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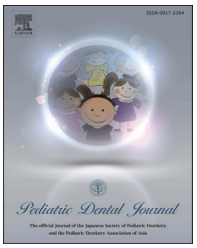

Case Report

Trichloroacetic Acid for localized juvenile spongiotic gingival hyperplasia: A case report with a novel treatment

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ABSTRACT

Introduction: Localized juvenile spongiotic gingival hyperplasia (LJSGH) was originally described by Darling and Chang as a rare gingival condition which involves youngs and young adults. A high recurrence rate was also described after excision.
Aim: The aim of this study is to report a case of a 13-years old male with a gingival mass diagnosed as LJSGH treated with a novel treatment based on topical applications of Trichloroacetic Acid (TA) after a conventional surgical treatment. TA could be a safe alternative and a non-invasive technique to treat lesions associated to LJSGH.

1. Introduction

Localized juvenile spongiotic gingival hyperplasia (LJSGH) is a relative new entity, originally described by Darling (2007) and Chang (2008) [1,2]. Youngs and young adults are usually involved with a female predominance. The most classic clinical presentation is a unique red pedunculated overgrowth with an irregular surface affecting the anterior area of the maxillary gingiva [2].

Actually, there are no consensus about its ethiopatogenic aspects of this entity but the absence of response to the basic periodontal treatment would indicate a poor relationship with the infection aetiology associated to dental plaque and calculus levels [3].

Most of the published histological descriptions agree on the presence of hyperplasia of the non-keratinized stratified squamous epithelium, intercellular edema and spongiosis of the spinus layer, and exocytosis of inflammatory cells [1–4].

Due to the lack of response of LJSGH to conventional periodontal therapy, surgical excision of the lesions with additional debridement of the associated teeth surface remains the treatment of choice [2,5]. However, a high recurrence rate

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after surgery was previously described [5,6]. The aim of this study is to report a clinical case of LJSGH treated with a novel treatment based on topical applications of Trichloroacetic Acid.

2. Case description

A 13-year-old white male was referred by his orthodontist for evaluation of a persistent gum mass. Intraoral examination revealed a hyperplastic growth of micropapillary appearance with a velvety red surface localized along the labial gingiva of the teeth 1.1 and 1.2. There was a discreet bleeding and no pain when touched. The patient presented inadequate oral hygiene with deposit of bacterial plaque on the dental surface and even after the basic periodontal treatment, the lesion did not improve its clinical appearance (Fig. 1). The lesion was surgically removed with electrocautery including the labial and palatine region of the lesion-involved teeth (Fig. 2). The histological findings exhibited a stratified squamous epithelium with acanthopapillomatosis, intracellular edema, noticeable spongiosis of the spinus layer and exocytosis of inflammatory cells. Along the connective tissue, vascular congestion and an inflammatory infiltrate could be noticed (Fig. 3). Considering the clinical aspect and the microscopical features from the case, the diagnosis of LJSGH was established.

9-months after the surgery, a different local scenario showed a recurrence of the disease (Fig. 4). The patient had begun the orthodontic treatment seven months ago and a poor oral hygiene was observed again. The clinical appearance was similar to the lesion which had been previously removed, but this time involving the palatine gingiva.

A 70% aqueous solution of Trichloroacetic Acid (TA) treatment protocol was carried out in agreement with his parents. One topical application per week was performed during a two-months period (Fig. 5). The good response to the topical treatment determined the end of the treatment earlier than planned. There was no evidence of recurrence in the subsequent controls. 3-months after treatment, there was no presence of signs of recurrence and the patient remains asymptomatic (Fig. 6).

3. Discussion

The small number of reports of this lesion, firstly described in 2007 [1] and 2008 [2] by Darling and Chang respectively, was related to misdiagnosis considering that condition could be wrongly diagnosed as other lesions with gingival involvement [6]. The differential diagnosis can therefore encompass a wide range of lesions such as pyogenic granuloma, peripheral giant cell granuloma and peripheral ossifying fibroma, squamous papilloma, condyloma acuminata, inflamed gingiva, vascular lesion, Wegener granulomatosis, foreign body reaction, etc [2,3,5].

Taking into account the etiological variability of the differential diagnoses just listed, it is substantially important to reach an accurate diagnosis in order to apply an adequate treatment for the condition. Most of last reports, have shown

Fig. 1 – Hyperplastic painless growth with a velvety red and irregular surface localized along the labial gingiva of 1.1 and 1.2. It was evidenced a discreet bleeding when touched. It could be also observed deposit of bacterial plaque on the dental surface and inadequate oral hygiene. (For interpretation of the references to color/colour in this figure legend, the reader is referred to the Web version of this article.)

the election of surgical excision as the treatment of choice. However, there are other therapeutics choices based on the use of laser [5] and cryotherapy through an open system of liquid nitrogen spray [6]. In our case, the first lesion of LJSGH was surgically removed. Once the recurrence was confirmed and searching new challenging therapeutic approaches, we proposed the use of TA as a novel and non-invasive treatment.

TA was used in humans for the first time in 1926. It produces a denaturalization and destruction of the lesions due to chemical coagulation of the affected tissue [7]. Although TA is usually used to treat skin lesions, the application on the oral mucosa was described as a safe alternative in oral Human Papilloma Virus infections with a high rate of success and low morbidity. The main complication described is the presence of ulcerative lesions [8]. Regarding the therapeutic schemes, some authors recommended concentrations between 80 and 90% [8]. With the aim to treat post surgical recurrence, TA was carefully applied with a microbrush over the lesion one time per week on five separate occasions, showing marked improvement at each visit.

TA is a drug generally applied over the skin surface to treat skin warts with different concentrations (10% or 25%) [9] and other viral cutaneous infections such as Molluscum Contagiosum [10]. Nikalji et al., classified TA as a superficial peeling agent and described the possibility to cause itching, erythema, irritant contact dermatitis, and post-inflammatory hypergimentation. Activation of herpes viral infection was other adverse effect of TA presented by this author [11]. Although concentrations of TA for oral mucosa are higher than skin applications (it varies from 80 to 90%), there is limited evidence about TA toxicity during treatment of mucosal lesions. In this case, the patient only referred an

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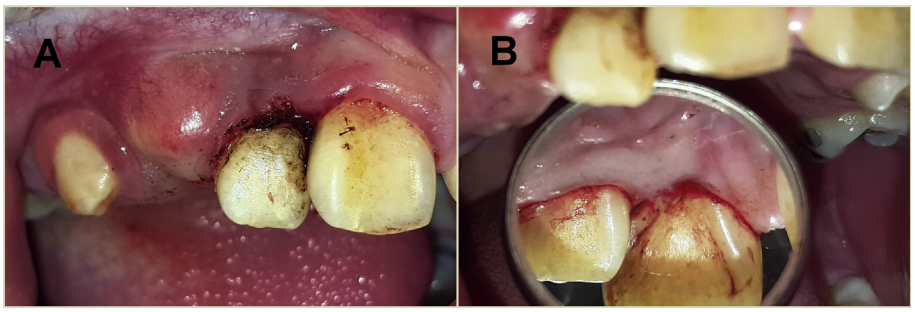

Fig. 2 – Surgical excision. A) Electrocautery of labial area of the teeth. The lesion was easily removed without any complications and a debridement was made among dental margins. B) Total removal of affected tissue compromised palatal gingival margin.

itching sensation during its application and no symptoms after the procedure. Once the acid reached the lesion surface during application, a white pseudomembrane developed due to superficial chemical coagulation (Fig. 5A). In order to eliminate TA residues that could affect adjacent tissues and neutralize pH, a rinse with a mixture of water and bicarbonate was recommended [8]. TA ingestion is an extremely rare event and fortunately its absorption into the bloodstream is not significant. However, a form of acute poisoning could be manifested. Symptoms of burning mouth and pharynx, vomiting and diarrhoea with dark blood are typical of overdose [12].

Different authors have previously described successful application of TA in cases of warts, HPV-associated cervical lesions [13] or Focal Epithelial Hyperplasia (FEH) [14]. All these lesions are associated to HPV infection. Our case showed a marked improvement of lesions of LJSGH once there were treated with TA, suggesting that the response of the tissue to the drug could be associate with some viral origin. This relationship was previously reported by Chang who described a micropapillary architecture of LJSGH suggesting an association with HPV [2]. However, Argyris et al., reported the overexpression of p16 as a phenomenon caused by the intense inflammatory infiltration of the tissues rather than a HPV-mediated process as supported by the failure of find HPV-DNA in the majority of cases. The viral origin of LJSGH

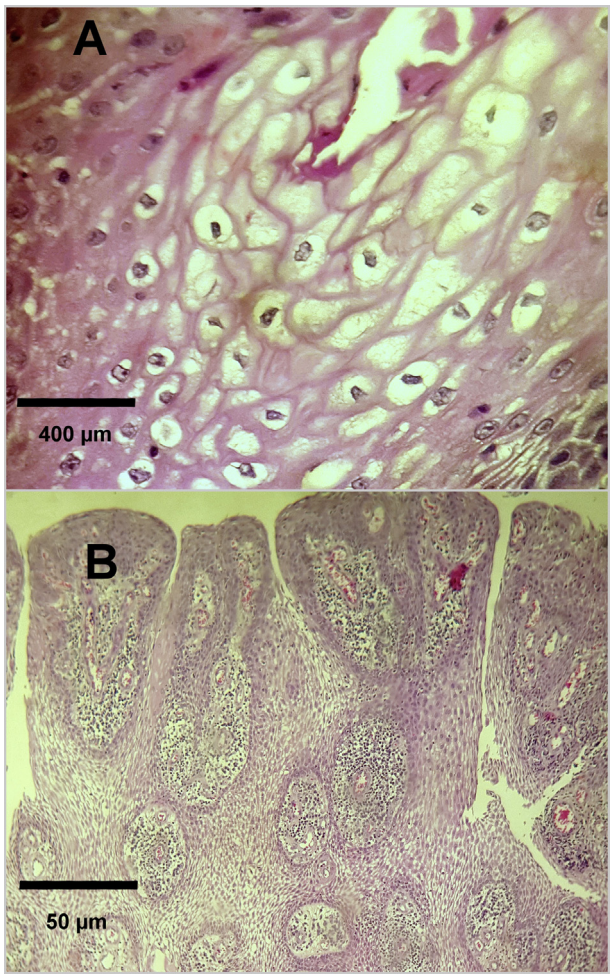

Fig. 3 – The histological findings of LJSGH exhibited a stratified squamous epithelium with acanthopapillomatosis, noticeable intracellular edema, spongiosis of the spinus layer and exocytosis of inflammatory cells.

Fig. 4 – 9-months after local removal of the lesion, the recurrence was detected. The clinical aspect of the lesion was like the first presentation of the condition but this time only the palatine gingiva was involved.

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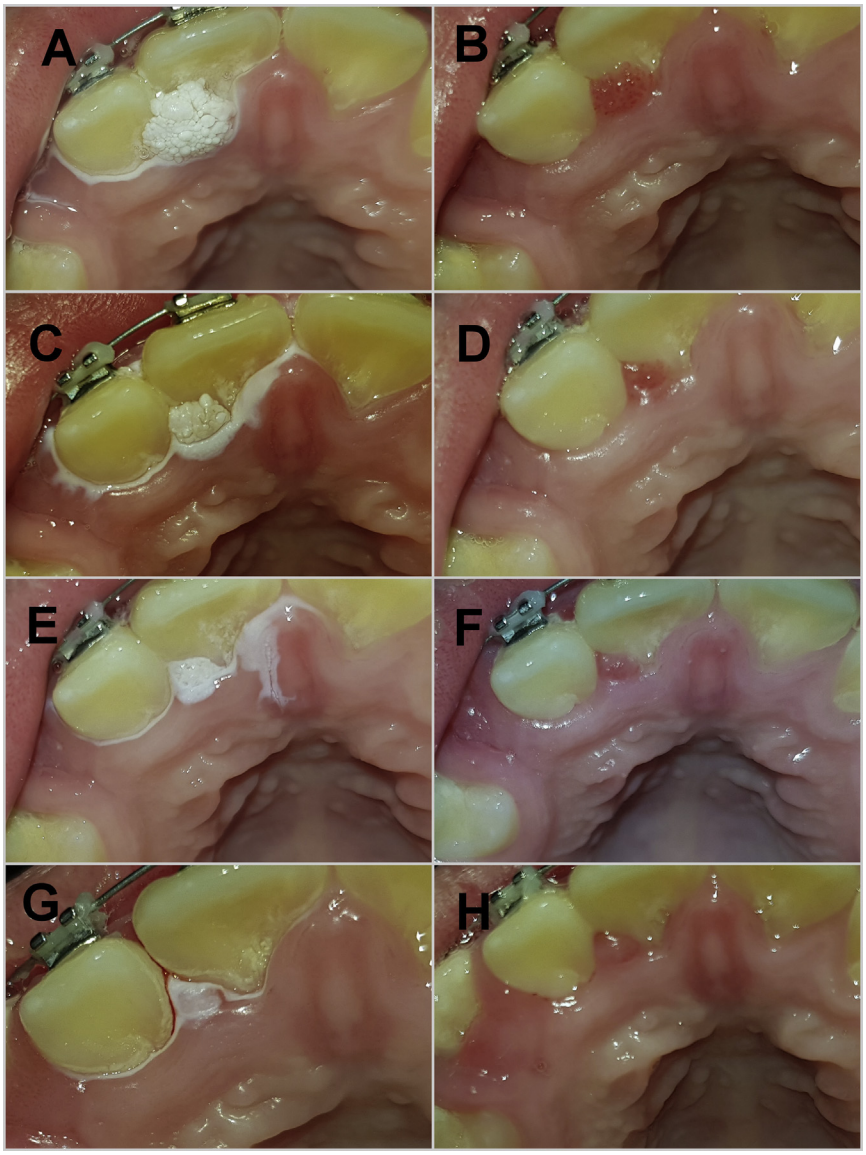

Fig. 5 – A) The first session of the application of topical TA. Seconds after the contact between the lesion surface and the acid, a pearly white pseudomembrane was formed evidencing the presence of the drug above the lesion. B–C) First control of TA application. It was observed a noticeable improvement and reduction of the size of the lesion. It was performed the second application of TA. D-E) Second control post-TA protocol with huge improvement two weeks after the begin of the treatment. F-G) Next application of TA and subsequent control. H) Current status. It is noticed the healthy appearance of the gingival tissue.

Fig. 6 – 3 months after treatment. No signs of recurrence were still evidenced.

remains unclear, therefore novel studies are needed to stablish more evidence on this aetiological association.

4. Conclusion

Given the high rate of recurrence of this condition after surgical excision, TA is a novel and safe treatment for LJSGH. The use of TA in this case demonstrated a technique which offers many advantages: effortless application and manipulation, good tolerance in paediatric patients, low cost and non-invasive.

Conflict of interest

None declared.

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Appendix A. Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.pdj.2018.05.003.

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