

Sclerotherapy with Copper Threads for Vascular Lesions Report of a case

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Abstract

At the level of the oral cavity the vascular lesions appear with relative frequency; Can grow exaggeratedly, generate functional and aesthetic problems, as well as preclude conventional surgical therapy due to the aggravating consequence of profuse haemorrhages. It is proposed to show combined sclerotherapy of corticosteroids with copper threads as an alternative for the treatment of oral vascular malformations, achieving greater coagulation, fibrosis and total excess of the lesion by reporting a case.

Keywords: Sclerotherapy, Copper Wires, Vascular Lesions, Fibrosis, Intralesional Corticoids. Telangiectasic Granuloma, Lobular Capillary Hemangioma

Introduction

Vascular lesions are among the most frequent in the oral cavity. They present as nodular lesions of various sizes and can be single or multiple. They are manifested in a range of colours, which is associated with the level of the lesion; From Pink (deep lesions) to purpura red (superficial). The violet or blue colour occurs in lesions with small and deep vascular spaces, with a mixture of arteriovenous capillaries (1).

The last classification of these lesions was the one accepted in Rome in 1996 by the International Society for the Study of Vascular Anomalies (ISSVA) with an update in 2014. They are grouped according to their aetiology in alterations of vascular development (hemangiomas, vascular malformations); Reactive (pyogenic granuloma, giant cell granuloma) and neoplastic (angiosarcomas) (2).

A variant of these lesions, called the hemangioma, may appear at birth or in later periods of the individual's development. In some cases, the growth of the hemangioma stops being inactive, while in others it may involute. Reactive hyperplasias, another group of these lesions, are produced in response to chronic injury. They are considered an exaggerated response of repair tissues, without compromising a bacterial etiology. The pyogenic granuloma also called Telangiectasico or lobular capillary hemangioma is the most representative of this type of hyperplasia (3) (4).

The term "hemangiomatous granuloma" is introduced by Angelopolou AP in 1971 because of its histological

characteristics resembling a hemangioma and an inflammatory nature of pyogenic granuloma (5).

In the oral cavity, it may be the reaction product of a rough surface, caused by a dental calculus, a carious surface, an overflow seal, a post-extraction bone spike, orthodontic and prosthetic appliances, among others. Hormone activity that increases during menstrual periods and pregnancy may also affect the degree of inflammation of this lesion. In these cases, it has been called pregnancy epulis and reports show its location especially in the gingiva (6) (7).

It may present as a soft, smooth, shiny red, pediculated lesion that bleeds easily and can show the appearance of a raspberry. Sometimes it is mistaken for a malignant tumor. No differences in age or gender incidence (3) (8).

It comprises 1.8% of all oral biopsies, 75% in gingiva and higher frequency in the upper jaw. Although surgical recession is the treatment of choice, new alternatives such as embolism, cryotherapy, cryosurgery, laser therapy and infiltrations with ethanol, corticosteroids or sodium sulfate are reported (9).

In sclerotherapy; Procedure with the use of solutions such as corticosteroids, it is possible to irritate the internal lining of the vein. This causes the inflammation, adhesion of its walls and the clotting of the blood present in its interior. Later, as a result of the action of the corticoid, the vessel is reversed to fibrous tissue. Another treatment is the management with copper to induce vascular coagulation, although Few studies have reported effective results (10).

In dental practice, in large lesions, it is difficult to handle, due to the surgical therapy that can be complex and at great risk because of the possibility of profuse haemorrhages. For proper diagnosis and effective treatment, a good clinical examination, the verification of an injury with vascular implications, the careful recession of the lesion and the corresponding histopathological study are required. This explains why your care should be performed by a specialised clinician. In order to contribute to the knowledge of clinical and histopathological and alternative treatment aspects, a case of reactive vascular lesion with a diagnosis of lobular capillary hemangioma treated with copper wires with absolute effectiveness is related.

Objectives / Purpose of the study:

To show combined sclerotherapy of corticosteroids with copper wires as an alternative for the treatment of oral vascular malformations.

Method

Case Presentation:

Clinical aspect: A 52-year-old male patient, who consults for presenting an elevated lesion in the left upper lip with an evolution of four months, expresses painful

symptomatology for periods, feels discomfort and observes progressive growth, a difficulty for mastication and closure of the mouth.

At the clinical examination, a swelling with external asymmetry is observed on the left side of the lips. Fig. 1A.

In the interior of the mucosa of the lip, it presents a nodule of intense pink colour, of 4 cm of diameter and sessile (Fig.1B). After performing a photocopy, a red colour change is observed (Fig. 1B). The patient expresses as antecedent a trauma due to a strong blow to said area in an automobile antecedent.



Fig.1: A. Inspection of the lesion, frontal view. B. Nodular lesion of 4 cms in diameter, smooth surface, palpable bright and intense pink colour, lateral view. C. FNA, is defined as nature of the (vascular) lesion. D. Betamethasone Infiltration (0.3ml / 5mg)

Injury Inspection: The nature of the nodule is confirmed by means of an FNA (fine needle aspiration) (11), where a blood content is observed, which guides the careful procedure to be followed. Fig. 1C.

Treatment: Prevalence of paraclinical examinations: Complete blood count, PT (Thrombin time) and PTT (Thromboplastin time) with negative results, proceed to perform the defined therapy. Due to the elevated tendency to generate haemorrhage from this lesion, the possibility of performing an initial biopsy is ruled out. Infiltrations with

betamethasone solution (5mg / ml) are to be carried out. The treatment starts with a 0.3 ml infiltration volume every week for 3 weeks, in order to decrease angiogenesis. Fig. 1d. As reported in the literature, therapies should be multivariate to enhance effectiveness. The following treatment scheme was applied Fig. 2: A cerclage of the lesion with copper wires is performed 3 weeks after the infiltration Fig. 2A. For this, the copper wire is screwed in the external and basal part of the injury, secured with a protector. Fig. 2 B and C It is formulated with antibiotic and anti-inflammatory.



Fig. 2. A. Cerclage of the lesion in the basal area with copper wires. B. thread twisting. C. securing the terminals with a plastic protector to prevent laceration of adjacent mucosa

To record the progress of the procedure, controls are performed weekly. In the first week, there is an increase in the size of more than 5 cm. Fig. 3A. Control in the second week, there is an exacerbation of the lesion, where the nodule is larger, the eroded surface part and intense red colour Fig. 3B, C. The cerclage is continued for a total period of three weeks, At the end of which a partial regression of the lesion is observed. Fig.3D.

Results

Surgical excision is performed, following infraorbital and

infiltrative nerve trunk anaesthesia in the vestibular areas close to the lesion. The mucosa is incised horizontally and the tissue is dissected until the internal nodule is found which is consolidated or encapsulated.

Fig.4A without hemorrhagic reactions. Fig. 4B A compact, fibrous nodule with dimensions of 2 x 1.5 cm is obtained.

Fig. 4C and D Subsequent cleavage of the area is performed until complete cleaning of the surrounding area, the edges are remoulded, sutured and covered again with antibiotic and analgesic.



Fig 3. A. Control first week observe increase of size. B. second week post-insertion control with higher node volume. C. Ulcerated nodule. D. Third week. Involution of the injury

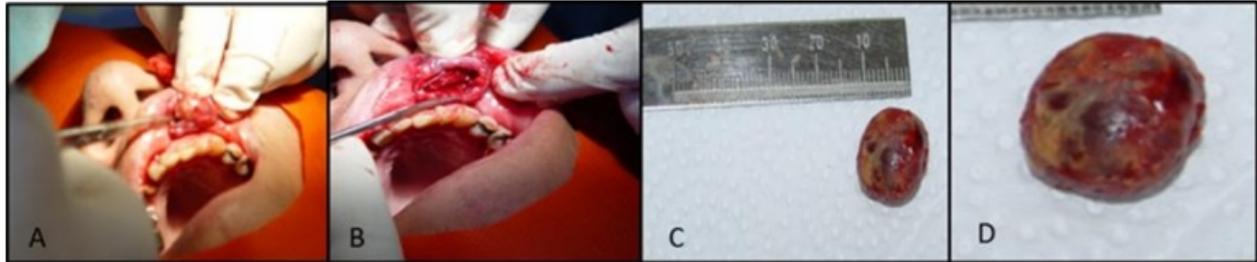


Fig 4. A. Resection of the lesion, a compact nodule is obtained. B. mucosal area free from the lesion and hemorrhagic reaction. C and D fibrous nodule of 2x1.5 cms

Histopathological Analysis: The samples were fixed in buffered formalin at 10%, sent to the histochemical process for inclusion in a paraffin block, obtaining several cuts of 5 μ each, observed under light microscopy (Leica® DM2750); Were archived in JPG format, through the program LAS V.3, own camera. The histopathological examination revealed a capsular covering of connective tissue, areas of fibrous thickening with tabications, inwardly with the presence of chronic inflammatory infiltrate an abundant proliferation of

endothelial cells and capillaries, and in the central area large sinusoidal blood lacunae. Giving rise to the diagnosis of Telangiectasic Granuloma or Lobular capillary Hemangioma (HCL).

The patient has had periodic checkups for a period of two years without recurrence or changes associated with the lesion. Discussion Clinically the differential diagnosis of HCL includes angiosarcoma, amyelinic melanoma (12) and its

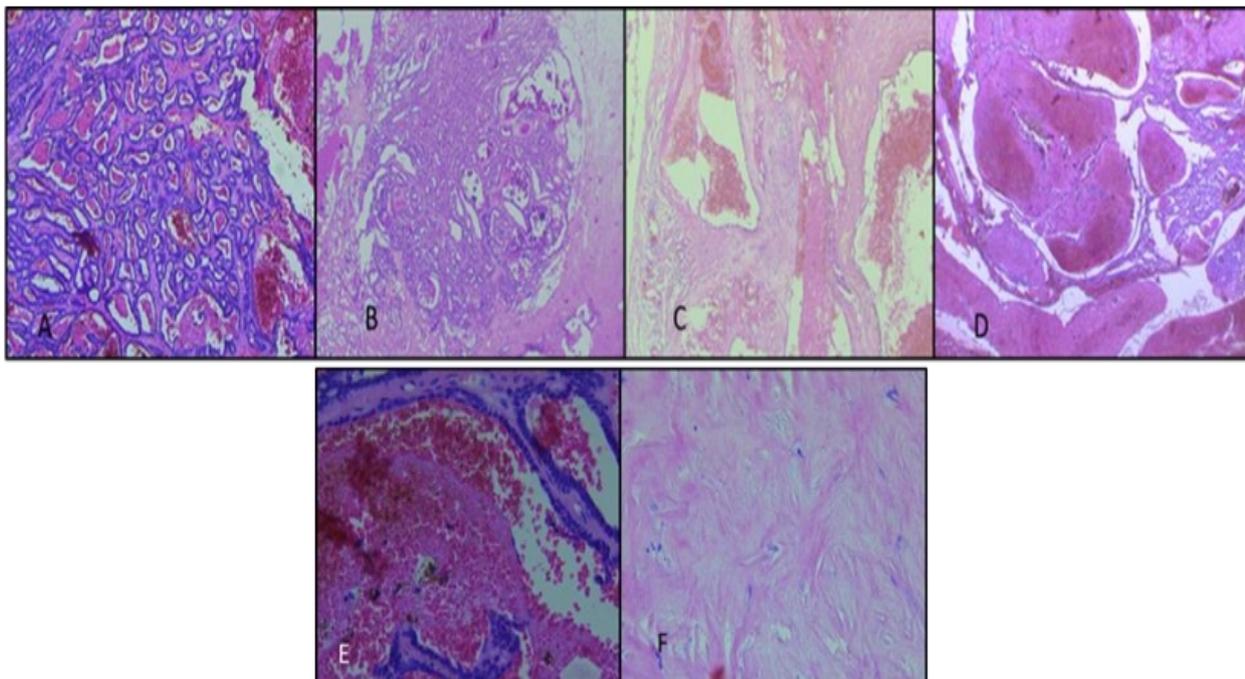


Fig 5. Histopathological analysis. Hematoxylin and Eosin stain. Optical microscope.

A. The proliferation of endothelial cells and blood capillaries. 4x magnification.

B. Vascular proliferation and capsule of connective tissue delimiting. 4x.

C. The presence of connective partitions ... 10x magnification.

D. Sinusoidal Blood Lagoons. 10x.

E. a large increase (40x) Laguna sanguinea bordered with endothelium.

F. Dense connective tissue septum



Fig 6. Control two years after treatment. **A.** The internal mucosa of scarred and unchanged lip. **B.** Front view with an optimum lip seal. No recurrence.

Discussion

Clinically the differential diagnosis of HCL includes angiosarcoma, amyelinic melanoma (12) and its pale pink surface appearance, a fibrous lesion (Fibroma) (13).

Diascopy and FNA are manoeuvres that guide the initial diagnosis towards vascular injury (11) (12). These procedures were carried out, in this case, allowing it to be considered as an inclusion criterion. Risk factors for developing telangiectatic granuloma in the oral cavity include hormonal changes, brushing trauma, previous dental extraction, root rests, exfoliation of a primary tooth, bone spicules, gingival inflammation, poor oral hygiene and presence of calculus, foreign bodies (3) (14).

The reported cases of large granulomas in the upper lip are scarce. The present case the lesion is considered large (2 x 1.5 cm). It has been recognised that vascular growth presents receptors for 17-beta estradiol in the cytoplasm and the effect of intralesional corticosteroids lead to the blockade of such receptors. For this reason, 0.3 mL applications were used in three appointments, with a 26-gauge needle and insulin syringe, with betamethasone corticoid (5 mg/ml), observing a change in the morphology of the lesion, as it leads to a decrease in the Angiogenesis. (15) The initial selection therapy was sclerotherapy with copper wires, but before choosing should analyse characteristics such as size, vascularity, location, hemodynamics among others.

The technique of cerclage with copper threads was chosen for being easy and safe. Local irritation is generated and intravascular coagulation is stimulated, and resorption of the clot reduces the lesion size, which favours subsequent surgical therapy. Coiffman in 2011, shows the effectiveness of this technique in multiple extensive venous malformations in head and neck, proving to be effective, simple and economical. Duarte-Chávez A et al (2014) report a case with equal effectiveness in lip lesion of less than 1 cm in diameter, using asterisked copper wires (16). No cases are reported with application to reactive lesions such as this presented.

The management of a vascular lesion is difficult to manage without previous treatments, as it can lead to uncontrolled haemorrhage that can complicate the patient's health. Once it is verified that the lesion achieved sclerosis (using an FNAB) with minimal bloody content, surgical therapy is the treatment of choice for a recession of the lesion.

Sclerotherapy and Surgical excision are the most commonly used treatments for hemangiomas. (17).

The biopsy is an effective diagnostic tool to confirm a clinical diagnosis, in this case, an Incisional biopsy could generate profuse haemorrhage, therefore it is decided to perform an excisional biopsy formed by a solid or semi-solid nodule. Its appearance reddish but with capsular shell considers the conformation of fibrous condition product of the reaction of the copper wires. Lysyl oxidase, the copper-dependent amino-oxidase protein, plays a decisive role, initiated with the Catalysis of the oxidative deamination of lysine and/or hydroxylysine, in the biogenesis of connective tissue matrices by cross-linking extracellular matrix proteins, Such as collagen and elastin (18).

Sclerosing therapy produces local, vascular, inflammation of the area, posterior fibrosis and vessel occlusion in addition to coagulation and reabsorption of the same (14). In this process, an initial increase of the lesion is presented and then an involution until it disappears or remains stable (10). The evolution that occurred in all phases in the present case. The histological characteristics of fibrovascular proliferation are in agreement with those reported by Cravioto / 04 (3), Loria / 09 (8), and Kamala / 13 (4). The nodule in this case reported, presented well circumscribed, well delimited related to due to fibrosis in the area, due to the sclerotherapy with copper threads, did not have inconveniences in performing the surgical excision.

Conclusion

The clinical and histopathological characteristics of the reported case are compatible with vascular reactive lesion called lobular capillary hemangioma or Telangiectatic granuloma. Vascular lesions are alterations of special care, for the dentists, it is of great help the diaphragm and the FNA to determine the nature of the lesion. The methods for their treatments are more effective if they are managed multivariate; Among the most employed, sclerotherapy and surgery may be considered the best choice.

Although copper therapy is affordable and easy to handle, more studies should be carried out on the feasibility and safety of the technique, as few cases are reported.

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