CASE REPORT

Rashmdeep's Abscess–A Combined Periodontal–Endodontic Lesion of Exfoliating Primary Teeth

Deepesh Prajapati[1], Prathibha A Nayak[2], Ullal A Nayak[3], Rashmi Nayak[4]

Abstract

Purpose: This article describes the possible pathogenesis of the often 'misdiagnosed' dental abscess seen in young patients who are going through the transitional mixed dentition phase.

Methods: Patient records were collected from a private dental clinic's outpatient department.

Result: The lesions were resolved once the tooth in question was exfoliated or was extracted. Such lesions could be attributed to the seepage of bacteria and their products through the gingival sulcus of the teeth, which were likely to shed out soon. Pre-shedding mobility and enlarged gubernacular canals might facilitate the spread of infection to periapex of the exfoliating primary tooth.

Conclusion: Clinically, such lesions are similar to a commonly seen periapical abscess. But an absence of an obvious etiology (dental caries or trauma), tooth nearing its exfoliation, poor oral hygiene should hint towards the diagnosis of proposed Rashmdeep's abscess.

Keywords: Dental abscess, Dentigerous cyst, Eruption cyst, Pre-shedding mobility, Primary teeth.

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Introduction

Communication between the periodontium and the dental pulp exists through different pathways including the apical foramina, lateral and accessory canals or exposed dentinal tubules[1,2]. The opening of the gubernacular canal of erupting succedaneous tooth is present lingual to the deciduous incisors which may also provide a pathway for the spread of infection[3]. In the primary tooth showing pre-shedding mobility, these anatomical structures facilitate and help in the bacterial spread through the gingival sulcus apically to the periapex thereby mimicking a periodontal-endodontic lesion, which has been proposed in this article as Rashmdeep's abscess.

Children, who are in the transitional dentition phase, sometimes have lesions which cannot be explained and diagnosed as secondary to dental caries or trauma. These lesions present themselves as any other dentoalveolar abscess in relation to an exfoliating tooth in close approximation to the developing successor.

As per our observations, these lesions have the following clinical characteristics (Figs 1 to 3):

- Increased predilection for crowded dentition with poor oral hygiene.
- Appear as fluctuant and well defined soft tissue lesions on the gingiva
- The resorption pattern of the primary tooth may not appear to be physiologic.
- Associated commonly with exfoliating anterior primary teeth

Hypothesis

The apical seepage of bacteria or their products occurs through the inflamed gingival sulcus of the primary tooth. This could be as a result of the localized inflammation, caused due to poor oral hygiene. Pathologic bacteria and their products may gain easy access either to the periapical region of the exfoliating primary tooth or to the succedaneous tooth through the enlarged opening of the gubernacular canal. This can cause a periapical lesion with respect to the same tooth (periodontal-endodontic lesion) in close approximation to the developing succedaneous tooth.

All these cases involved patients with poor oral hygiene (confirmed using disclosing agents). This facilitated the spread of infection, in a non-pathologic shedding process. All cases showed excessive pre-shedding mobility pertaining to the level of root resorption. It appears that pre-shedding mobility and inflammation caused due to poor oral hygiene facilitates the apical seepage and the spread of bacteria. All reported cases had a non-contributory medical history.

The extraction of the infected primary teeth always led to an immediate resolution of the clinical lesion. Asymptomatic periapical lesions (without clinical abscess) for a short duration are not expected to have an effect on the erupting permanent tooth but should be followed-up for any alterations in pathways of the eruption.

[1]Reader, [2,3]Associate Professor, [4]Professor and HOD

[1]Department of Pedodontics, NIMS Dental College, Jaipur, Rajasthan, India

[2]Department of Oral Basic and Clinical Sciences, Ibn Sina National College for Medical Studies, Jeddah, Kingdom of Saudi Arabia

[3]Department of Preventive Dental Sciences, Ibn Sina National College for Medical Studies, Jeddah, Kingdom of Saudi Arabia

[4]Department of Pedodontics, Manipal College of Dental Sciences, Manipal, India

Corresponding Author: Deepesh Prajapati, Reader, Department of Pedodontics, NIMS Dental College, Jaipur, Rajasthan, India, Phone: +919950055439, e-mail: deepeshprajapati@gmail.com

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Discussion

An opening is lingual to the primary tooth, gubernacular canal runs to the crypt of the successor. It contains the gubernacular cord, which initially consists of the epithelium of the dental lamina. The epithelium dissolves, and a connective tissue strand remains, which subsequently disintegrates[4]. The opening of the Gubernacular canal on the oral side increases in size with the approach of the associated permanent tooth. The gubernacular canal probably plays a role in the guidance of the direction of the eruption of the incisors through the bone[5].

The seepage of bacteria or their products through the gingival sulcus of the primary teeth might have led to necrosis in the discussed cases. The presence of the Gubernacular canals with enlarged bony oral openings may facilitate the inflammatory processes in reaching the permanent tooth bud.

Langeland *et al*. indicated that when pathological changes occur in the pulp as a result of advanced periodontal disease, it does not usually undergo degenerative changes as long as the main root canal has not been involved. If the pulp vasculature of the affected tooth remains vital, it could be noted that no inflammatory reaction occurs and hence one cannot see the symptoms of the pulpal pathosis[6]. This explains why all teeth showing pathologic resorption does not show a characteristic picture of the discussed abscess.

As the peri-apex of the soon-to-shed primary tooth lie in close anatomical approximation to the developing succedaneous tooth bud, it is difficult to ascertain whether Rashmdeep's abscess involves peri-apex of the primary tooth or the developing tooth bud or both.

The abscess in Figure 1 on tooth no. 63 was an accidental finding during a routine dental examination. On the radiograph, tooth number 63 showed excessive root resorption and hence, showed a certain degree of mobility before shedding.

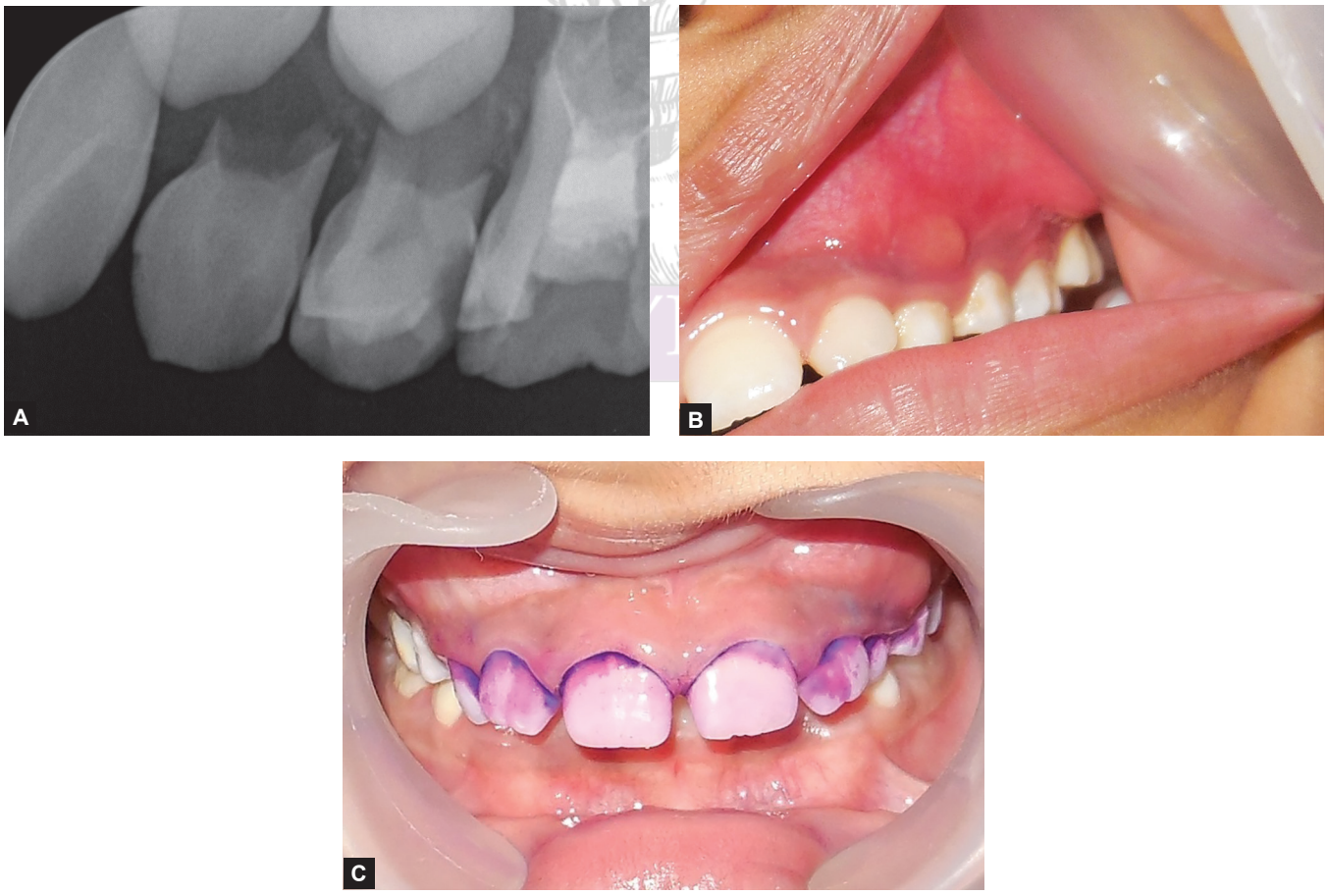
Another case involved a non-resolving dental abscess post an antibiotic course by the pediatrician. On clinical and radiographic examination (Fig. 2) tooth no. 53 was found to be mobile and was about to shed.

The case discussed in Figure 3 had discomfort due to the mobile tooth no. 62. On closer examination, 62 was showing pre-shedding mobility, and a similar abscess was observed with respect to the same tooth. All cases discussed, the abscess was resolved post extracting the offending primary tooth. Differential diagnosis of common lesions mimicking above discussed abscess has been tabulated in Table 1.

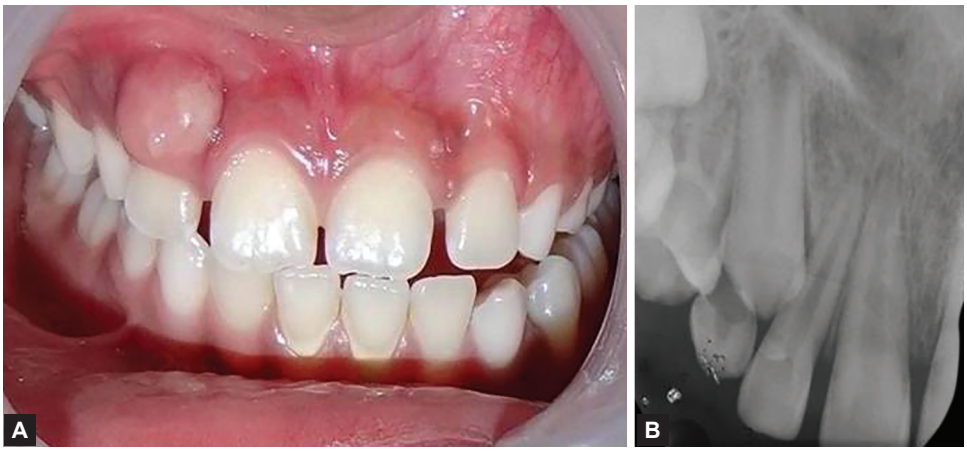
Conclusion

The current classification of periodontal diseases even postulates the category "combined periodontal-endodontic lesion" irrespective of the suspected pathogenesis of the lesion[7].

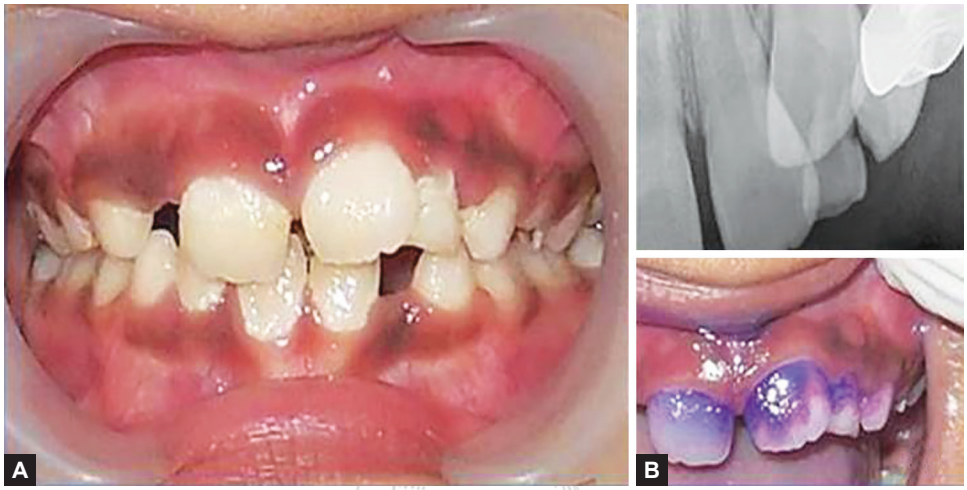
Clinically, such a lesion looks similar to a regular periapical abscess. But an absence of an obvious etiology (dental caries or trauma), tooth nearing its exfoliation, poor oral hygiene should hint towards the diagnosis of proposed Rashmdeep's abscess. More histopathological and prevalence studies ought to be conducted to establish occurrence and pathogenesis of such lesions.



Figs 1A to C: Lesion of the maxillary left deciduous canine causing pathological bone loss and root resorption radiographically



Figs 2A and B: (A) Clinical lesion; (B) Labial gingiva of maxillary right deciduous canine showing altered path of eruption of succedaneous canine



Figs 3A and B: (A) Lesion seen in relation to maxillary left deciduous lateral incisor; (B) Poor oral hygiene and crowding is clearly seen in an area of interest on the radiograph

Table 1: Differential diagnosis from other pathologic abscesses

S. No.	*Feature*	*Rashmdeep's abscess*	*Pathologic abscess*	*Erupting permanent tooth*
1.	Associated with carious tooth	No	Yes	Periapical lesion to predecessor's tooth might lead to the buccal bulge for the erupting tooth mimicking an abscess
2.	Associated with a history of trauma	No	Yes	
3.	Associated with an erupting permanent tooth	Yes	No	
4.	Some degree of dental crowding present	Almost Always	Not Always	Crowded arches often have permanent tooth erupting buccally (especially maxillary canines)
5.	Associated with poor oral hygiene	Always	Not necessary	Not necessary
6.	Advanced root resorption of the primary tooth about to shed	Yes	No	Not necessary
7.	On palpation	Soft	Soft	Firm/hard

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