CASE REPORT

Odontogenic Cutaneous Fistula with Geminated Right Mandibular Second Molar: A Case Report

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ABSTRACT

Odontogenic cutaneous fistula is pathological sinus tract originating from the oral cavity to skin of the face and neck. Geminated teeth are rare, morphological alteration of teeth.This paper reports a case of buccal skin fistula caused by the geminated tooth on theright side of mandible. The anatomical morphology of the geminated tooth and the periapical and periodontal bone destruction were comprehensively determined by doing careful examination and radiographic investigations including cone beam computed tomography (CBCT).In this case, crown of geminated microdontia present on mesiolingual side was extracted and performed the periodontal and root canal treatment of tooth followed by the restoration of the normal occlusal relationship. This case explores the use of appropriate diagnostics and therapeutic measures for the complex cases.

KEYWORDS: Odontogenic, Sinus tract, Geminated teeth, CBCT, Combined endodontic-periodontal lesion.

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INTRODUCTION

Odontogenic cutaneous fistula is a pathological communication between the cutaneous surface of the face and the oral cavity causing esthetic problems as a result of continuous leakage of saliva.[1] Certain other lesions such as epidermal cysts, furuncle, subcutaneous mycosis, squamous cell carcinoma, basal cell carcinoma, osteomyelitis, pyogenic granuloma and foreign body granuloma closely resemble to odontogenic cutaneous fistula. So there is a need todiagnose the lesion carefully by thorough examination and investigations.[2]

Here we present a case of 20 years male with an odontogenic cutaneous fistula on right side in association with geminated second right mandibular molar. Fistula was healed by successful treatment of geminated tooth.

CASE PRESENTATION

A 20 years old male presented with complaint of skin furuncle on right cheek for more than half a year. He gave the history of red lesion in cheek on right side forahalf year which used to get ulcerated and discharge pus on and off. He had been treated with antibioticsin the Department of Dermatology. There was no pain or any other discomfort associated with this lesion. He was referred to the Department of Stomatology.

Clinical examination showed red and swollen lesion measuring 1 cm in diameter, on the cheek on right side just opposite to the body of the mandible. It was firm with no surface ulceration.Intraoral examination showed the unusual morphology of right mandibular second molar (#47) resembling

Chinese character "Tian". The shape of the tooth appeared like two fused crowns structures with mesio-lingual inclination and occlusal surface revealed multiple pits and fissures with hypoplastic enamel. Gingiva around the tooth was reddish and slightly swollen whileprobing depth (PD) was 5 mm with the bone loss of 1-2mm on periodontal probing. Tooth showed negative results on electrical pulp testing (Fig. 1).

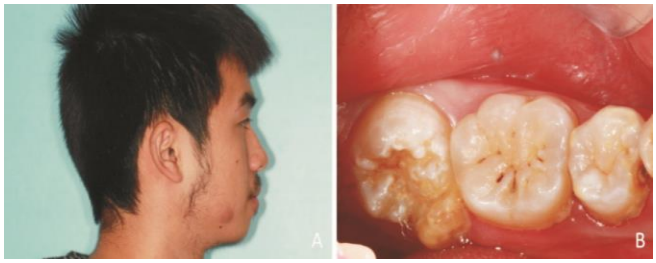

Fig.1(A): Odontogenic cutaneous sinus tract,
(B): Intraoral suspected right second mandibular molar (#47).

Patient was advised for periapical and orthopantomagram (OPG) x-rays which showed a small radiopacity around #47 with mesial alveolar bone loss upto 1/3 of the apex.

In an attempt to overcome the limitation of the radiograph and to confirm the unusual morphology, it was decided to perform a cone beam computed tomography (CBCT) which showed two independent crowns with interconnected pulp cavities and shared root and root canal systems. CBCT also revealed the extensive destruction of periapical bone and invasion of the buccal cortex as evident by the shadow of bone absorption in the mesial annular angle of the geminated (Fig.2).

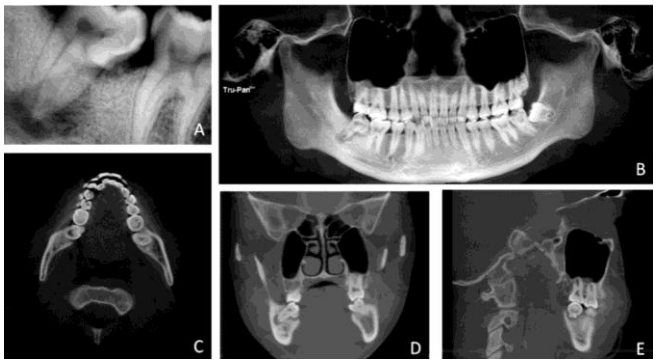

Fig.2 (A): Periapical and **(B):** OPG radiograph shows small radiopacity around #47, axial. **(C):** Coronal **(G):** and sagittal **(E):** view of CBCT show two crowns of #47 with single root canal system.

Hence the diagnosis of chronic periapical periodontitis of geminated tooth with buccal fistula was made. Treatment plan for the patient included extraction of non-functional crowns of geminated tooth, periodontal and root canal treatment of #47 followed by restoration with porcelain-fused-to-metal (PFM) crowns.

After taking the informed consent from patient, non-functional lingualy inclined crown of geminated tooth was removed, and the lingual prosthetic wall was constructed with composite resin to improve the occlusal condition Supragingival and subgingival cleaning and curettage with proper irrigation were carried out. Also, the patient was medicated and counselled how to maintain his oral hygiene.

One week later curettage of deep periodontal pocket near the middle lingual side was done after raising the lingual flap under local anesthesia. The inflammatory granulation tissue on the inner wall of the pocket was scraped of and the exposed tooth surface was polished to make it smooth and blunt.

One month later, condition of mesiolingual gingival margin around#47 was assessed and there was no redness and swelling. It was followed by root canal treatment, tooth was isolated by using rubber dam and pulp chambers were accessed. Three canal orifices were identified under the root canal microscope, and they were prepared to working length by using a series of root canal files K3XF. Sodium hypochlorite (3%) and ethylenediamine tetra-acetic acid (EDTA; 17%) were used alternately to wash the canals to remove debris. Finally, the canals were dried and obturated with sealer and gutta-percha as shown in (Fig.3& 4).

The patient reported back 1 week later without discomfort, and tooth was prepared for porcelain-fused-to-metal (PFM) crowns. The fistula disappeared completely after 3 months with no recurrence after more than 1 year of follow-up (Fig.3& 4).

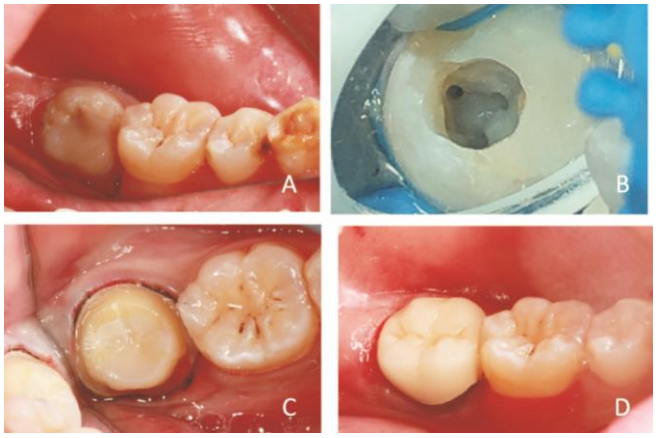

Fig.3(A): shows the non-functional crown of #47 being extracted followed by buildup of prosthetic wall. **(B):** Root canal treatment. **(C):** Tooth preparation for crown. **(D):** and restoration of tooth.

Fig.4: Post-treatment periapical radiographs **(A-C):** after three months. **(D):** After one year.

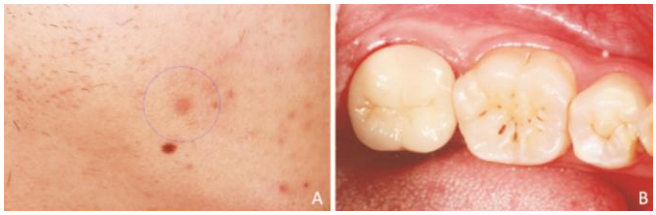

Fig.5(A): shows complete healing after 1years. **(B):** Completely restored tooth with crown.

DISCUSSION

An odontogenic cutaneous fistula forms due to chronic dental infection that may cause a breach in enamel and dentin and provide way for bacterial invasion. This infection may spread to periradicular tissues, which often leads to an apical periodontitis. This chronic process slowly progresses and perforates the cortical plates of mandible ultimately forming fistula in skin.[3]

Periapical periodontitis, pericoronitis, dental trauma, malignancy and other untreated inflammation are thought to be causative factors. Eighty percent of the odontogenic cutaneous fistulas arise from mandibular teeth diseases, of which nearly 50% involve sub-mental area caused by trauma involving thelower anterior teeth. While buccal cutaneous fistulas are mainly due to pericoronitis of wisdom teeth.[4,5] Clinically, patients present with complaint of swelling and pain as a result of pressure exerted by accumulation of purulent material in sinus tract. However these symptoms are alleviated once this purulent material made its way out.[6]

Patients often do not have obvious history of toothache therefore these tracts are often misdiagnosed due to their rarity.[7] So it is important to make correct diagnosis in order to start treatment timely and prevent any complication. These tracts be traced by inserting gutta percha of a size 30 in the fistulae area, followed by a radiograph. Also the pulp testing, percussion and periodontal probing can assist in making diagnosis.[8]

These tracts are conventionally treated with antibiotics, but they may re-appear on withdraw of medications. So,it is important to eradicate the original source of infection.[9]Inthe current case, geminated tooth#47 was the main reason behind the formation of fistula.Buccal bony plate of #47 was relatively thin because of lingual inclination of tooth crown. Also, the root was deeply positioned in mandible which facilitated inflammation penetration across buccal bony plate and skin to form a fistula.

Germination is a rare developmental morphological abnormality of tooth characterized by bifid crown giving the appearance of double teeth with common root canal or rarely having separate canals. The tooth count remains normal.[10] Maxillary primary incisors and the canines are most commonly affected teeth. The etiology of geminated teeth is not yet known though trauma and heredity tendency are considered as contributing factors. Germination may cause malalignment, spacing, asymmetrical arch,

aesthetics issues, periodontitis or affecting the eruption of the adjacent tooth especially if the anterior teeth are involved.[11] The main complication in gemination is the involvement of periodontal tissue as deep and subgingivally extended fissures or grooves present in the union between the teeth provide the chance for bacterial plaque accumulation.[12]

Geminated teeth are sometimes difficult to distinguish from fusion therefore clinical examination and radiographic investigations are required.[13] Conventional radiographs provide the two dimensional presentation of dental anomalies thus may creating a diagnostic dilemma.[14] Thereby cone beam computed tomography (CBCT) has emerged as a viable 3D imaging modality, providing tomographic images of any part and direction within the exposure range according to the needs that helps in making diagnosis and treatment plans.[15] Similarly in this case, CBCT was performed to confirm the diagnosis and make a proper treatment strategy.

Multidisciplinary treatment options based on the type and morphological variations of geminated teeth have been described in the literature to treat this condition. These include endodontic restoration, surgical, prosthetic, periodontal and orthodontic treatment.[16] Similarly in current case, integrated approach was adopted from extraction to endo-periotreatment and finally the restoration to improve dental occlusion and aesthetic appearance.

CONCLUSION

It has been concluded that odontogenic sinus tract must be diagnosed at an early in order to avoid unnecessary treatment and prevent any complication. Also, for the cases with complex tooth morphologymultidisciplinarycombination therapy can achieve better aesthetic, functional and curative outcome.

LIMITATIONS OF THE STUDY

Limited diagnostic and treatment experiences areavailable for such cases which results in unnecessary long-term treatment. It also put financial burden on patients as well as may cause unwanted side effects.

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CONFLICT OF INTEREST

None to declare.

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None to disclose.

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Author's Contribution

LC, ZC: Conception of work, acquisition and interpretation of data and drafting of manuscript.

ALL AUTHORS: Approval of the final version of the manuscript to be published.