DOI: 10.7860/JCDR/2014/8877.4739

Case Report

Dentistry Section

# A Case of Intermittently Discharging Skin Lesion: Orodentocutaneous Fistula Demonstrated on CT Fistulography

UPASANA RANGA[1], SENTHIL KUMAR AIYAPPAN[2], SAVEETHA VEERAIYAN[3]

## ABSTRACT

Orodentocutaneous fistula is a rare entity where periapical dental abscess communicates with both oral cavity and external skin. In few cases, patients presents initially with only cutaneous manifestation with no recollectable history of dental problem. Delay in diagnosis of odontogenic cause of skin lesion makes the disease more chronic and extensive. We hereby present a case of orodentocutaneous fistula that presented with intermittently discharging skin lesion and was evaluated by using CT fistulography.

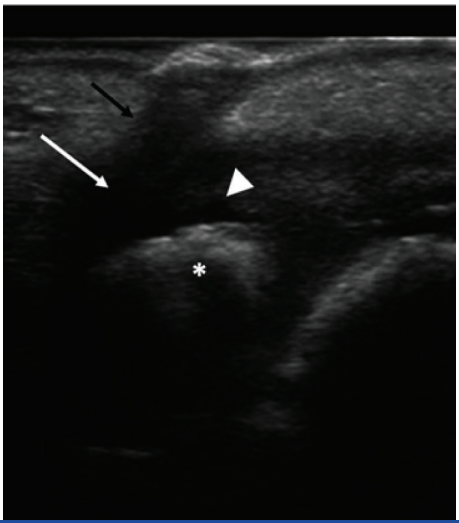
**Keywords:** CT fistulography, Caries tooth, Discharging skin lesion, Orodentocutaneous fistula

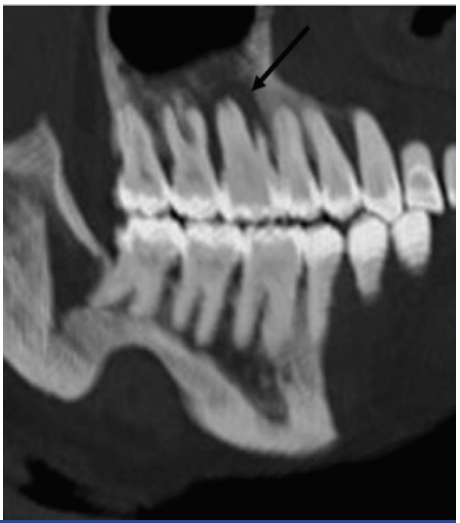
## CASE REPORT

A 38-year-old female came to our hospital with a five month history of a discharging skin lesion on her right cheek. Patient had taken treatment from general physician three months back and was prescribed systemic antibiotics and topical ointments. Only mild transient improvement was noted and the lesion persisted with intermittent discharge. Patient did not have any other complaint related to skin, oral cavity and neck. There was no past history of any trauma or surgery. On examination, a small nodular lesion (~4mm in diameter) with retracted skin was noted on right cheek [Table/Fig-1]. Mild induration was also noted. Minimal non purulent discharge came out on applying gentle pressure around the lesion. Ultrasound of right cheek revealed focal thickening of skin and subcutaneous tissues with a hypoechoeic tract of 4mm diameter extending from skin to deeper tissues. Tract was seen coursing close to one of right upper molar tooth [Table/Fig-2]. Thickened hypoechoic soft tissues with thin rim of fluid were also seen around the tooth. Oral examination revealed poor oral hygiene and carious changes in right upper first molar tooth with mild erythmatous appearance of adjoining mucosa. Patient was referred to radiology department for computed tomography (CT) fistulogram. Plain CT of face revealed caries around right first upper molar tooth with surrounding bony resorption forming a periapical cavity [Table/Fig-3]. Under aseptic conditions, external skin opening in right cheek was cannulated and water soluble non ionic contrast was injected followed by CT scan. CT fistulography revealed opacification of an oblique tract extending from external skin opening into the deeper soft tissues and coursing towards the periapical cavity around upper right first molar tooth and then into oral cavity [Table/Fig-4,5]. Hence, diagnosis of orodentocutaneous fistula was made. Patient was evaluated by oral and maxillofacial surgeon. Pulp vitality test of involved tooth was negative. Patient underwent extraction of diseased tooth; however, surgical excision of fistulous tract was not done. On follow up, patient had shown signs of healing of fistulous tract.

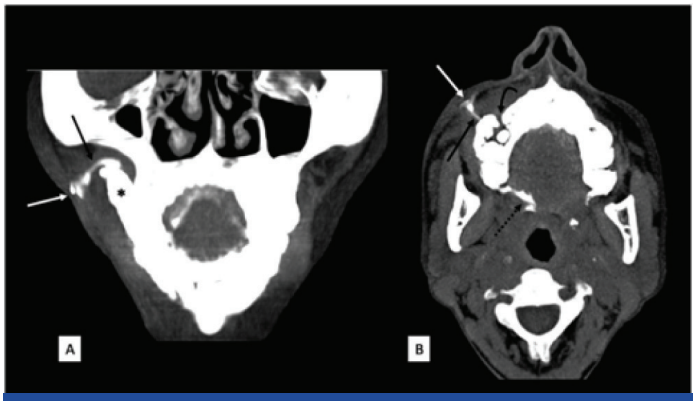
## DISCUSSION

A fistula is an abnormal pathological communication between two cavities/ spaces or between and internal organ/ cavity and external skin surface, while sinuses are abnormal blind tracts arising from or terminating in an opening [1].

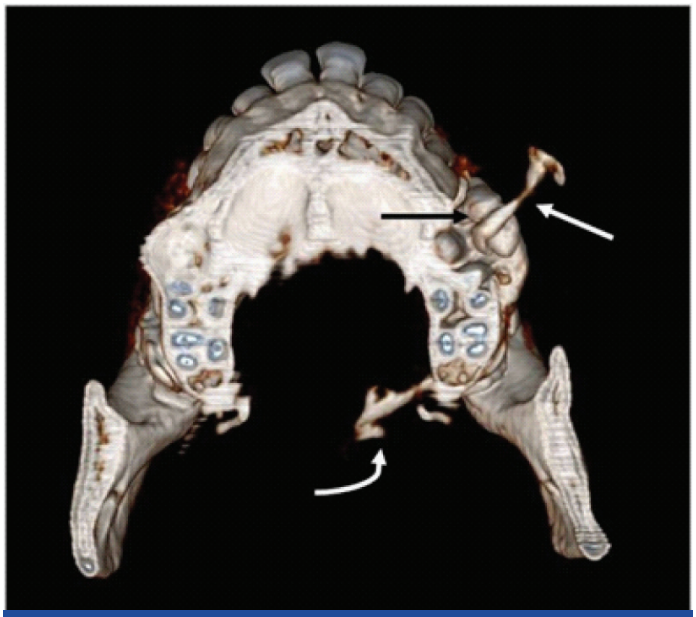




**[Table/Fig-1]:** Clinical picture showing a small nodular skin lesion (black arrow) in right cheek with associated skin retraction
**[Table/Fig-2]:** Ultrasound image showing nodular skin thickening with an oblique tract (black arrow) extending from skin to deeper tissues. Hypoechoeic soft tissue thickening (white arrow) noted around one of the right upper molar teeth (white asterisk) with minimal fluid around it (white arrowhead)
**[Table/Fig-3]:** Oblique coronal CT section showing carious changes around right first upper molar tooth with surrounding bony resorption (black arrow)




**[Table/Fig-4]:** A) Coronal and B) axial maximum intensity projection CT fistulography image showing opacification of an oblique tract (black arrow) extending from skin (white arrow) into periapical region of right first upper molar tooth (black asterisk) followed by spillage of contrast into oral cavity (black arrow with dotted line). Resorption of adjoining alveolar bone is also noted (curved black arrow)



**[Table/Fig-5]:** Volume rendered axial CT fistulography image showing relation of fistulous tract (white arrow) with the root of right first upper molar tooth (black arrow). Spillage of contrast into oral cavity is seen (curved white arrow)

Cutaneous draining sinuses are localized diseases of primarily skin and underlying deeper tissues. Common conditions leading to formation of cutaneous sinuses include suppurative dental infection, osteomyelitis, infected cyst, tubercular or fungal infections or congenital fistula [2-4].

Odontogenic infections commonly drain internally into oral cavity. Cutaneous sinus tracts of odontogenic origin are uncommon entities and are often misdiagnosed as primary skin disease, if not properly evaluated [1,2]. If not adequately treated, these sinus tracts may rarely lead to development of orodentocutaenous fistula (ODCF) with communication of oral cavity to external skin through dental abscess, as seen in our case.

In 1959, Winstock described the association of cutaneous lesions with the dental infection [5]. Mode of spread of chronic dental infection to overlying skin was elaborated by Kabak [6]. Mandibular teeth are reported to be more commonly associated than maxillary teeth [7]. Breach in dental enamel and dentine leading to invasion of dental pulp by bacteria is the initial event followed by pulp necrosis [1,2]. Underlying predisposing causes can be dental caries, dental trauma or periodontal disease [4]. If not treated, infection spreads beyond dental confines and to periradicular area forming an abscess. Inflammation causes resorption of adjacent bone. Abscess may later break down internally through the oral mucosa into oral cavity. Outer spread to overlying soft tissues and external skin may lead to formation of cutaneous sinus tract. Overall, intraoral rupture of abscess is commoner than external skin rupture. Presence of communication with both oral cavity and the external skin (orodentocutaneous fistula) as seen in our case, is however rare. We believe delay in correct diagnosis and inadequate treatment makes the disease more chronic and extensive leading to both external and internal fistulization hence forming an ODCF.

At times, patients do not complain of any dental problem and initially consult a dermatologist or surgeon for the skin lesion. If not evaluated properly, misdiagnosis of condition leads to repeated and prolonged antibiotic courses and unnecessary skin biopsies and excision. Clinically, the skin lesion may appear as an erythmatous nodule or as a small dimpled skin lesion [2]. Active discharge may or may not be present. A cord like tract attached to underlying bony structures can be felt on clinical examination [7]. Intra-oral examination often reveals the tooth with caries and periodontal disease. However, involved tooth may appear normal in few cases [8].

Patients should be evaluated with orthopantography and if possible cone beam computed tomography (CBCT) for evaluation of involved tooth [3]. Pulp vitality tests determine if diseased tooth is restorable or not [1].

In few cases, when involved tooth appears normal on intraoral examination and external skin opening lies away in floor of mouth or neck region, suspecting an odontogenic cause for the cutaneous sinus or fistula becomes difficult. In these cases, CT fistulography plays an important role in making the correct diagnosis. In addition to providing cross sectional details of soft tissues, dental and bony structures, CT fistulography also provides the information about exact course of the sinus or fistulous tract and its relationship with involved tooth and adjacent structures.

Endodontic therapy is preferred if pulp vitality test is positive. Dental extraction is done if diseased tooth is unrestorable [8-10]. Systemic antibiotics are used if disease has spread beyond local structures, in high risk patients like diabetes, immunocompromised conditions and in generalized sepsis. Nowadays, most authors believe that if underlying primary dental cause is properly treated, secondary sinus and fistulas heal by themselves in a few weeks time without the need for surgical removal. Cosmetic surgical correction can be done for the overlying scarred skin at a later stage.

Since patient may present with only facial cutaneous lesion, a high clinical suspicion is necessary especially if the lesion lies in cheek, chin or upper neck region. Few patients may not even recall history of toothache or other dental problem, making the clinical diagnosis even more challenging [1]. External draining opening may at times be away from the underlying diseased tooth which adds to difficulty in making correct diagnosis. Hence, all patients with facial skin sinuses or fistulas should be thoroughly evaluated with detailed clinical history and complete intraoral examination. Dental consultation should be sought if any suspicion of odontogenic orofacial disease.

## CONCLUSION

CT fistulography may help in making correct diagnosis if clinically odontogenic cause appears less likely. Early diagnosis with prompt treatment cures the underlying dental disease with healing of skin lesion, preventing the need for unnecessary skin biopsies and surgery.

## REFERENCES

[1] Samir N, Al-Mahrezi A, Al-Sudairy S. Odontogenic Cutaneous Fistula: Report of two cases. *Sultan Qaboos Univ Med J.* 2011;11(1):115-18.
[2] Qazi SS, Manzoor MA, Qureshi R, Arjumand B, Hussain SM, Afridi Z. Nonsurgical endodontic management of cutaneously draining odontogenic sinus. *J Ayub Med Coll Abbottabad.* 2006;18(2):88-89.
[3] Abuabara A, Schramm CA, Zielak JC, Baratto-Filho F. Dental infection simulating skin lesion. *An Bras Dermatol.* 2012;87(4):619-21.

[4] Brown RS, Jones R, Feimster T, Sam FE. Cutaneous sinus tracts (or emerging sinus tracts) of odontogenic origin: a report of 3 cases. *Clin Cosmet Investig Dent.* 2010;2:63-67
[5] Winstock D. Four cases of external facial sinuses of dental origin. *Proc R Soc Med.* 1959;52:749-51.
[6] Kaban LB. Draining skin lesions of dental origin: The path of spread of chronic odontogenic infection. *Plast Reconster Surg.* 1980;66:771-7.
[7] Mittal N, Gupta P. Management of extra oral sinus cases: a clinical dilemma. *J Endod.* 2004;30(7):541-47.
[8] Ong ST, Ngeow WC. Medial mental sinus in twins. *Dent Update.* 1999; 26:163–65.
[9] Hodges TP, Cohen DA, Deck D. Odontogenic sinus tracts. *Am Fam Physician*. 1989;40(1):113-16.
[10] Swift JQ, Gulden WS. Antibiotic therapy: managing odontogenic infections. *Dent Clin N Am.* 2002;46:623-33.

**PARTICULARS OF CONTRIBUTORS:**
1. Associate Professor, Department of Radiodiagnosis and Imaging, Saveetha Medical College and Hospital, Thandalam, Kancheepuram, Tamilnadu, India.
2. Associate Professor, Department of Radiodiagnosis and Imaging, Saveetha Medical College and Hospital, Thandalam, Kancheepuram, Tamilnadu, India.
3. Associate Professor, Department of Radiodiagnosis and Imaging, Saveetha Medical College and Hospital, Thandalam, Kancheepuram, Tamilnadu, India.

**NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:**
Dr. Senthil Kumar Aiyappan,
Associate Professor, Department of Radiodiagnosis and Imaging, Saveetha Medical College and Hospital,
Thandalam, Kancheepuram, Tamilnadu- 602105, India.
Phone : 9941501382, E-mail :senthilkumarpgi@yahoo.co.in

**FINANCIAL OR OTHER COMPETING INTERESTS:** None.

Date of Submission: **May 16, 2014**
Date of Peer Review: **Jul 01, 2014**
Date of Acceptance: **Jul 01, 2014**
Date of Publishing: **Aug 20, 2014**