Risk of bleeding in oral surgery in patients with disorders of haemostasis

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In this issue of the Journal there is a squaring of circles: in their article, "Autologous plasma rich in growth factors in the prevention of severe bleeding after teeth extractions on patients with bleeding disorders: a controlled comparison with fibrin glue"[1], a group of authors from Turin demonstrate the effectiveness of plasma rich in growth factors (PRGF) in controlling bleeding after dental extractions in patients with haemophilia. In this fascinating study there were no risks related to the use of blood derivatives, yet good haemostasis and healing of soft tissues were achieved. In other words, the post-extraction socket healed better and faster (which can prevent further bleeding). Typically, in clinical experience, bleeding complications occur on the third day following surgery[2], at the time at which the clot that fills the sock is undergoing reorganisation, so a product that accelerates the initial process of healing of the mucosa is positive. Furthermore, the anti-inflammatory and anti-oedema effects of the method itself may reduce the need for pain killers.

In these years I have dealt with oral surgery in patients with diseases of the haemostasis, and if I were to condense into a single word what I have gained from the experience and what allows us to treat our patients in the best way possible, it would be "collaboration"[3].

The mouth, or rather, the oro-maxillo-facial district, has always been considered an almost alien field in medicine, as if it has its own physiology and pathophysiology. In part, but only in part, this may be true: in the 30 centimetres forming the head and neck there are a large number of structures, connections and interfaces at various levels. This aspect is well known to physicians treating facial pain, which is a particular branch of pain therapy.

My personal impression is that the legal and teaching systems have, in recent decades, at least in Italy, helped to make a further divide, creating degrees in Dentistry (DDS) and in Medicine (MD). It would seem that graduates in Medicine should deal with the whole body, except the mouth, while graduates in Dentistry are dedicated to the oral cavity overlooking the body in which it is located. "*Faraway, so close!*".

Nevertheless, oral surgery in bleeding diatheses is a situation in which the two professions must work in close contact with each other, each within its field of excellence, but necessarily merging their knowledge, making no distinction between the type of degree obtained. The peculiarities of oral surgery complicate the control of haemostasis, particularly in patients with bleeding diatheses.

First, the surgery is usually not performed under general anaesthesia. For this reason, the local control of analgesia must be flawless: the response to painful stimuli activate the sympathetic system with imaginable consequences for haemostasis. This is why techniques of conscious sedation and monitoring are indicated in such patients; indeed, conscious sedation, in order to prevent complications, is part of our standard protocol[4].

Secondly, oral surgery is frequently performed in an outpatient clinical setting, which is why compliance, the patient's cooperation, is essential. The patient should be informed very clearly what to do, when it is appropriate to apply to services because of an emergency, and when it does not.

Generally, drains are not positioned, so objective quantification of any bleeding is complex. This is demonstrated in the literature: even though there are numerous studies that consider the complication of "bleeding" in haemophilic patients, there is no validated quantitative method for measuring the bleeding, which is merely assessed qualitatively (I, myself, have been faced with this problem, quantifying maximum bleeding as mild, moderate, or severe).

Post-operative bleeding in the oral cavity is also difficult to quantify, by the patient even before the clinician, for another reason: the presence of saliva. Saliva plays a fundamental role in maintaining the health of the oral cavity, as demonstrated by the damage to the mucosa of the mouth and teeth in people with xerostomia. However, although saliva contains lysozymes and growth factors that help the healing of wounds (think of dogs, which lick their wounds), its action, together with the movements of mastication, phonation and much more of sucking, can traumatize the wound, tear out the clot from a socket and cause post-extraction bleeding to resume.

The socket is another crucial point: after a tooth extraction, wounds that did not require an incision of the mucosa and a mucosal flap cannot be closed by primary intention. A suture can be applied over the

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socket to stabilise the clot or a local haemostatic, widely described in literature, can be used. Then, nature must take its course: the extraction sites are made to heal by secondary intention.

Although it has some drawbacks, teaching dentistry as a separate Degree has also given its fruits: in the last 30 years, thanks to the fact that a Degree in Dentistry was established, dentistry has become a science, which is why we now know how the socket heals. Important studies, especially in Sweden, showed that the socket heals with formation of a stable clot, followed by migration of epithelium onto the clot and remodelling of the alveolar bone[5].

In 1994, first Pairot Tayapongsak[6], followed by Robert E. Marx[7] (both DDS), introduced the use of platelet concentrate, a blood derivate very appreciated in orthopaedic surgery, into oral surgery. Several methods of production of this blood derivate have been adopted, so the compositions and even the names of the product differ (e.g., platelet-rich plasma, autologous fibrin adhesive, plasma rich in growth factors, platelet-rich plasma and leucocytes). As often happens, in the first period, on the wave of enthusiasm, the different methods of preparation often created problems related to the identification of the product that was used.

One of the main problems that we encounter in oral surgery is the lack of bone structure, due to trauma, neoplastic disease, or simply atrophy due to loss of teeth. The basic idea was that the autologous plasma (more or less rich in platelets or growth factors) would improve and accelerate bone regeneration. The preliminary results of this promising new method were, however, tempered by retrospective studies: now autologous plasma rich in platelets is believed to accelerate healing of soft tissue but its effect on hard tissue is limited to making the handling of bone grafts easier.

Fibrin glues, prepared from homologous blood, have been available for a long time for haemostasis in surgery; however, their use is justified (even according to the AICE guidelines) only as a second-line treatment, when local haemostatic measures have not been effective. They are limited by their high cost, in both financial and biological terms, especially in patients treated with recombinant factors.

Current legislation provides that the process of concentrate preparation must be certified by the local blood transfusion centre. Many systems are commercially available for the preparation of these products from blood taken by simple venepuncture and then centrifuged. If the centrifuge is registered as a medical device, it can be used during surgery, in the operating room itself, to prepare the product in real time. The only drawback is the cost, which is comparable to that of heterologous fibrin adhesive, but immensely higher than that of other local haemostatic measures (such as sponges of oxidised cellulose, tranexamic acid), although, probably, more effective.

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