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# Non-dental Biofilm-induced Traumatic Gingival Lesion in a Child: A Case Report

**Abstract:** Self-mutilation behaviours in individuals with normal intelligence are mostly habitual, but can sometimes be associated with emotional disturbances. A 6-year-old boy presented with pain in the gums of his upper back teeth. He was diagnosed with habitual gingival stripping secondary to irritation from chronic food impaction. Timely diagnosis and prompt intervention resulted in a favourable treatment outcome.

**CPD/Clinical Relevance:** This article illustrates a less common clinical presentation of gingivitis artefacta minor in a child.  
**Dent Update 2022; 49: 247–250**

Children with gingival conditions rarely report to a paediatric dentist. However, when they do report, it may be perplexing to diagnose and manage due to similarities of presentation with varied causes. Figure 1 shows the new classification scheme for periodontal and peri-implant diseases and conditions proposed in 2017.<sup>1–4</sup>

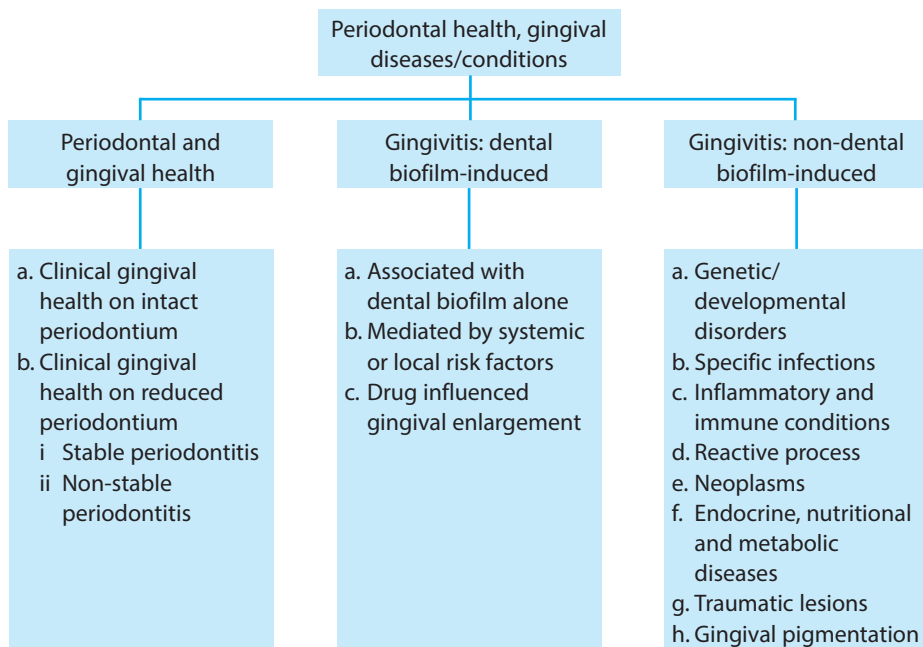
Non-dental biofilm-induced traumatic gingival lesions (formerly termed as gingivitis artefacta) are further classified as gingivitis artefacta minor or major. Gingivitis artefacta minor is more common and includes superficial gingival lesions. It results from an evident physical or chemical local irritation, such as pricking

the gingiva using fingernails, toothpicks, or any sharp objects<sup>5</sup> and can be managed by the elimination of the irritating stimuli. Since most patients are engaged in the habit subconsciously, creating awareness in the patient is an important aspect of management.

Symptoms of this condition range from gingival erythema and bleeding to the formation of gingival clefts leading to exposure of underlying root or alveolar bone.<sup>6</sup> Severe cases of self-induced injuries to the gingiva may lead to gingival recession and bone loss at the affected site and rarely may even result in auto-extraction.<sup>7</sup> If left untreated, surgical intervention, along with psychological counselling may be necessary.<sup>8</sup> On the other hand, if the self-mutilation is secondary to a pre-existing irritation, and the damage is not extensive, removal of the source of the irritation and counselling may suffice.<sup>9</sup>

This report presents a case of gingivitis artefacta minor. It highlights a systematic approach towards the diagnosis of the

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**Figure 1.** Classification of gingival diseases and conditions presented by the World Workshop on the Classification of Periodontal and Peri-implant Diseases and Conditions 2017.<sup>1</sup>



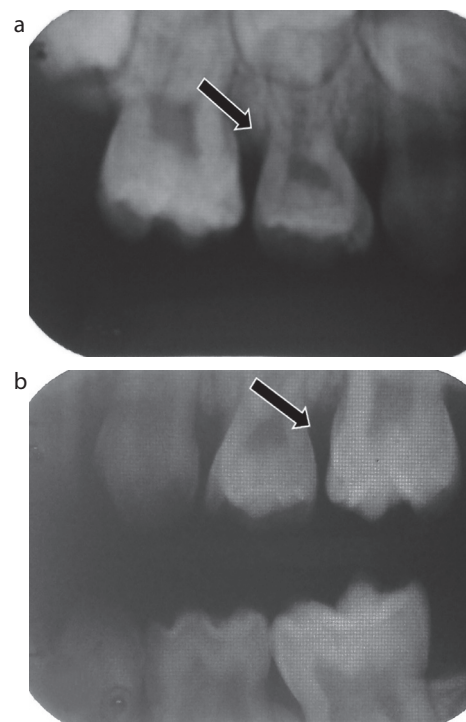
**Figure 2.** Gingival cleft of 5 mm, extending apically from the interdental gingiva between right maxillary first and second primary molars.



**Figure 3.** Gingival recession and exposure of distobuccal root surface of left maxillary first primary molar with associated inflammation.



**Figure 4.** Hairline interdental spacing between maxillary first and second primary molars bilaterally.



**Figure 5.** Intra-oral peri-apical radiograph showing interdental bone loss between maxillary first and second primary molars. (a) Right side; (b) left side.

condition. Prompt diagnosis and appropriate management eased the discomfort and improved the quality of life of the patient.

### Case report

A healthy 6-year-old boy complained of painful gums in the region of his upper right back tooth for 2 weeks. The pain was dull, localized and non-radiating, and exaggerated on chewing on that side or touching the area. The patient reported no trauma or bleeding from the site. He had no significant medical history. No abnormality was detected on extra-oral examination.

Intra-oral examination revealed bilateral, identical gingival clefts, interdentally between the maxillary first and second primary molars. Recession of 5 mm and a resultant exposure of the distobuccal root was observed on URD with an erythematous appearance of adjoining gingiva, associated bleeding on probing, and dental hypersensitivity (Figure 2). The gingival recession on the left side extended 3 mm apically from the distobuccal gingiva of ULD with exposure of the distobuccal root surface (Figure 3). The mesial aspects of URA and URL were carious.

Hairline interdental spacing between the maxillary first and second deciduous molars bilaterally caused food lodgement, creating non-cleansable embrasures (Figure 4). The mesiobuccal cusps of the mandibular second primary molars functioned as plungers, intensifying the food lodgement. Based on this clinical presentation, differential diagnoses of physical or chemical traumatic non-dental biofilm-induced gingival lesion and mucogingival deformity around the teeth were listed.<sup>2,10</sup>

Upon gentle prodding, the child revealed his habit of pricking the gingiva on both sides with his fingernail to get

relief from the irritation caused by the food lodgement. Radiographic evaluation revealed initial interdental bone loss between maxillary first and second deciduous molars on both sides (Figure 5). Based on the history and above findings, a diagnosis of habitual gingival stripping, secondary to food impaction and dental caries with URA and ULA was made.

A treatment plan consisting of immediate removal of the offending factors, creating awareness, counselling to stop the habit, and motivation to follow instructions was formulated for the gingival condition.

The food lodged in the interdental areas was cleaned, and coronoplasty was performed on the plunging mesiobuccal cusps of mandibular primary second molars using a greenstone polishing bur (Figure 6). Fluoride varnish was applied on the exposed root surfaces of the maxillary deciduous first molars, as well as on the mesiobuccal cusp of the mandibular second primary molars. The child was taught to floss and advised on warm saline rinses after every meal. Gentle finger massage of the affected gums, using a small amount of gum astringent (HiOra-GA, Himalaya Drug Company, Bangalore, India) three times daily was advised. Composite resin restoration was placed for the proximal caries in URA and ULA.

At the 1-month follow up, healing of the lesion was evident, with near-complete coverage of the distobuccal root and healthy gingiva in relation to primary maxillary first primary molars (Figure 7). The child was no longer pricking the gingiva and was now free of any pain and discomfort. The oral hygiene instructions were reinforced and the child was put on a 3-monthly follow-up.

## Discussion

Non-dental biofilm-induced gingival conditions are those where the main aetiological factor is anything other than a dental biofilm. These lesions can be sustained even after the elimination of dental plaque. They may occur as a sequela to systemic conditions, or may be due to other local factors, such as mechanical injury by a toothbrush, chemical injuries or self-mutilation.<sup>2</sup> However, the presence of dental plaque is known to exaggerate the clinical manifestations and gingival inflammation secondarily.<sup>1</sup>

Physical or chemical insults can present with laceration, ulceration or sloughing. Our patient presented with a vertical gingival



**Figure 6.** Coronoplasty being performed on the plunging mesiobuccal cusp of the mandibular primary second molar.

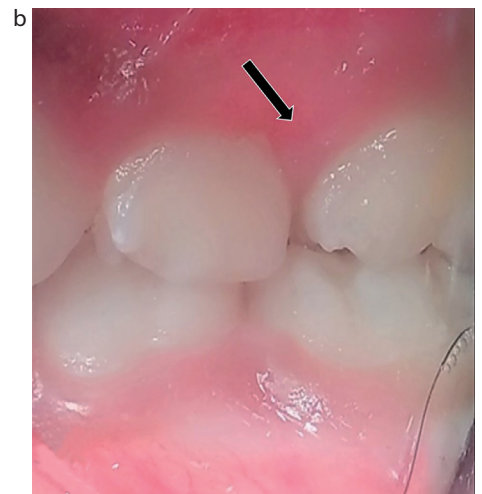
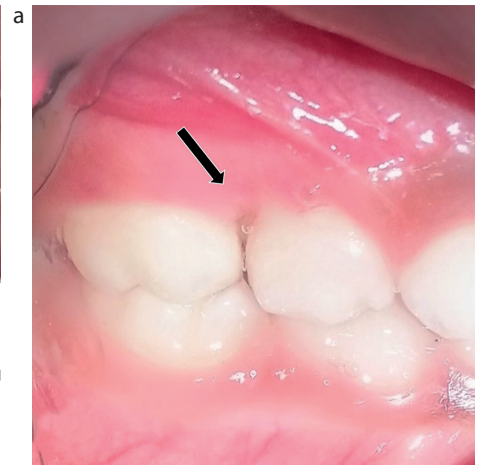
lesion without sloughing, which is unlikely to be associated with tooth brushing or chemical injuries.<sup>2</sup> Mucogingival deformity was also kept in mind as a possible differential diagnosis owing to the gingival recession.<sup>10</sup> However, with a history of habitual gingival stripping secondary to food impaction, a form of factitious non-dental biofilm-induced traumatic gingival condition, seemed a more likely diagnosis.<sup>1</sup>

Self-mutilation behaviour in individuals with normal intelligence is mostly habitual, or due to underlying emotional disturbance.<sup>12</sup> In 1972, Stewart and Kernohan described and classified the types of self-mutilation behaviour seen in such patients as Type A, which includes injuries that superimpose on a pre-existing lesion, or nidus of irritation; Type B, which includes injuries secondary to an established behaviour, such as thumb sucking or nail-biting; and Type C, which includes injuries of unknown or complex aetiology, which may involve emotional disturbances or psychological illness.<sup>5</sup> In our patient, the injuries were superimposed upon a pre-existing nidus of irritation, classifying the child under Type A.

If left untreated, self-mutilation behaviour involving the gingival tissues is known to cause dentinal hypersensitivity, pathological mobility and eventual extraction of teeth due to destruction of periodontal tissues.<sup>13</sup>

Multiple treatment approaches have been tried in the management of gingivitis artefacta minor, such as removal of the underlying source of irritation, appropriate clinical psychology referral, use of gingival shields and surgical management with gingival grafts.<sup>14–16</sup> These approaches require the coordinated efforts of multiple specialists.<sup>6</sup>

In the present case, accurate identification of the aetiological factor and timely intervention were deemed effective



**Figure 7.** Healing of the gingival cleft with root coverage. (a) URD; (b) ULD.

in the management of the condition. Removal of the underlying source of irritation and habit counselling resulted in habit cessation and healing of the gingival defect. Fluoride varnish applied on the exposed root surface provided relief from the dentinal hypersensitivity.<sup>17</sup>

## Conclusion

Consideration of underlying emotional disturbances plays an important role in the management of self-inflicted injuries. In the absence other psychological factors, as seen in the present case, elimination of local causative factors and patient motivation is sufficient to manage the condition.

### Compliance with Ethical Standards

**Conflict of Interest:** The authors declare that they have no conflict of interest.

**Informed Consent:** Informed consent was obtained from all individual participants included in the article.

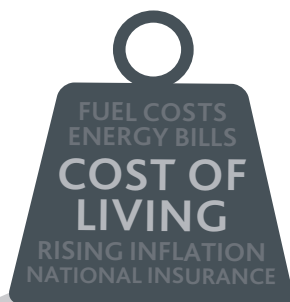


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