

AN UNUSUAL PRESENTATION OF CUTANEOUS ODONTOGENIC SINUS IN MIDFACIAL REGION- A CASE SERIES

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ARTICLE INFO

Article History:

Received 9th December, 2017

Received in revised form 22nd

January, 2018

Accepted 15th February, 2018

Published online 28th March, 2018

ABSTRACT

Clinical presentation of extra oral sinus tracts of endodontic origin are mostly confused with a wide variety of dermatological lesions. Misdiagnosis of the lesion leads to unnecessary treatment, further results in healing failure and recurring lesions over a period of time. Hence, a dental aetiology must be considered for any cutaneous sinus tract involving the face or neck. Once the correct diagnosis is made, definitive treatment, either through root canal therapy or tooth extraction, to eliminate the source of infection is done. This case series demonstrates a successful endodontic treatment of extra oral draining sinus tract.

Key words:

Extra-oral cutaneous fistula, buccal
space infection, sinus tract

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INTRODUCTION

Cutaneous Odontogenic Sinus is most commonly misdiagnosed as traumatic injuries, furuncles, bacterial infections, osteomyelitis, pyogenic granulomas and congenital fistula^[1]. Various studies have reported unsuccessful outcome of cutaneous therapies in treatment of extraoral sinus of odontogenic origin due to misdiagnosis.^[2,3] A sinus tract of endodontic origin is caused by pulp necrosis followed by microorganism invasion causing an inflammatory lesion in the periapical area of the affected tooth. This may penetrate the alveolar bone and spread along the path of least resistance. Eventually, the inflammatory process can reach the surrounding soft tissue and form a path for drainage.^[1,4,5] As the lesion develops, it is usually not believed to be of dental origin and the patients seek treatment from dermatologists or a general surgeon, often undergoing multiple antibiotic regimens, surgical excisions, biopsies and even radiotherapy.^[6-8] Misdiagnosis of the lesions adds to its chronicity and facial aesthetics are profoundly affected due to unnecessary treatments which result in dimpling and cutaneous scarring.^[3,9] Due to lymphatic drainage of all maxillary teeth being through submandibular lymph nodes,^[10] submandibular space is involved mostly by extraoral maxillary infections. However, the involvement of buccal space is a rare phenomenon.

The first case report shows the involvement of buccal space associated with maxillary first molar. The second case shows involvement of submandibular space associated with mandibular second molar. This case series serve as a reminder to all physicians and dentists to continuously reassess atypical lesions in order to provide conservative and impactful treatment to the patient.

Case 1

A healthy 10 -year-old male patient reported to the department of pediatric and preventive dentistry with the chief complaint of pus discharge from the left side of the face since 6 months. He was referred to the dental hospital by a dermatologist to verify a possible dental cause for a skin lesion. During history taking, the patient's mother disclosed that he had undergone a dermatological surgery for the treatment of the cutaneous lesion around 4 months back. However, when the cutaneous lesion didn't heal after the first procedure, the doctor suggested further surgery. Parents wanted a second medical opinion and reported to the pediatric department, from where they were referred to the dental hospital.

Clinical examination revealed a draining sinus present on the left side of the face below the level of zygomatic bone (Figure 1 A). Intraoral examination revealed carious maxillary left permanent first molar along with root stump of 55, 65 and 85. No abscess or sinus tract was present in the buccal vestibular

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region. OPG revealed radiolucency involving the pulp and periapical region wrt mesiobuccal root of 26, suggestive of apical abscess (Figure 1 B). The final diagnosis of pulpal necrosis with chronic apical abscess was made wrt 26. Advised treatment plan included root canal treatment followed by a stainless steel crown wrt 26 and extraction of root stumps wrt 55, 65 and 85. During the initial visit, emergency access opening of 26 was done along with irrigation with normal saline and metronidazole, followed by an open dressing. Antibiotics and analgesics were prescribed thrice a day for 5 days along with local extra oral application of betadine ointment.

On the second visit, biomechanical preparation of the canals was completed and triple antibiotic paste medicament (Tab Metronidazole + Tab. Ciprofloxacin + Tab. Minocycline mixed with propylene glycol) was given followed by temporary restoration for a week. After a week, the triple antibiotic paste was removed from the canals with help of normal saline irrigation; metapex was given as an intracanal medication followed by temporary restoration. The periapical lesion was kept under observation for 3 months, during which the patient was recalled every month. During the first-month recall visit, extraoral sinus healing was also observed. After 3 months, periapical lesion healing was found to be satisfactory and obturation was done using gutta-percha and sealapex sealer (Figure 1C), followed by a permanent composite restoration. After a week time, patient was recalled and a stainless steel crown was delivered. Adequate intra and extra oral healing observed at one year follow up (Fig 1 D, E).

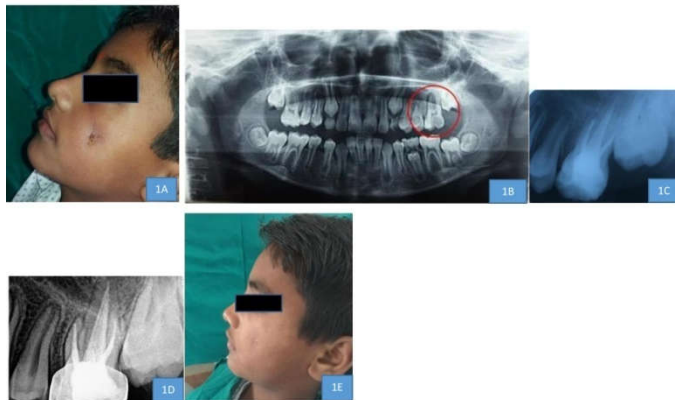


Figure 1 A: Extraoral draining sinus
Figure 1 B: OPG revealing associated tooth
Figure 1 C: Post treatment radiograph
Figure 1 D: At one year follow up
Figure 1 E: Extra oral healing observed at one year follow up

Case 2

A healthy 13-year-old male patient reported to the department of pediatric and preventive dentistry with the chief complaint of swelling and pus discharge on the left side of the face since 8 days. He was referred to the dental hospital by a dermatologist to verify a possible dental cause for a skin lesion. During history taking, the patient’s father disclosed that patient was taking medication prescribed by a local dentist for the same and got temporary relief but the swelling and pus discharge kept recurring.

Clinical Examination revealed a diffuse swelling present on left side of the face extending superoinferiorly from preauricular region to angle of the mandible. A sinus tract was present 2 cm below parasymphiseal region and was associated with pus discharge (Figure 2A). The swelling was soft to firm

and non-tender. The patient had a reduced mouth opening of 7 mm and deviated lips. Intraoral Examination revealed carious 37 along with root stump of 36 and 46. OPG revealed evidence of radiolucency involving pulp and apical region of both mesial and distal roots, measuring 1cm x 0.6 cm in diameter was observed wrt 37 suggestive of apical abscess. Radiolucency involving whole crown suggestive of loss of crown structure and presence of root stumps seen wrt 36 and 46 (Figure 2B). The final diagnosis of pulpal necrosis with chronic apical abscess was made wrt 37. Pulpal necrosis with asymptomatic apical periodontitis wrt 46, 36.

Advised treatment plan included extraoral drainage, curettage and root canal treatment wrt 37, extraction of root stumps wrt 36, 46 and restoration wrt 17,16,15,26,27,42,47.

During the initial visit, emergency access opening of 37 was done along with normal saline and metronidazole irrigation followed by an open dressing. Medication included Tab. Pentop, Tab. Chymoral plus, Tab Megamox CV and Tab. Metrogyl were prescribed for 5 days. Extraoral drainage and curettage of the lesion were done followed by a ribbon gauge betadine dressing. Due to decreased mouth opening, the patient was advised for mouth opening exercise using ice cream sticks. The ribbon gauge dressing was changed on every consecutive day and extraoral application of betadine ointment was prescribed. Within an interval of 10 days, the extraoral lesion was healed with no need of anymore ribbon gauge dressings. After a sufficient mouth opening observed during fourth visit, the biomechanical preparation was completed with normal saline and metronidazole irrigation. Triple antibiotic paste medicament (Tab Metronidazole + Tab. Ciprofloxacin + Tab. Minocycline mixed with propylene glycol) was given followed by temporary restoration for a week.

After a week interval, the Triple antibiotic paste was removed from the canals with normal saline irrigation followed by intracanal medicament of calcium hydroxide and temporary restoration for another week. On subsequent visit, after a week, obturation was done using gutta-percha and sealapex sealer and composite restoration was done wrt 37 (Figure 2C). The patient was recalled after 3 and 6 month follow up ,during which reduction in periapical radiolucency and extraoral healing was observed (Figure 2 D, E).



Figure 2 A: Extra oral draining sinus
Figure 2 B: OPG revealing associated tooth
Figure 2 C: Post treatment radiograph
Figure 2 D: At three months follow up
Figure 2 E: Extra oral healing observed

DISCUSSION

The spread of odontogenic infection depends on various factors broadly divided as: A) General factors, which includes Host resistance, virulence of micro-organisms and combination of both. B) Local factors including intact anatomical barriers – alveolar bone, periosteum, adjacent muscles and fascia.^[10] Of all the cases reported in literature approximately, 80% are associated with mandibular teeth and only 20% with maxillary teeth.^[11] In case of maxillary molars, the location of the root tip to the level of origin of buccinator muscle determines the spread of infection either intraorally into the vestibule or deep into the buccal space. As it always follows the path of least resistance, the common site for abscess is buccal vestibule; however, buccal space can be involved. Cases reported in the literature with the involvement of buccal space associated with maxillary molars are limited.

Due to the presence of multiple micro-organisms in the root canal, use of single empirical antibiotic is insufficient in disinfection of the same. Therefore, it is essential to use combination of antibiotics to act against all endodontic pathogens and to prevent resistance. Triple antibiotic paste containing metronidazole, ciprofloxacin and minocycline was used in these cases as metronidazole is a broad spectrum antimicrobial acting against anaerobic bacteria and protozoa; Ciprofloxacin has a rapid bactericidal action, and minocycline is primarily bacteriostatic, exhibit broad spectrum activity against gram-positive and negative microorganisms. This provides a synergistic action which helps to reduce resistant microbes.^[12,13]

Various authors have reported that after root canal treatment or extraction, sinus tract of dental origin has a spontaneous fistula tract healing within 5 to 14 days.^[1,11] In both the cases healing of sinus tract was observed following an initial treatment session.

CONCLUSION

The cases reported here serves as a reminder that when making a differential diagnosis of any orofacial skin lesion, dental aetiology should be considered. Also, careful clinical and radiographic dental examinations are imperative for localization of the teeth involved and to provide successful treatment.

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How to cite this article:

Deepika Patidar *et al* (2018) 'An Unusual Presentation Of Cutaneous Odontogenic Sinus in Midfacial Region- A Case Series', *International Journal of Current Medical And Pharmaceutical Research*, 04(3), pp. 3146-3148.
