Original Article

Dental Abscess A diagnostic enigma.

[1]Dr. Aruna Nautiyal*, [2]Dr. Shweta Bali, [3]Dr. V Pradeepkumar, [4]Dr. Priyanka Aggarwal, [5]Dr. Vaishali Rai Sharma
[1*]Senior, Santosh Deemed to be University Ghaziabad.
[2]Prof & HOD, Santosh Deemed to be University, Ghaziabad.
[3]Post graduate student, Santosh Deemed to be University, Ghaziabad.
[4]Professor, Santosh Deemed to be University, Ghaziabad.
[5]Post graduate student, Santosh Deemed to be University, Ghaziabad.
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Abstract

Amongst the various ailments that a dentist routinely encounters, one of the most frequently presented conditions is dental abscess. Dental abscesses pertain to a broad range of diagnoses which entails periapical, periodontal, and pericoronal abscesses. Any infection in the oral cavity commonly presents with a host of the interplay of common microbial etiology and symptoms, most often with an overlapping history. This is where the diagnostic and clinical judgment skills of the dentist become the most important. Dental Abscess is one of the most common dental ailments which is unfortunately often misdiagnosed and underestimated. An abscess if neglected may sometimes even turn fatal and can have life-threatening consequences. It is therefore of utmost importance that the proper source of infection be traced so that since the etiological factor is controlled, the results are longstanding without any recurrence of the same. There has been ample support in previous literature about the fatal outcomes of a dental abscess which most often leads to significant morbidity and mortality. The fatality in the dental abscess is attributed to either the spread of infection either into the deep neck fascia or into the intracranial sinuses. As for the treatment protocol for the treatment of dental abscess, Incision and drainage still remain the first and foremost treatment modality for any abscess which may be sometimes accompanied by a supportive antimicrobial regimen. It is therefore imperative that clinicians must be aware of the source of infection through adequate history taking and clinical examination so as to avoid recurrence of the disease.

Keywords: Dental Abscess, periapical, peri coronal, periodontal, diagnosis, incision and drainage.

Introduction:

"The difference between something Good and something great is the attention to detail"

The word abscess refers to a localized collection of pus anywhere in the body[1]. The word abscess is derived from abscessus in Latin which means 'a going away or departure'[2]. A dental abscess is one of the most common reasons patients report to the dental clinic with[3]. It easily accounts for the third most frequent dental disease amounting to about 40% of all dental emergencies. Formation of an abscess is a defensive reaction of the host's body tissue to curtail an infection.[4]

Although various microbes have been implicated in the etiology of dental abscess, the most common pathogens are usually related to the source of infection. The course of the infection is largely decided by the pathogenicity of the bacteria, host immune factors and local anatomy.[5] While the causative organisms of the dental abscess are polymicrobial consisting of a host of facultative anaerobes and strict anaerobes which mainly comprise anaerobic cocci, Prevotella and Fusobacterium species.[6] The most commonly implicated bacteria are facultative anaerobes (streptococci of the viridans & anginosus group).[7] The patient usually presents with redness, swelling and pain most often confined to the tooth involved, along with suppuration extending to the localized tissues, resulting in complications which may be fatal.[8] The drainage of intra/extra oral sinus tract depends on several factors which include local anatomy of the tooth involved, position of the apex of the tooth to attachment of muscles, bacterial virulence, host immunity and the path of least resistance of the underlying structures.[9] Incision and drainage remains the gold standard approach to treat any dental abscess with antibiotics playing only a secondary role. Prescribing Antibiotics alone must never be a treatment strategy as it can lead to formation of antibioma. Diagnosing an abscess early and treating it promptly are crucial to avoid loss of the involved tooth[10]. Hence appropriate surgical drainage/debridement and the maintenance of a patent airway is a condition sine qua non.[2]

Case report:

A 14-year-old male patient reported to the department of Periodontology with a chief complaint of boil in his gums in the upper left back tooth region for 3 days **(Fig 1)**. His past dental history revealed that he was undergoing orthodontic treatment in the past 10 months. The patient also gave a history of abscess drainage twice in the same area in the department of Orthodontics. On enquiring about his personal history, he admitted to using a toothpick to clean the area of concern. On examination, a pointed swelling was observed at the base of the attached gingiva of 25. Careful periodontal probing did not reveal the presence of any pockets, there was no clinical evidence of caries in either 25 or 26 nor were they tender on percussion. A diagnosis of gingival abscess was arrived at based on patient's positive history of recent toothpick trauma. Hence as per Incision and drainage (I & D) protocol, a stab incision was given and the contents of the abscess were drained with the help of curettes **(Fig 2)**. Intra pocket irrigation with betadine was done **(Fig 3 & 4)**. The patient was then prescribed antibiotics and analgesics and asked to report for a follow up visit after 1 week. On his follow up visit to our department, the I & D site had dried up and was healing satisfactorily **(Fig 5)**. Since the incision and drainage procedure gave the predictable results, we were satisfied with our treatment protocol. But just one month later the patient reported back to the department with the abscess in the same area as before, only this time it was even bigger! **(Fig 6)**. Since a thorough I and D procedure was followed by us, the recurrence of the abscess was perplexing. To our dismay, similar to last time tooth number 25,26 (area of the abscess) presented with no clinical evidence of caries, no periodontal pockets, non-tender on percussion, also this time there wasn't any history of tooth pick usage too as he was counselled against toothpick usage.

Making use of the third eye of dental sciences-the radiograph, a sinus tracking was performed with gutta percha **(Fig 7)** and the radiograph led to the apex of 26 **(Fig 8)**. There were no signs of any periapical pathology radiographically and the periodontium appeared radiographically healthy. It was decided to proceed with vitality test (EPT) on 26 with 25 serving as control. The molar was de-banded and 25 de-bracketed in order to facilitate EPT.EPT results came vital for 25 and non-vital in relation to 26 hence immediate RCT was initiated on 26. After thorough Cleaning and shaping of the root canals (BMP) intracanal medicament was placed for one week and proceeded with obturation only after the sinus tract had completely healed **(Fig 9).** The final post obturation restoration was kept slightly infra occlusion to aid the periapical area in healing required if any. After 3 months of uneventful healing post RCT and no recurrence of abscess, active orthodontic treatment was resumed and completed over a period of next 3 months.

The patient is asymptomatic and there has been no recurrence of abscess even after a follow up of 6 months, coinciding with the completion of his orthodontic treatment **(Fig 10)**.

Fig 1: Dental abscess

Fig 6: Recurrence of Abscess

Fig 2: Abscess drainage with curettes

Fig 7: Gutta percha Sinus tracking

Fig 3: Disinfection of abscess cavity with Betadine irrigation

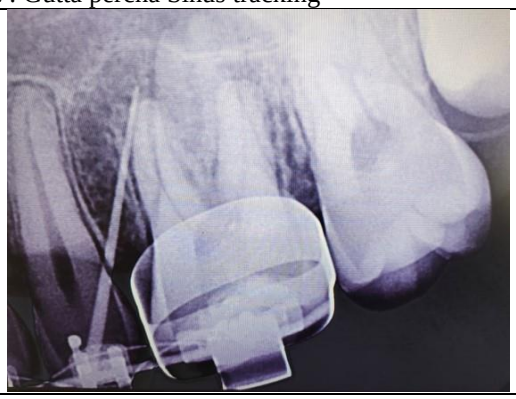

Fig 8: Radiograph after Sinus Tracking.

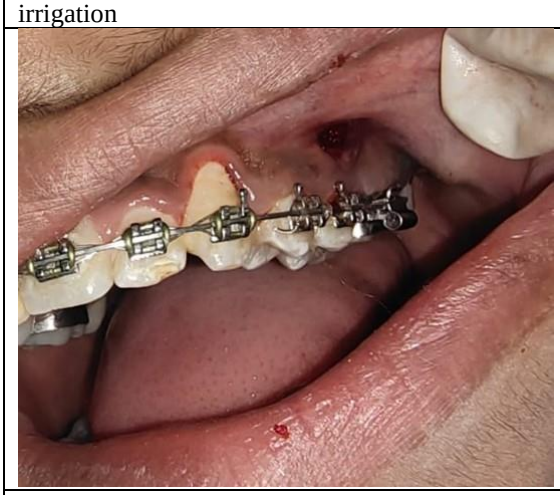

Fig 4: Immediate Post Operative

Fig 9: Post Root canal treatment

	
Fig 5: 1 week Post Operative: Healing Abscess	Fig 10: 6 months Post RCT-No recurrence of Abscess

Discussion:

Dental abscess is one the most commonly reported but underdiagnosed dental diseases. It could either be periodontal or periapical in origin. The abscess involving the periodontium comprise of gingival, periodontal and peri coronal. Those having endodontic origin would lead to formation of periapical abscess. However, determining the etiological factor of dental abscesses still continues to tax the diagnostic skills of most clinicians[11].In the current case, since the concerned teeth did not show presence of periodontal pockets or caries, a diagnosis of either periodontal or periapical abscess was ruled out. Had there been any sign of tenderness on percussion or any clinical evidence of caries, it would lead to clear cut diagnosis. Since there wasn't any in the present case hence the previous diagnosis was made based purely on patient history of toothpick trauma. It was only when the abscess recurred that further probing for hidden etiology was undertaken through sinus tracking. The complications resulting from dental abscess pose a significant burden not only on affected individuals but also on the communities and health care system on the whole. Early diagnosis and proper intervention are extremely important in determining the course of the disease. Although there isn't any consensus on the gold standard treatment as proven by a wide variety in endodontic and surgical protocols and antimicrobial prescribing.[12] In cases of periapical abscess it is well known that in order to achieve the resolution of sinus tract, an effective endodontic treatment is paramount.[13] However persistence of the sinus tract after adequate RCT necessitates further evaluation, microbiological sampling and perhaps biopsy.[14] The exact reason for the tooth to turn nonvital which eventually lead to sinus formation is still obscure although there may be a fair chance that it may have been a result of either orthodontic force or any trauma to the concerned tooth that the patient wasn't aware of.

Conclusion:

The dental abscess is most often underestimated both in terms of its morbidity and mortality[15]. The purpose of this case report is not only to highlight success in making the patient asymptomatic but also to focus on the initial tricky diagnosis since there was no clinical clue to the etiology of the abscess. Therefore, as a take home message, an abscess should never be underestimated and every probable step taken to find the etiologic for successful long-term treatment.

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