

## CutaneousFistula can have a Dental Etiology: A Case Report.

### Abstract:

A patient presenting with a non-healing lesion over the left submandibular region was referred to department of maxillofacial surgery which was diagnosed as oro-cutaneous fistulous(OCF) tract of dental origin. These are rare and unusual presentations which are seen as a consequence of bacterial invasion causing pulpal necrosis of teeth due to various reasons, taking path of least resistance. They are most often misdiagnosed and mismanaged inspite of documented cases in literature. Medical professionals should be aware of dental etiology in non-healing cutaneous lesions. Early interdisciplinary referral and co-operation between medical and dental specialties will provide better patient care and rapid healing.

**Key-words:** : Fistula, Odontogenic, Pulp necrosis, Space Infection

### Introduction:

Chronic dental infection is caused by bacterial invasion, in carious teeth, due to trauma or in periodontitis takes varied directions causing periapical abscess, cellulitis, osteomyelitis, necrotizing fasciitis or extraoral sinus tract. It progresses through the cancellous bone taking the path of least resistance and spreading to surrounding hard and soft tissues. Oro cutaneous fistulous tracts are rare entity which lack dental symptoms and are often misdiagnosed and given irrelevant treatment. Differential diagnosis like carbuncle, furuncle, branchial cleft fistula, salivary gland fistula, osteomyelitis, actinomycosis further cause diagnostic dilemma. Variability of clinical presentation of odontogenic infection along with lack of knowledge of dental etiology causes such lesions leading to unwanted antibiotics and surgical procedures.(1) 80% of mandibular teeth progress to cutaneous dental sinus tracts. They are seen mostly in submandibular, submental region as nodular suppurative lesions. The site of the fistula is often misleading as it is not in proximity of the involved tooth. (2) Hence referring such cases to a maxillofacial surgeon for the opinion regarding non specific oro-cutaneous fistula with

dental etiology can lead to better diagnostic and therapeutic care. Affected patients generally seek help from physicians who are unaware of the odontogenic cause. (6)

### Case report:

A 48 year old male patient presented to the department of oral and maxillofacial surgery with a chief complaint of non-healing lesion located in left submandibular region. Patient gives history of swelling in the submandibular region three months back with symptoms of fever, pain and discomfort. Then there was pus discharge in submandibular region through an opening and swelling subsided. This repeated over the last three months. Patient also gives history of tooth pain in

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the left mandibular posterior tooth four months back. Patient used herbal medicines from an ayurvedic doctor for the same but symptoms didn't subside. Extra oral examination (fig.02 a-c ) shows a tender 2x2cm small swelling firm to hard in consistency with small opening with blood and pus discharge. Intraoral examination revealed grossly decayed left lower first molar tooth which he complained of pain four months back. There is no other abnormality detected. Presently there is no tender on percussion of 36.

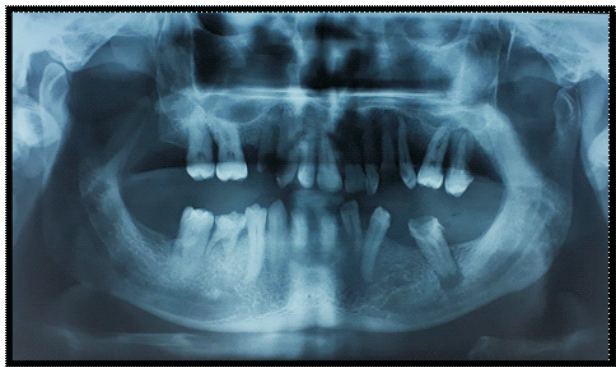


Fig1: Orthopantamogram

Orthopantamogram (fig.01) shows a periapical radiolucency at the 36 region extending to the inferior border of mandible. There is also loss of lamina dura around the 36 tooth. His general oral condition is poor with decayed teeth and generalized bone loss. Adjacent trabecular pattern is normal suggesting no osteomyelitic changes. Patient was explained about the surgical removal of the fistula along with extraction of 36 and curettage under local anesthesia.

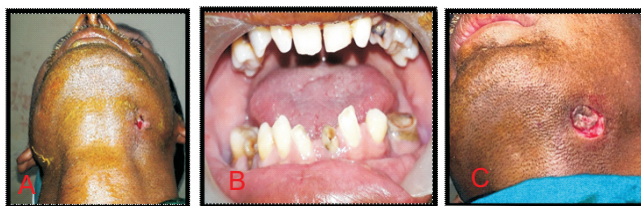


Fig2 :a.Skin preparation done with betadine, b. Intraoral picture showing grossly decayed 36 tooth, c. Extraoral circumferential skin incision is given

Consent for the surgery taken. Primary consideration in the surgery was the protection of marginal mandibular branch of facial nerve. A circumferential skin incision (fig.03, a) around the fistulous opening was given, and then the tract was dissected from the surrounding subcutaneous tissue. The fistulous tract coursed (fig.03, b) superiorly and medially and terminated at the inferior border of the mandible and is extending to the base of the tooth. Fistula tract made its way

through the thick inferior cortical basal bone of the mandible. Fistulous tract removed, extraction of 36 along with socket curettage done(fig.03, b-c and fig.04, d).

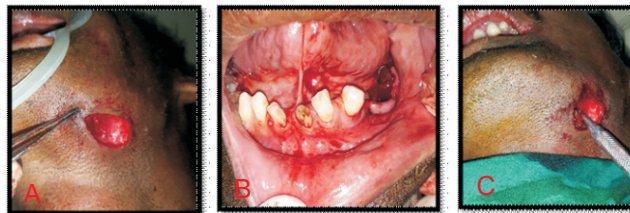


Fig3: a.Fistulous tract is dissected, b. Intraoral course of fistulous tract, c. Extraoral course terminated at the inferior border of the mandible

Primary closure done with 3-0 vicryl suture material and pressure pack is placed (fig.04, a-c). Patient is advised for review check up every week for next eight weeks.

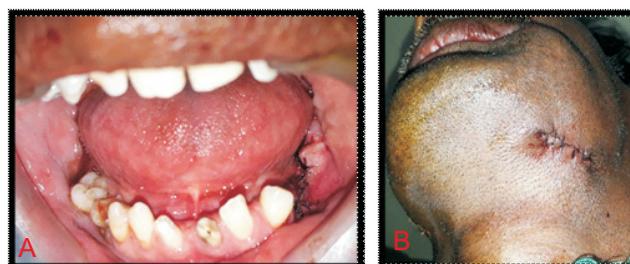


Fig4: a. Intraoral closure done with 3-0 black braided silk suture material, b. Extraoral primary closure done with 3-0 vicryl suture material, c. Extraoral pressure pack placed, d. Excised fistulous tract and extracted 36 tooth

This case has been referred from our colleagues in ENT department of Mallareddy medical college for women for an opinion regarding any dental etiology leading to fistula as they ruled out all the causes for the above. We appreciate the consideration of tooth causing the fistula kept in mind by the medical staff that has helped the patient to take the best treatment and avoiding the unnecessary procedures and long term antibiotics.



Fig5:10<sup>th</sup> Post Operative Day Photographs a. Extraoral surgical site is healing, b. Intraoral suture removal done

### Discussion:

Odontogenic infection accounts for 60% of dental consultation. Principle of treatment for this type of infection dates back to Hippocrates which was elimination of infectious agent with incision and drainage.[12] Microflora of oral cavity are the main causative agents of odontogenic infection when they enter the normal sterile tissue.[13] When bacteria reaches dental pulp, it causes necrosis, induces abscess formation. Infection later reaches periapical areas crosses the cortical bone along with periosteum and takes path of the least resistance depending on muscle attachments, position of the tooth apex and thickness of the bone around the tooth. There are three routes of spread of odontogenic infection i.e, through anatomical spaces, hematic spread and through lymphatics. Most frequently involved space is aponeurotic also known as vestibular space.[12] 80% of mandibular teeth, 20% maxillary teeth are associated with the extraoral sinus tract formation.[6] Only 50% of cases presents with history of toothache.[4] Odontogenic sinus and fistula occur extraorally when the apices of the teeth are higher than the maxillary muscle attachment or below the mandibular muscle attachments.[5] Histologically, the region of sinus tract consists of inflammatory cells and granulation tissue. The luminal region is comprised of granulation tissue with purulent exudates consisting of leukocytes and chronic inflammatory cells.[11] Eradicating the source of infection will lead to automatic closure of tract within 7-14 days but surgical removal of tract completes the procedure.[5] Most important reason for misdiagnosis and patient not reporting to dental or maxillofacial surgeon is lack of tooth discomfort, extended time of infection, location of fistula unrelated to dental etiology. Most common sites for exit points on skin are submental, submandibular and buccal areas. Examination includes careful history taking, vitality of tooth in doubt, radiographs, fistulography, CT scan. Main goal of treatment is to remove the source of infection by extraction or endodontic

therapy. In our case there are osteolytic changes seen around the periapical region of 36 which could be due to periapical abscess.[2] Etiology for skin lesions are diverse thus emphasis is more on skin changes by the general practitioners there by dental status is overlooked. OCF is the result of constant struggle by the body to stop the spread of infection thereby initiating the healing process.[7] Fistulography via radiographs or CT scan using gutta percha help in diagnosis when the other investigations fail.[8] In this case fistula was in proximity to marginal mandibular nerve. Careful dissection of fistula towards the source protects the nerve from severing. [1] PRF is also used in various studies where it is placed in endodontic surgeries after resection of the apical 3<sup>rd</sup> of the tooth and that further avoids sinus tract removal surgery.[9] Our case demonstrates that ENT department had considered that there could be possibility of dental cause for the oro-cutaneous fistula which lead to proper diagnosis and best treatment care. Any cutaneous fistulas in head and neck region should give clinical suspicion for causative teeth.

### Conclusion:

This case accentuate that dental etiology should be considered for a persistent cutaneous fistula of the cervicofacial region. To achieve proper diagnosis of such a rare phenomenon, communication and a consensus among the medical and dental specialists is crucial. Once dental etiology is suspected, a thorough dental examination and dental radiography usually confirms the diagnosis. Dental extraction or endodontic treatment is usually sufficient to eliminate the infection and, therefore, resolve the cutaneous discharge. Surgical intervention is mostly reserved for persistent fistulas and unaesthetically pleasing lesions. An early interdisciplinary approach and cooperation between specialties will minimize patient discomfort, avoid unnecessary medical treatment, and reduce the likelihood of complications.

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