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ORIGINAL ARTICLE

Sclerotherapy in oral cavity hemangioma with glucose and ethanolamine oleate. Case reports

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Abstract:

Introduction: the hemangioma is a vascular lesion of uncertain etiology. It is most frequently observed in the head and neck region (50% of the cases). In the oral cavity, commonly affect the lower lip, tongue, jugal mucosa and palate. There are several therapeutic modalities to treat hemangiomas, among them; sclerotherapy stands out, since it represents a simple, comfortable, effective and low-cost method of treatment. **Objective:** compare the treatment between two sclerosing agents: the ethanolamine oleate 5% and glucose solution 50%. Side effects and period of treatment was also analyzed and illustrated with three clinical cases. **Material and methods:** three cases presenting diascopy blanching lesions, and vascular injury, were aspirated being collected bloody content, confirming the diagnosis of vascular injury, and establishing a clinical diagnosis of hemangioma. Infiltration anesthesia was applied at a distance, and slow implementation of sclerosing agents was injected, intralesionally. An interval of seven days between each application was maintained. Patients were asked about possible occurrence of side effects: burning, pain, swelling the region. **Results:** both sclerosing agents used in this study are efficient, easy to perform, with market availability and reduced cost. **Conclusion:** regarding the duration of the treatment, no significant difference between the sclerosing agents was observed, because both needed a few applications for the complete resolution of the lesions, no recurrence was observed and early side effects were pain, swelling, redness and burning.

Keywords: Hemangioma capillary; Sclerotherapy; Sclerosing solutions; Ethanolamine; Glucose.

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INTRODUCTION

Hemangioma is a benign vascular lesions considered as a malformation of endothelial origin[1,2,3]. The etiology can be associated with congenital anomaly (that promotes angiogenesis), physical trauma, endocrine stimuli and inflammation[4,5,6].

It is frequent in older individuals and females (3:1)[7,8]. Hemangioma's most common site (50%) is the head and neck region. In the oral cavity occurs in the tongue, buccal mucosa, and palate, but most commonly in the lips[1,4,8,9].

Clinically presents, as a sessile lesion, of variable-length, well delimited, with redish/purplish color, depending on its depth and location. It can be pulsatile, elastic on palpation and asymptomatic[5,8].

The diagnosis of oral hemangiomas can be achieved by clinical examination associated with maneuvers diascopy and aspiration[4,9]. The incisional biopsy is contraindicated for vascular lesions, due to the risk of difficult bleeding[5,8,10]. As differential diagnosis its reported racial or tobacco melanosis, oral melanoma, telangiectasia, angiosarcoma[1,4].

To better understand its physiopathology, the Diffuse Optical Spectroscopy (noninvasive imaging modality) can be used. The WH-DOS (Wireless Handheld-Diffuse Optical Spectroscopy) is a helpful tool on monitoring hemangioma's growth and involuting stages, by defining an index that measures tissue's hypoxia and vascularity, and correlates with clinical appearances, which may aid the management of decisions and quantify treatment efficacy[11].

Treatments for hemangioma depend on patient's age, lesion location, size, hemodynamics and viability of the technique according to the risks and complications of each one[3,4]. On infants, that presents function-threatening, rapid growth, ulceration or lesion in high risk areas, it was quotes the use of propranolol[6,9], or a new standard treatment based on a new generation of intense pulse light, called OPT(optimal pulse technology) that leads to a safer and more effective modality with few adverse effects[12].

Among the therapeutic modalities for oral lesions it has been described: proservation, conventional surgery, high level laser, cryotherapy, radiotherapy, embolization, corticosteroids therapy, interferon alpha therapy, chemical or physical sclerotherapy[2,4,5,6,7,10].

Sclerotherapy is the use of sclerosing agent to disrupt target tissue, decrease the size of the lesion and bleeding, indicated for treatment of vascular abnormalities[3,4,10,13,14].

The objective of this study is to quote the treatment of oral hemangioma with two sclerosing agents: the ethanolamine oleate 5% and hypertonic glucose solution 50%. Side effects and period of treatment were cited and this study will be illustrated with three clinical cases.

MATERIALS AND METHODS

This study followed Brazilian and international statutes criteria on ethics in research involving human beings; all participants signed a written consent form. This research was approved by the Ethics Committee of University of Sao Paulo, #2865397. Three patients were evaluated in the Specialization of Oral and Maxillofacial surgery at Foundation for Scientific and Technological Development of Dentistry at University of Sao Paulo (FFO-USP). Patients underwent anamnesis, intraoral physical examination and semiotechnique maneuver (diascopy and aspiration). Diascopy blanching lesions, which indicates vascular injury, confirmed the diagnosis of hemangioma.

The first evaluation consisted in observation of assymptomatic lesions that caused aesthetic complaints. Sclerosing agent was choosen aleatory and was injected, intralesionally, in the center of hemangiomas. The following evaluations or new injections occurred weekly until total remission.

cralesionally, in the center and in the deepest portion of the oral hemangioma. The dosage applied per session was proportional to the size of the lesion[3].

Patients were asked about local side effects: burning, pain, swelling and ulceration. To prevent or reduce such discomfort it was recommended the application of ice and use of analgesics.

1st case: M.T., female, 63 years old, asian, without systemic disease, presented a sessile lesion, with well-defined contour, in purplish color, measuring 5 mm, on the central portion of the lower labial mucosa (Figure 1A). Sclerotherapy was conducted with hypertonic glucose solution 50% (Figure 1B, 1C), on 3 applications, once a week, with dosage of 0.3 ml, till complete remission of the lesion. The patient complained of slight edema that came to remission in 72 hours (Figure 1D).

Figure 1. A - Clinical characteristics of lesion. B - Semiotechnique maneuver of aspiration. C - Presentation of hypertonic glucose solution 50%. D - Post Operatory of 31 weeks after treatment.

2nd case: K.L., female, 31 years old, African-American, with controlled hypertension, complains of two distinct lesions on the left side of oral mucosa (one near the mouth rhyme measured 15 mm and another near groove bottom with 7 mm). Patient reported an increase in volume recently and history of injury in the same place five years ago, treated with sclerotherapy, although did not know which agent was used. The lesions were well demarcated, sessile, in purplish color and pulseless (Figure 2A, 2B). Sclerotherapy was performed with 5% ethanolamine oleate (Ethamolin) diluted. It was used the dosage of 0.4 ml near mouth rhyme and 0.7 ml near groove bottom. Two applications were made for each lesion, with the dose for the second application of 0.2 ml and 0.4 ml, respectively (Figure 2C-F), when complete remission occurred (Figure 2H and I). After the first application, the patient complained of pain, swelling and small superficial ulcers, however, she reported that did very little ice application, on the contrary to what had been recommended by researcher.

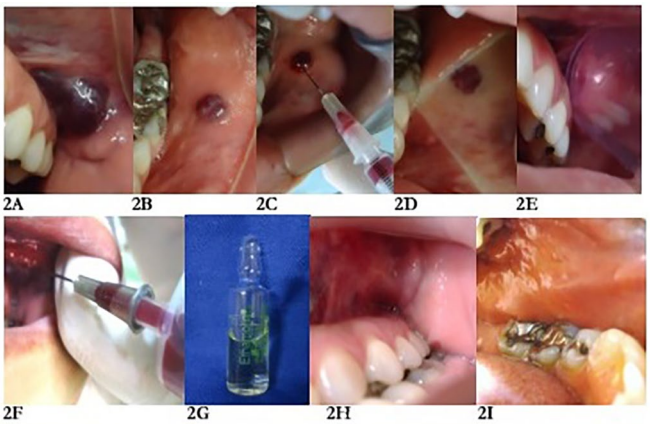

Figure 2. A and **B** Clinical characteristics of lesions (groove bottom and mouth rhyme). **C, D, E e F** - Semiotechnique maneuver (aspiration and diascopy). **G** - Presentation of sclerosing agent (Ethamolin). **H** and **I** - Post Operatory of 33 weeks after treatment.

3rd case: B.G.G, male, 85 years old, caucasian, without systemic disease, reported a lesion with well-defined contour, sessile, with purplish swelling, measuring 3 mm, located near the boundary of the vermilion border of the left lower lip (Figure 3A). Sclerotherapy was performed with 0.1 ml. of ethanolamine oleate 5% diluted (Figure 3B). Remission of the lesion occurred on the seventh day of postoperative period, without side effects (Figure 3C).

Follow up was of one year with no evidence of recurrence neither scars in all three patients.

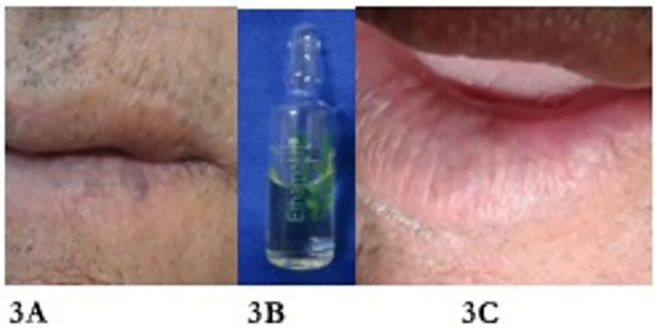

Figure 3. A Clinical Caracteristics of lesion. **B** - Presentation of ethanolamine oleate **5% . C** - P.O. 31 weeks after treatment.

DISCUSSION

Sclerotherapy is an effective therapy for oral hemangiomas, with diameter up to 20mm, because is conservative, non-invasive, with low-cost and low-complexity. It can be indicated before surgical excision of lesions with larger diameters, can be performed in an outpatient setting, giving security, ensuring patient comfort, being minimally invasive with reduced risk for bleeding and thromboembolism[4].

Sclerosing agent induces a controlled inflammatory response, described as a proliferation of fibroblasts, leading to sclerosis and thrombosis of the vessel, causing embolization[14].

The hypertonic glucose 50% is an efficient and safe agent, with low cost, easy to obtain and with fewer complications (allergies, systemic reactions and necrosis)[15]. The disadvantages of this modality is the burning sensation during the administration[4].

The ethanolamine oleate 5% is another efficient agent, with satisfactory hemostatic properties, that prevents bleeding after administration. The mechanism of action relays on the diffusion through venous wall, causing irritation in the endothelial intimal layer[4,10]. To be more effective, the agent must be diluted into distilled water, saline or dextrose solution, in 1:4 proportion as it was applied in this study[1].

In order to prevent tissue necrosis, ulceration and better distribution of the sclerosing substance, the agent should be injected slowly, with minimum pressure, intralesionally, in the center and the deepest portion[10]. The dosage should be proportional to the size of the lesion (1:1)[1]. The cases presented on this study, followed the protocol used by Bonan et al., with the application of a volume equivalent to the extent of the injury[3]. Even in larger lesions, the application must not exceed 2ml[1].

Side effects of sclerotherapy were described until 72 hours after application. Most common side effects are burning sensation, pain, swelling, redness and superficial ulcerations[2]. In the first case, treated with hypertonic glucose solution 50%, the patient complained of a slight edema but no major discomfort. The second patient presented discomfort and increased edema, however, also reported not following postoperative recommendations of external ice applications and use analgesics for three days.

Possible complications are skin necrosis, allergic reactions to sclerosing agents and anaphylactic shock(except glucose)[4]. The ethanolamine oleate's complications are associated with systemic dissemination that often occurs when the product reaches the inside of blood vessels, mainly arteries. Among them, literature mentioned: pleural effusion, pneumonia, edema, pyrexia, transient chest pain, thromboembolism, anaphylactic shock and renal toxicity (when more than 1ml). Generally, the complications are associated to the agent's dosage, the safe dosage per patient is 0,4ml/kg[2,4,10].

The ethanolamine oleate has low penetration into the vessel wall and less cytotoxic compared to the other sclerosing agents. When compared to the hypertonic glucose, it is faster in the destruction of endothelial cells layer, considered more capable of producing large endothelial desquamation and inflammation and recurrence rates are lower when proper technique is applied[10,14].

The effectiveness of hypertonic glucose solution 50% is still not clear, considering results and recurrences. In our study, the resolution of the lesion was complete and satisfactory, without recurrence. Reported pain from the application presents itself as only discomfort[14].

In the literature, it also described that fewer applications of ethanolamine oleate 5% were required for the remission of the lesion[10]. Corroborating with the literature, in our study 2 patients treated with ethanolamine oleate 5% required one and two applications to remission of lesion, while the third patient treated with hypertonic glucose 50%, required three applications for complete remission.

CONCLUSION

The sclerosing agents used in this study, hypertonic glucose solution 50% and ethanolamine oleate 5%, were efficient, easy to perform, with market availability and reduced cost, providing rapid and safe involution of the lesions, with minimal side effects. Regarding the duration of the treatment, there were no significant difference between the agents, and no recurrences, neither scars were observed.

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