

Gingival Abscess Due to an Unusual Nail-Biting Habit: A Case Report

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Abstract

Aim: Nail-biting is one of the most frequent deleterious oral habits in children. It can result in systemic diseases or oral traumatic lesion. This report describes a case of gingival abscess in a child due to a fingernail-biting habit.

Case Description: A 5-year, 6-month-old female presented gingival swelling and fistula in the primary maxillary left central and right lateral incisors as an unusual sequelae to the periodontal tissues from fingernail-biting. A periodontal curette was used to remove the fragments and to curette the area. After the curettage, an exudate of blood and pus was drained. Then the area was irrigated with 0.12% chlorhexidine solution; applying finger pressure controlled the secretion. After one week, the patient returned with gingival swelling present in the same teeth. The same curettage procedure was performed. It was suggested that the deleterious habit was related to emotional tension and anxiety behaviors and the patient was referred for psychological treatment. When the patient returned one month later, she was still biting her fingernails, but she had stopped placing fragments into the gingival crevice. No more gingival inflammation or swelling was observed.

Summary: This paper presents an unusual case report of a gingival abscess due to a fingernail-biting habit in a child, probably related to an emotional condition.

Clinical Significance: The fingernail-biting habit can induce a periodontal traumatic injury



yielding a more serious complication such as a gingival abscess.

Keywords: Nail-biting, gingiva/injury, oral habit, gingival abscess.

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Background

Fingernail-biting, or onychophagia, is a deleterious habit that can result in systemic diseases or oral traumatic lesion.¹⁻³ Some authors classify nail-biting as a nervous habit like finger sucking, lip and cheek biting, fidgeting, giggling, or hair twirling, suggesting that an emotional problem is of concern.^{4,5} Johnson speculated that children may use the habit to injure themselves in an attempt to gain the attention of a parent or a health care professional.⁶ The prevalence of nail-biting ranges from 6 to 60% in the general population and from 12 to 45% in children.^{7,8}

Dentists are more frequently interested in dental or gingival problems as a result of nail-biting.⁹ But the habit can result in local and systemic infection due to transmission or autoinoculation of pathogens. These authors found a significantly higher prevalence of *Escherichia coli* and the *Enterobacteriaceae* family of bacteria in nail-biters than in those who do not have this habit. The presence of *Helicobacter pylori* in oral sites and beneath the nail of the index finger of subjects was evaluated. There was a significant positive relationship between fingernail and tongue presence of this pathogen.¹⁰ Whether these pathogens can cause gastrointestinal complications, these results suggest that nail-biting may play a role in the spread of systemic infection, probably by fecal-oral contamination.

Nail-biting is the most frequent deleterious oral habit in children with mixed dentition.⁵ Usually, it does not represent any oral sequelae, but it is the most common cause of gingival injury.^{2,7} Self-inflicted gingival injury results from a foreign object or a fingernail damaging the gingival tissue, causing gingival swelling, abscess formation,



Figure 1. Presence of fistula on the apical portion of the primary maxillary left central incisor.

gingival recession, and ulceration.^{1-3,7,11-13} Other dental complications include dental attrition, enamel fractures, exaggerated root resorption, craniomandibular dysfunction, and tooth loss.^{1,5,8} It is noted that fingernail-biting damage is not limited to the soft tissue and may result in destruction of bone and tooth structure.^{3,4} The case reported describes a gingival abscess, an unusual sequela to the periodontal tissues from fingernail-biting.

Case Description

A 5-year, 6-month-old female was presented to the Pediatric Dental Clinic of the Federal University of Ceara (Brazil) by her mother, who was complaining about gingival swelling on the facial aspect of the maxillary incisors. The patient and her mother did not relate any pain, fever, or other relevant information associated with the lesions. The initial clinical examination revealed not only the presence of gingival swelling but also the presence of fistula on the primary maxillary left central incisor and the primary maxillary right lateral incisor (Figure 1). Occlusal and periapical radiographs showed external root resorption in the involved teeth as well as vertical bone resorption on the mesial aspect of the primary maxillary left central incisor and on the distal aspect of the primary maxillary right central incisor (Figure 2). The clinical and radiographic signs were promptly associated with dental trauma, but this was not related by the patient or her mother. There were no caries or mobility on these teeth. They also showed a



Figure 2. Alveolar bone loss and physiological root resorption surrounding the primary maxillary left central incisor.

positive response to tooth vitality by iced cotton pellets.

On the palatal aspect of the primary maxillary left central incisor the subgingival presence of an uncommon object fragment was observed. With the aid of an explorer, it could be detected and confirmed as nail fragments (Figures 3 and 4). It was argued whether the patient had any deleterious habit. The patient informed a habit of fingernail-biting. This was confirmed when the dentist noted the patient's bitten fingernails. A periodontal curette was used to remove the fragments and to curette the area. Around 10 fragments were removed from the gingival sulcus on the lingual and buccal aspects (Figure 5). A question arose from this unusual clinical aspect. How could the fragments get into the gingival sulcus? The patient explained that after biting the nails, she used to slide the fragments under the marginal gingiva.

After the curettage, an exudate of blood and pus was drained. Then the area irrigated with 0.12% chlorhexidine solution; the secretion was controlled by applying finger pressure. Then, the presence of a 5 mm periodontal pocket was noted. Since there was no pain or fever, no medication was prescribed. The parent was informed about the damage caused to the periodontal tissues and the possible risk for systemic infection. She was advised to obtain help for her daughter to eliminate the nail-biting habit.

The patient returned one week later. Surprisingly, the gingival swelling was present in the same teeth. When the area was examined, six nail fragments were found again. The same curettage procedure was performed. The patient informed that she was still introducing the nail fragments into the gingival sulcus. The mother related that she did not notice it and she had never seen her daughter biting the nails. The child informed she was biting them only at school. Actually, she had moved to a new school in the current school year, which was a hard adaptation for her. So, it was suggested the deleterious habit was related to emotional tension and anxiety behaviors. The patient was referred for psychological treatment.

When the patient returned one month later, she was still biting her fingernails, but she had stopped placing fragments into the gingival crevice. No more gingival inflammation or swelling



Figure 3. Nail fragments on the lingual aspect of the gingival sulcus.



Figure 4. Buccal view of the fragments being removed. Note the fistula on the apical aspect of the tooth.



Figure 5. Nail fragments.



Figure 6. No gingival inflammation or swelling was observed at further appointments.

was observed (Figure 6). Currently, the patient is having appointments every two months for clinical examination.

Discussion

Self-inflicted oral injuries are often a frustrating problem for the dentist due to their difficult diagnosis. They can occur accidentally or as an unconscious habit, or they can be premeditated. In this case, the patient related the habit started when she moved to a new school and was not adapting well. Therefore, it can be suggested that this habit originated from an emotional problem.⁵

In the present case, the patient intentionally slid the nail fragments into the gingival sulcus of the primary teeth. Two cases similar to this were reported, but they both involved the maxillary permanent incisors.^{1,2} Hodges¹ described a case of a six-year-old boy. After debridement and irrigation of the abscess area, 15 fingernail fragments were found. A detailed exam showed a purulent exudate and a 10-mm periodontal pocket on the buccal surface of the permanent maxillary right central incisor. After curettage, Krejci² removed six nail fragments from the gingival crevice of an eight-year-old male. The author hypothesized that a fingernail fragment remained embedded in the gingival tissue of the permanent maxillary right central incisor. However, after open-flap periodontal surgery, three other fingernail fragments were found on the buccal surface of the gingival tissue. As opposed to our situation, in which the radiographic examination showed external root resorption and vertical bone resorption on the mesial aspect of the primary maxillary left central incisor, no bone loss was observed by Hodges¹ or Krejci.² It seems that this self-inflicted injury has a predilection for upper primary or permanent incisors because these teeth are more often the ones chosen to bite the fingernails.^{1,2,7,11}

Patients, especially children, may not be aware of a deleterious habit like nail-biting. Even after the confirmed diagnosis of an abscess and all the information presented, one week later the patient returned with no improvement in the clinical aspect of the lesion. Other nail fragments were removed again from the periodontal pocket. Dentists must be aware that most self-

inflicted injuries are assumed to be a sign of emotional tension or anxiety.¹³ Then, the parents and the children must be encouraged to look for psychological treatment.

In this case, after one month of treatment, there was no gingival swelling or periodontal pocket. Had the intervention not been performed, there is a possibility that premature tooth loss could have occurred, leading to future occlusal disorders. The patients and their parents need to be informed that nail-biting can be a potential cause of localized gingival injury or more deleterious dental problems. Furthermore, they must be alerted about the emotional behavior and how it can impair child development and infectious disease transmission.

Summary

This paper presents an unusual case report of gingival abscess due to fingernail fragments slid into the gingival sulcus of a child. Even though it is a weird habit, there are some other reports of it in the dental literature. The dental treatment must be provided with an aim to preventing pain and premature tooth loss. It also was noted that more than a dental condition, the fingernail-biting habit was an emotional condition that can impair the child's psychological and social development.

Clinical Significance

The fingernail-biting habit can induce a periodontal traumatic injury yielding more serious complications such as a gingival abscess. Clinicians must detect and inform the parents of such alterations in order to minimize their sequelae. Therefore, the treatment needs a multidisciplinary focus: on both the dental and psychological needs.

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