta Percha With Lateral Condensation Technique And Zinc Oxide Eugenol Sealer. The Access Cavity Was Sealed With Glass Ionomer Cement. The Patient Was Kept Under Follow Up For A Period Of One Year (Fig 3 And 4), Marked Improvement In The Sinus Site Was Noted And Patient Remained Symptom Free.



Fig 1: Pre Op Clinical And Radiographic View



Fig 2 : 1 Month Review After Ca(OH)<sub>2</sub> Placement



**Fig 3:** 6 Month Review After Obturation



**Fig 4:** 1 Year Follow Up

## **II. Discussion**

Chronic Infection Around The Apex Of A Dental Root Can Drain To The Mouth Or Less Commonly To The Skin Via A Sinus Tract. Dental Symptoms Are Not Always Present And This Confuses The Clinical Picture Further [6]. In A Study By Huang Et Al, They Noted That Sinus Tracts Occurred More Frequently In The Mandibular Than Maxillary Teeth [7]. Because A Tooth With A Necrotic Pulp Can Appear Normal Or Have Slightly Altered Colour, Periapical Radiography Is Necessary To Demonstrate Bone Loss In The Apex Of The Infected Tooth, Facilitating The Diagnosis [8].

Progression Is A Slow Process, With The Infection Most Often Passing Through The Cancellous Alveolar Bone Along The Path Of Least Resistance, With An Acute Presentation After Reaching A Critical Point. The Direction Of Spread Of Inflammation Is Defined By The Muscles And Fascial Planes, Guiding The Pus To A Certain Area Where It Can Accumulate [9].

Odontogenic Cutaneous Sinus Tract Has A Soft, Erythematous, And Slightly Depressed Appearance. Palpation Of The Surrounding Tissue Can Result In Fluid Discharge Draining Through A Central Opening [10]. The Oral Dental Examination Can Also Include A Vitality Test And Panoramic Periapical Radiographic Examination With Gutta-Percha Cone Or A Lacrimal Probe Inserted, Which Are Also Important For Diagnostic Accuracy. Careful Questioning Of The Patient About Past Symptoms, Such As Oral Trauma, Periodontal Disease, And Oral Hygiene Regimens, May Therefore Help To Establish Dental Etiology The Foremost Aim Of Treatment Is To Eliminate The Source Of Infection. Treatments Of Choice Are Root Canal Treatment Or Surgical Extraction. A Previously Reported Review Of 137 Cases Cioffi Et Al Found That 106 (77%) Were Treated By Extraction And 27 (20%) Were Treated By Surgical Or Conservative Nonsurgical Endodontic Therapy [11] Conservative Nonsurgical Root Canal Treatment Is Suggested As The First Choice Of Treatment If The Offending Tooth Is Restorable. In A Recent Study, A Persistent Extraoral Sinus Tract Originating From A Necrotic Pulp Was Successfully Cured By Single-Visit Endodontics Rather Than The Traditional Multi-Visit [12]. The Key To Successful Treatment Is Ensuring Adequate Measures To Eliminate Intracanal

Microorganisms. Various Studies Have Proved That Chlorhexidine And Sodium Hypochlorite Were The Best Among The Irrigants, As They Could Reduce The Bacterial Counts Rapidly . Complete Healing Of The Extraoral Sinus Indicates The Adequacy Of The Disinfection Procedure [13] These Sinus Tracts Were Originally Thought To Be Lined By Epithelium And Therefore To Require A Surgical Intervention Apart From The Endodontic Treatment [14]. But Later, Studies Suggested That It Was Lined By Granulation Tissue And Not Epithelium, Which Means That It Could Be Intraoral Or Extraoral And That It Could Be Treated By A Non-Surgical Endodontic Treatment.

### III. Conclusion

As Demonstrated By This Case, Cutaneous Sinuses Of Dental Origin Are Often Misdiagnosed And Inappropriately Treated. Patient Dissatisfaction Following Such Diagnostic And Therapeutic Misadventures Is Understandably High. Proper Diagnosis Followed By Adhering To Adequate Disinfection Protocols Aids In The Healing Of Even Long Standing Extra Oral Draining Sinuses. Clinicians Should Be Aware Of The Fact That Any Cutaneous Lesion Of The Face And Neck Can Be Of Dental Origin And Should Seek Communication And Evaluation From Appropriate Specialists And General Dental Practitioners

### References

- [1] Cantatore JL, Klein PA, Liebllich LM. Cutaneous Dental Sinus Tract, A Common Misdiagnosis: A Case Report And Review Of The Literature. *Cutis* [Internet]. 2002 Nov 1 [Cited 2016 Feb 21];70(5):264–7.
- [2] Sato T, Suenaga H, Igarashi M, Hoshi K, Takato T. Rare Case Of External Dental Fistula Of The Submental Region Misdiagnosed As Inverted Follicular Keratosis And Thyroglossal Duct Cyst. *Int J Surg Case Rep* [Internet]. 2015 Jan [Cited 2016 Feb 20];16:39–43.
- [3] Held JL, Yunakov MJ, Barber RJ, Et Al. Cutaneous Sinus Of Dental Origin: A Diagnosis Requiring Clinical And Radiologic Correlation. *Cutis* 1989; 43: 22-24. [Internet]. [Cited 2016 Feb 21].
- [4] Mittal N, Gupta P. Management Of Extra Oral Sinus Cases: A Clinical Dilemma. *J Endod* [Internet]. 2004 Jul [Cited 2016 Feb 20];30(7):541–7.
- [5] Fatouris PN. A Cautionary Tale. Case Report. *Aust Dent J* [Internet]. 2000 Mar 12 [Cited 2016 Feb 21];45(1):53–4.
- [6] Sammut S, Malden N, Lopes V. Facial Cutaneous Sinuses Of Dental Origin - A Diagnostic Challenge. *Br Dent J* [Internet]. 2013 Dec [Cited 2016 Feb 22];215(11):555–8.
- [7] Huang TJ, Roan RT, Lin HT. [Sinus Tracts Of Dental Origin. A Clinical Study. Part I]. *Gaoxiong Yi Xue Ke Xue Za Zhi* [Internet]. 1990 Dec [Cited 2016 Feb 22];6(12):653–60.
- [8] Wilson SW, Ward DJ, Burns A. Dental Infections Masquerading As Skin Lesions. *Br J Plast Surg* [Internet]. 2001 Jun [Cited 2016 Feb 22];54(4):358–60.
- [9] Witherow H, Washan P, Blenkinsopp P. Midline Odontogenic Infections: A Continuing Diagnostic Problem. *Br J Plast Surg* [Internet]. 2003 Mar [Cited 2016 Feb 22];56(2):173–5.
- [10] Sheehan DJ, Potter BJ, Davis LS. Cutaneous Draining Sinus Tract Of Odontogenic Origin: Unusual Presentation Of A Challenging Diagnosis. *South Med J* [Internet]. 2005 Feb [Cited 2016 Feb 22];98(2):250–2.
- [11] Cioffi GA, Terezhalmay GT, Parlette HL. Cutaneous Draining Sinus Tract: An Odontogenic Etiology. *J Am Acad Dermatol* [Internet]. 1986 Jan [Cited 2016 Feb 22];14(1):94–100.
- [12] Satish Kumar K, Subbiya A, Vivekanandhan P, Prakash V, Tamilselvi R. Management Of An Endodontic Infection With An Extra Oral Sinus Tract In A Single Visit: A Case Report. *J Clin Diagn Res* [Internet]. 2013 Jun [Cited 2016 Feb 20];7(6):1247–9.
- [13] Spratt DA, Pratten J, Wilson M, Gulabivala K. An In Vitro Evaluation Of The Antimicrobial Efficacy Of Irrigants On Biofilms Of Root Canal Isolates. *Int Endod J* [Internet]. 2001 Jun [Cited 2016 Feb 22];34(4):300–7.
- [14] Harrison JW, Larson WJ. The Epithelized Oral Sinus Tract. *Oral Surg Oral Med Oral Pathol* [Internet]. 1976 Oct [Cited 2016 Feb 22];42(4):511–7.