COMMENTARY

Dentistry Treatment Guide for Patients with Hemophilia

Eduardo Rey, MD

Rey E. Dentistry Treatment Guide for Patients with Hemophilia. J Blood Disord Treat. 2019;2(1):7-9.

Key Words: *Hemophilia; Dental hemorrhages; Coagulable proteins*

There are multiple practices in dentistry that can cause bleeding. Under normal circumstances, the techniques to be performed can be carried out without major complications. However, patients with hereditary bleeding disorders such as Hemophilia present a potentially greater risk of intra- and postoperative bleeding. Hemophilia is a relatively uncommon disorder, but complex in terms of diagnosis and treatment. Oral and maxillofacial trauma, as well as routine dental care in early childhood, usually manifest the first clinical sign of the disease, such as hemorrhage. The aim of this guide is to set local guidelines in order to guide health professionals in different dental treatments to achieve an optimal state of oral health in order to reduce dental surgeries, and in the case of having to perform these, establish the correct strategies to reduce the risk of hemorrhage. Uncontrolled dental hemorrhages in time can with time threaten the patient's life. Thus, we assume that people with Hemophilia or other Congenital Hemorrhagic Disorders are a priority group for oral and maxillofacial preventive care [1-4].

LOCAL ANESTHESIA

The use of local anesthetics in patients with Hemophilia for pain control has been a challenge for both the dentist and the hematologist [3-8]. Currently, infiltration of different types of anesthetics can be performed locally.

The techniques we can use are the following:

Infiltrative technique:

- Terminal: requires slow infiltration
- Troncular of the Lower jaw: requires the protocol of administration of substitution treatment to avoid bruising and/or hemorrhage.

Intrapapillary technique: it is only used as a coadjuvant of terminal techniques. Intraligamentous Technique: effective in short treatments [5,6]. Substitution therapy is necessary for the regional technique used to block the inferior alveolar and lingual nerves; in the other techniques, in general, the application of antihemophilic factor concentrates is not necessary provided that the administration of the anesthetic liquid is slow to prevent the formation of bruises. Concentrate should be administered to raise the level of FVIII/FIX to ≥ 50%, 10 minutes before anesthesia. In other types of anesthesia, the hematologist in consultation with the dentist, can indicate a dose of FVIII/FIX to reach levels ≥ 30%.

SURGICAL TREATMENT

Patients who have hemophilia may have hemorrhagic problems, which is why we consider this entity to be the most severe at the oral level, in terms of bleeding [9,10]. There are variants to the local treatment, as for example in the case of having to treat trauma in children, often local treatment [suture] must be evaluated because sometimes this course of action causes greater trauma and bleeding. Replacement therapy is sometimes necessary. Spontaneous oral bleeding episodes are usually important during the replacement of dental pieces, since these, when these present mobility, attack the pericoronary sac of the permanent dental piece, which results in heavy bleeding, and usually ends with the extraction of the temporary tooth. In order to stop the bleeding local treatment with a caustic agent [30% trichloroacetic acid, bismouth sulphate, etc. [11-13].

The surgical treatment of these patients must be agreed with the hematologists to establish the protocol of prior and subsequent replacement therapy that together with the local hemostasis are the best method to prevent the bleeding complications so frequent in these patients. The surgical technique must be thorough and delicate to avoid unnecessary trauma, trying to protect the largest amount of alveolar bone, since this offers us the reservoir conductive maintaining the local hemostatic plug. Descrition of emergency injury of the upper lip frenum and/or to the dorsal tongue face. Due to trauma the frenulum is cut, producing hemorrhage. In dental replacement, local measures include compression, cold packs and urgent call to the professional. As for soft tissue traumas, such as tongue, braces, lips, etc. The dimension of the same should always be evaluated, since the suture criterion is always imposed if necessary as well as topifications with caustics. To this the indicated substitution treatment must be added.

LOCAL HEMOSTATIC AGENTS

Local hemostasis is an important pillar in the surgical treatment of patients with hemophilia, it is a matter of using the most convenient method from all points of view. Low cost, easy instrumentation and application, low infection risk etc. In cases of minor surgery, these hemostatics are sometimes used as the only prophylactic measure, while in medium or major surgeries they are used combined with systemic therapy since to optimize the latter. Local hemostatics are drugs that act locally and participate directly in the coagulation mechanism. They stop the bleeding because they produce an artificial clot or because they create a mechanical matrix that facilitates blood clotting when applied directly to the site of the hemorrhage. Keep in mind that all local maneuvers are effective. Below we will detail the most used, its mechanism of action and its mode of use:

A) Biological tissue adhesives

They are commercial preparations of two components, one is composed of protein concentrates (coagulable proteins, fibrinogen, FXIII, plasminogen) and aprotinin and another with a solution of thrombin and calcium chloride. These two components mix and give rise "in situ" to the transformation of fibrinogen into fibrin, which rapidly transforms into a white elastic coagulum that adheres firmly to the tissues. This fixation that imitates the last phase of normal human coagulation, is what allows the haemostatic, sealing and adhesive activities that characterize the product to develop. During the healing of the wound a total resorption of the biological adhesive takes place. The commercial preparation is provided with a fast-acting thrombin and a slow-acting one. The rapid is used for hemostasis and the slow to adhere to the tissues.

B) Bismuth Subgalate

It is a chemical compound used for several decades by many branches of medicine. It is used in dermatology, gastroenterology and especially in otorhinolaryngology where it is used in tosilectomies [14-16].

It is an intense yellow powder, odorless, insipid and opaque to the Rx [which allows its visualization in radiographs until its total elimination]. It is recognized for its antibacterial and hemostatic functions. Its hemostatic principles were studied "in vivo" and "in vitro" and are found in the activation of Factor Hagemman or FXII, accelerating the precipitating vascular proteins that obliterate the light of the glasses of small caliber. Pharmacies can prepare it easily and it is economic. Its mode of intra-surgical preparation is also very

Dentistry Academy of Argentina, Argentina

Correspondence: Eduardo Rey, President, Dentistry Academy of Argentina, Argentina. Telephone 005491144113817, e-mail edar656@gmail.com

Received: February 06, 2019, Accepted: April 10, 2019, Published: April 20, 2019

simple, it consists of making a mixture of bismuth Subgalate with anesthetic liquid with vasoconstrictor until obtaining a mass consistency, and this preparation is compacted into the bleeding surgical bed. From here arises the need for a conservative exodontia of alveolar cavities. It is rapidly eliminated, showing absence of radiological evidence at approximately 30 days.

C) **Plasma enriched in platelets**

At present the plasma enriched in platelets had a great exit in the field of maxillofacial surgery, especially in reconstructive and regenerative surgeries. The platelet-rich plasma just that, a volume of autologous plasma that has a platelet concentration above the physiological one. The concentration required to be considered is 300% higher than normal. Once obtained by means of special blood centrifugation techniques, the extracorporeal coagulation of the plasma is performed by the application of calcium chloride and thrombin in pre-established concentrations.

This technique should only be performed in specialized medical centers and under strict measures of biosafety and blood control.

Among its advantages it is observed:

a) Provides adhesion and tensile strength for the stabilization of the coagulum.

b) Safety, since it uses autologous plasma.

c) Biologically acceptable for tissues.

d) Contains important healing factors released by platelets.

e) It promotes angiogenesis.

f) It has a high concentration of leukocytes, which reduces the risk of infections.

g) It contains a mesh rich in fibrin, which is osteo-conductive.

D) **Fibrillary micro collagen**

They are commercial preparations that act as a mechanical matrix to trigger coagulation. Their function is to attract platelets to trigger aggregation when applied directly to the bleeding site.

E) Lyophilized swine skin

Commercial preparation whose high content of collagen allows to mimic the action of micro fibrillary collagen.

E) **Oxidized cellulose**

It allows the formation of a matrix that stops the deposit of fibrin and the propagation of the blood clot. May slow healing

F) **Trichloroacetic acid (30%)**

It is a caustic of local action. It is indicated especially in capillary haemorrhages in mucous membranes. It has the advantage that since it is a self-limiting acid [it is inactivated when combined with a certain amount of substrates] it does not act on the depth of the tissues.

G) **Antifibrinolytic preparations**

The antifibrinolytic agents act in molecular form by occupying the sites of plasminogen activation and the plasmin receptor for fibrin. This slows the lysis of the clot and improves its hemostatic properties. The most recognized drugs are aminocaproic acid and tranexamic acid [17-19].

Tranexamic Acid: The use of 10 mI mouthwash. Tranexamic Acid 5%, 4 times a day, for 7 to 10 days, is recommended to prevent post-treatment haemorrhages as well as 25 mg/Kg orally every 6 hours from 5 to 10 days. For children, doses should be adjusted according to age and weight.

E-amino caproic acid (EACA): It can be indicated orally 50-75 mg/kg of weight every 6 hours or as an orientation it is suggested to administer 2 or 3 ampoules orally every 6 hours [20-24].

The post-surgical suture is performed routinely, without exception, since it offers great advantages in hemostasis and postoperative evolution, preventing the consequent edema separating the lips from the wound. In the case of outpatient surgery, the patient must remain at rest for a few minutes before withdrawing once the surgery has been completed, in order to check the definitive hemostasis and explain the corresponding care [25-28]. These instructions differ from those given to a normal patient, since all that is indicated has as main objective the stability of the clot. It is indicated that the temperature of the food to be ingested is natural or cold, neither hot nor warm, since the heat causes dilation vessel and increases the possibilities of bleeding [29-31]. This type of feeding should be followed for approximately six or seven days with intermediate controls of the wound by the surgeon. The gauze dressing that is placed on the wound to protect it should remain in place between five and seven hours [the time when the clot will probably be stabilized].Spitting is contraindicated, but the hygiene of the remaining dental pieces is not impeded. The post-surgical controls of these patients should be carried out as many times as possible, to follow their evolution and prevent haemostatic alterations.

REFERENCES

1. Médicos Tratantes de personas con Hemofilia. Guía de Tratamiento de la Hemofilia. Consenso de Médicos especialistas en Hemofilia de la República Argentina. Fundación de la Hemofilia; 1º Edición Julio 2011.
2. Eduardo R, Miryam P. Guidelines for treatment of hemophilia.
3. Brewer A, Correa ME. Guidelines for dental treatment of patients with inherited Bleeding disorders. Treatment of Hemophilia. 2006.
4. Anderson JA, Brewer A, Creagh D, et al. Guidance on the Dental management of patients with Haemophilia and congenital bleeding disorders. Br Dent J. 2013;215:497-504.
5. Per Axelssoon. Preventive materials, methods and programs. Quintssence Publishhing. 2004; 4:662.
6. Ruiz Argüelles GJ. Hematología. 2nd ED Panamericana. 1998.
7. Brook AH, Bedi R, Chan Lui W. Haemophilicpseudotumours of the mandible: Report of a case a one year old child. Brit J Oral Maxillofac Surg. 1985;23:47-52.
8. Conley S, Ellison M. Avoidance of primary post-tonsillectomy. Hemorrhage in a Teaching Program. Arch Otolaryngol Head Neck Surg. 1999;125:330-3.
9. Ruiz Argüelles GJ. Hematología. 2nd ED Panamericana. 1998.
10. Rey E. Treaty of Oral and Maxillofacial Surgery . 2nd Edición Cap. 2009
11. Rey E, Castillo W. Dental Extraction in patients with haemopilhia and inhibitors. Inhibitors in patients with Haemopilhia" de Rodríguez Marchan, C and Lee, C. 2002; Chapter 29:183-4.
12. Rey E, Parreyra M, Castillo W. Como abordar el tratamiento quirúrgico bucal en pacientes considerados de alta complejidad. Revista del Ateneo Argentino de Odontología. 2000;2:6- 10.
13. Roldan BM, Navarrete HF, Cedillo S. Pseutumor Hemofílico en Mandibula. Reporte de un caso. ADM. 1980;37:310- 2.
14. Sorensen W, Henrichsen J, Bonding P. Does bismuth subgallate have haemostatic effects in tonsillectomy? Clin Otolaryngol. 1999;24:72-4.
15. Throrisdottir H, Ratnof O, Maniglia A. Activation of Hageman. Factor [factor XII] by bismuth subgallate, a hemostatic agent. J Lab Clin Med. 1988;112:481- 6.
16. Tramontina V, Machado M, Nogueira Filo R. Effect of bismuth subgallate [local hemostatic agent] on wound healing in rats.Histological and histometric finding. BrazDent J. 2002;13:11- 6.
17. Sindet- Pedersen S. Distribution of tranexamic acid and plasma and saliva after oral administration and mouth rinsing: a pharmacokinetic study. J ClinPharmacol. 1987;27:1005-8.
18. Sindet- Pedersen S, Stenbjerg S. Effect of local antifibrinolytic treatment with tranexamic acid in hemophiliacs undergoing oral surgery. J Oral MaxillofacSurg. 1986;44:703-7.
19. Sindet- Pedersen S, Stenbjerg S, Ingerslev J. Control of gingival hemorrhage in hemophilic patients by inhibition of fibrinolysis with tranexamic acid. J Periodont Rest. 1988;23:72-4.
20. De Sousa SM, Piratininga J, Pinto D et al. Hemophilic pseudotumor of the jaws: Report of two cases. Oral Surg Oral Med Oral Pathol Oral Rad. 1995;79:216-9
21. MartinezLage J, Sanchez H, Garcia J et al. A Pseudo-Tumor of the mandibule in a Haemophiliac patient: A case report. J. Max.-fac. Surg.1983;11:171-3.

22. Marquez J, Vinageras MD, Dorantes S, et al. Hemophilic pseudotumor of the inferior maxilla. Report a case. Oral Surg. 1982;53:347-9.

23. Mulkey T. Hemophilic pseudotumor of the mandibule. J Oral Surg. 1977;35:561-8.

24. Rey E, Perez Bianco R, Tezanos Pinto M. Evaluation of haemostatic effectivity with a local biological tissue adhesive and bismuth subgallat in oral surgery in haemopilhia patients: Comparative study. Haemopilhia. 2002;8:16.

25. Callanan V, Curran A, Smyth D. The influence of bismuth subgallate and adrenaline paste upon operating time and operative blood loos in tonsillectomy. J LaryngolOtol. 1995;109:206- 8.

26. Fenton JE, Blayney W, O Dwyer T. Bismuth Subgallate - its role in tonsillectomy. J Laryngol Otol. 1995;109:203- 5.

27. Grady B, Leibold, D Triplett R. Hemophilic pseudotumor of the mandibule: Report of a case. Oral Surg Oral Med Oral Pathol. 1990;69:550-3.

28. Halfpenny W, Fraser J, Adlam D. Comparison of 2 haemostaticagent for the prevention of postextracction hemorrhage in patients on anticoagulants. Oral Surg Oral Med Oral Pathol Oral RadiolEndod. 2001;92:257-9.

29. Johnson W, Leary J. Management of dental patient with bleeding disorders: review and update. Oral Surg Oral Med Oral Pathol. 1998;66:297-303.

30. Russo G, Corso l, Biasiolo A. Simple and safe method to prepare patient with prosthetic hearts valves for surgical dental procedure. ClinAppl ThrombHemost. 2000;6:90-3.

31. Rey E. Treaty of Oral and Maxillofacial Surgery . 2nd Edición Cap. 2009.