

Evaluation of Clinical Results From Trichloroacetic Acid on the Treatment of Focal Epithelial Hyperplasia

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Abstract

Focal Epithelial Hyperplasia (FEH) is a benign disease characterized by the presence of multiple papules in the oral mucosa, associated with the human papilloma virus, serotypes 13 and 32, it is very common in the pediatric population, without treatment the injuries can persist for many years, implying that patients will show injuries throughout childhood and youth, generating oral and psychosocial problems such as rejection. Is reported the clinical case of a pediatric patient with FEH in which the use of 80% trichloroacetic acid (TCA) is used as an alternative therapy, the acid was applied every 10 days with the complete elimination of the lesions in the tenth session. There were no complications, the patient was calm during the treatment, without anxiety or fear. The manuscript's aim is to describe the sequence of application of the TCA and its effectiveness in the resolution of the lesions produced by the FEH.

Key Words: Focal epithelial hyperplasia, Papillomavirus infections, Trichloroacetic acid

Introduction

The human papillomavirus (HPV) is a non-encapsulated virus with a double circular DNA chain; it is part of the Papillomaviridae family, which has an affinity for the squamous cells from the epithelium of the genital tract, buccal and nasal cavity [1]. The result of the infection is the formation of several cutaneous and mucosal pathologies, benign growth such as focal epithelial hyperplasia, buccal condyloma acuminata, vulgar warts and malignant transformation into squamous cell carcinoma [2].

Focal epithelial hyperplasia (FEH) is a benign pathology, commonly affects children, with predominance for females [3], the first case was described in 1965 by Heck et al. in Greenland [4]. Regarding the prevalence in the Colombian territory, it is the most frequent in some departments such as Antioquia and Chocó, González et al. evaluated the clinical, histopathological and virological findings in patients with FEH in 18 patients from Antioquia [3], Rodríguez et al. reported 12 cases in Amazonas [4], Harris et al. evaluated 11 cases of FEH patients in Cartagena [5], Rodríguez Toro studied the histopathological findings of 17 specimens of FEH patients from Bogotá, Tunja, Sogamoso, Quibdó and Armenia [6], showing a great prevalence in Colombia.

Regarding the etiology, it has been associated with malnutrition, poor hygiene and genetic factors, nonetheless throughout hybridization techniques, it has been possible to isolate the different HPV serotypes and a close relationship with subtypes 13 and 32 has been found [7]. Bertolotti et al. reviewed a large study which establishes an important liaison with allogenic HLA-DR4, frequently found in Native Americans, evidencing an alteration in the specific immune response makes this population more susceptible to HPV viral subpopulations [8].

FEH presents clinically as multiple papules with a sessile base, smooth surface, the covering mucosa becomes pale pink and in some cases whitish, due to keratinization by trauma,

the size varies between 3 and 10 mm in diameter, the lesions are usually located in the labial, jugal and tongue mucosa, asymptomatic and slow-growing. It is unusual to find it on the palate, floor of mouth and oropharynx, so far no malignancy has been reported [9].

The histopathological study shows marked acanthosis and junction of the epidermal projections, in the superficial stratum spinosum, a reticular aspect is observed, produced by the hydropic degeneration of the koilocytotic cells, in addition large binucleated cells and light or moderate parakeratosis can be found and, in some cases, an increase in the number of mitosis. The underlying connective tissue may expose a slight mononuclear inflammatory infiltrate in the lamina propria [10].

Treatment options include surgical resection, application of 0.05-0.1% acid vitamin A, imiquimod, electrocoagulation, CO2 laser and 80% trichloroacetic acid (TCA), the latter one showing good results, the lesions may resolve spontaneously without therapy, but may persist for months or years, generating functional and aesthetic problems in the oral cavity [5,11].

The trichloroacetic acid (TCA) is derived from acetic acid, composed of carbon, chlorine, oxygen and hydrogen, causes a keratolytic and cauterizing effect, causing denaturation, precipitation and destruction of the lesions through of chemical coagulation, evidencing a decrease in the diameter and height of the lesions [5,12]. The destructive nature of the product often extends beyond the superficial lesion to attack underlying viral infections with elimination rates of 70-80%, and the low risk of systemic absorption allows for safe application during pregnancy. The depth of necrosis is related to the concentration of TCA, it can lead to pain or burning sensation, which is eliminated with the application of a buffering substance, composed of sodium bicarbonate to neutralize the acid [12].

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The manuscript's aim is to describe the technique of trichloroacetic acid application in lesions caused by focal epithelial hyperplasia and its effectiveness as a treatment.

Case Report

A 10-year-old female patient, who was referred by Pediatric Dentistry to the Stomatology and Oral Surgery service, due to its evidenced papillomatous exophytic lesions on the labial mucosa. The family story reported high blood pressure, type 2 diabetes mellitus, breast cancer and the mother reports the younger sister has common warts, placed on hands, distal and middle phalanges; the personal medical story and review of organs and systems do not report alterations, with apparently normal nutritional status.

During the extraoral clinical examination none papillomatous lesions were observed or clinical alterations were found. At the stomatological examination, there were multiple well-defined papules with a soft consistency on palpation, sessile base with the same color of the mucosa, of approximately 3-7 mm in diameter, asymptomatic, located in the upper and lower labial mucosa, and right and left jugal mucosa, of etiology and unknown time of evolution (*Figure 1*).



Figure 1. Multiple papules localized on the upper and lower labial mucosa, and right and left jugal mucosa.

With a previous signing of informed consent by mother and patient as well, an excisional biopsy was performed on one of the lesions placed on lower left labial mucosa and sent for histopathological study. The results of the report described cuts that revealed an oral mucosa covered by mature squamous epithelium, keratinized, hyperplastic, presence of koilocytes, inflammatory chorion, no malignancy was observed in the sample evaluated (*Figure 2*), findings compatible with focal epithelial hyperplasia without dysplasia. In a multidisciplinary meeting and the consent of the parents it was decided as treatment, the application of 80% trichloroacetic acid.

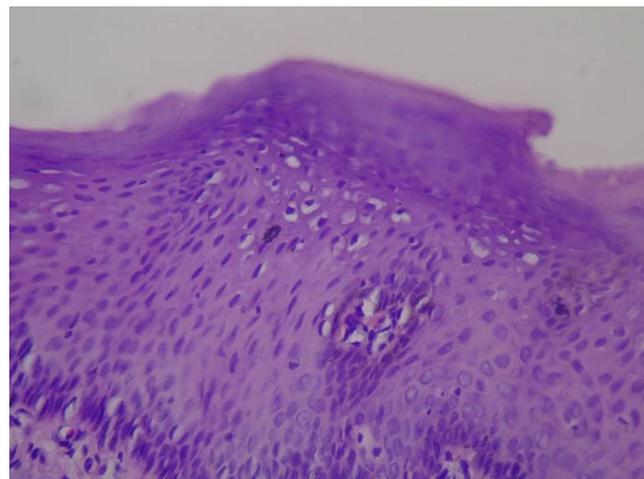


Figure 2. Histological cut that shows epithelial acanthosis, papillomathosis and koilocytes.

The application of TCA in pediatric patients follows strict measures of protection and biosafety, requiring controlled and specific interventions of affected areas, throughout the technique to say, to show, to do, the patient is instructed, emphasizing in case of any perception of discomfort, should raise the hand to neutralize the acid, relative isolation is placed on the floor of the mouth and bottom of the vestibule to decrease the salivary flow and avoid contact of the TCA in the rest of the oral cavity.

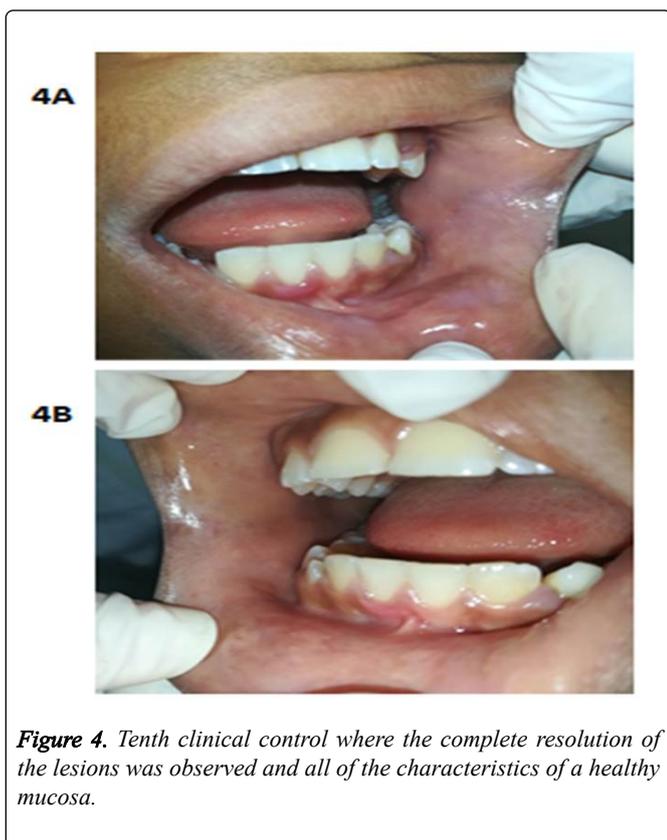
The acid was applied with cotton swabs previously sterilized, a swab was moistened with TCA, then drained and then gently rubbed onto the lesions for 90 seconds or whether the patient indicated some discomfort, on this stage, a scarlet-white color is observed on the surface of this as a result of the coagulant, hemostatic and caustic action of the TCA, after which the acid in the treated area was neutralized with the solution composed of sodium bicarbonate powder and distilled water (*Figure 3A and 3B*).



Figure 3. Application of 80% trichloroacetic acid on the lesions.

Clinical control was performed at 10 days and a decrease in the size lesions was observed, followed by application with the acid, continue the above mentioned therapeutic technique, every 10 days with their respective clinical controls until the resolution of the lesions was observed.

Ten applications were performed in the case, on the last control the affected oral mucosa was observed without papillomatous lesions and showing characteristics of a normal mucosa (*Figure 4A and 4B*), after 2 months of the application with the acid, there is no evidence of relapse.



Source of images: Intraoral photographs of the patient were taken on the consultation of the Dental Clinics of the University of Cartagena. The photograph of the histological cut was taken at the Pathology laboratory in the University of Cartagena.

Discussion

Infection with human papilloma virus (HPV) is one of the most widespread viral diseases in the world population, since it is transmitted by direct contact and is also recognized as a sexually transmitted disease [2]. Topical application of TCA to infections caused by human papillomavirus is reported with high frequency. Pezeshkpoor et al. carried out a comparative study applying 80% and 35% TCA as a treatment for common warts on the skin, with 80% concentration being more effective [13], Taner et al. evaluated TCA as a treatment in genital and perianal warts, showing good results [14]; but the reports of its application in the oral cavity are few, being important the investigations referring to TCA applications in infections originated by HPV in oral cavity.

Pezeshkpoor et al. claim that TCA is a caustic agent, which could only be used for treatment of many HPV-induced

lesions, since other treatments such as surgery, electrocoagulation, CO₂ laser, among others can be very traumatic due to the number and extend of the lesions [13]; in agreement with the present report, in which TCA was applied in pediatric patients with severe FEH manifestations, the lesions were located throughout the oral mucosa, affecting upper and lower labial mucosa, left and right jugal mucosa, the patient tolerated well the treatment and without complications.

Pérez et al. in the Dermatology service of the children's hospital of the Instituto Materno-Infantil of the State of Mexico, describe that one of the therapeutic management in FEH is the application of 35-80% TCA, repeating the applications with the acid at fortnightly or monthly intervals until the disappearance of the lesions, reporting a complete resolution between four and five sessions, they affirm that the surgical option is not contemplated due to the trauma generated in the surgical act [14,15]; coinciding with the therapeutic policies of FEH in the dental clinics of pre and postgraduate of the School of Dentistry of the Cartagena's University, Colombia. In the current report, 80% TCA was applied on patients with HEF, showing a complete resolution of the lesions after ten sessions, it should be noted the lesions with a larger diameter and height, required more applications with acid than those of smaller size, the patient showed no discomfort and showed good adherence to the treatment.

Conclusion

The TCA as a therapeutic alternative for FEH demonstrated to be an effective technique, besides of the achieve in the resolution of the lesions, is not traumatic and it did not generate anxiety or fear on the patient.

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