

Use en autologous plasma in abdominoplasty – previous note

Uso de plasma autólogo em dermolipectomia abdominal - nota prévia

ANGÉLICA MARIA SCHETTINO; DIOGO FRANCO VIEIRA DE OLIVEIRA, TCBC-RJ; TALITA ROMERO FRANCO, ECBC-RJ

A B S T R A C T

Autologous plasma began to be studied in the 90's, mainly because its adhesive and angiogenic properties and the presence of growth factors of platelet origin. In fact, plasma can be isolated from autologous manner, from the patient's own blood and obtained in its two parts: a high concentration of platelets (platelet-rich plasma – PRP) and one with low concentration of platelets (platelet-poor plasma – PPP). The present study is in development at the Clementino Fraga Filho University Hospital, Federal University of Rio de Janeiro (UFRJ-HUCFF) and Marcilio Dias Naval Hospital (HNMD), both in Rio de Janeiro. The objective is to evaluate the properties of platelet-poor plasma, particularly its adhesive action, in patients referred for restorative abdominal dermolipectomy, to reduce postoperative collections, such as hematoma and seroma, two major complications in this type of surgery.

Key words: Reconstructive surgical procedures. Wound healing. Tissue adhesives. Platelet-rich plasma.

INTRODUCTION

The platelet-rich plasma has important properties that help in healing and reduce postoperative swelling and fluid collection, hematoma and seroma. After activation with autologous thrombin, it displays adhesive power, and it can be termed platelet gel, in the case of platelet-rich plasma (PRP) or biological glue, in the case of the use of the less concentrated portion – platelet-poor plasma (PPP). Among its properties there are still the hemostatic and angiogenic ones, deriving from the large amount of platelet growth factors in the plasma^{1,2}.

The research with autologous plasma is being carried out in patients who require restorative abdominoplasty at the Clementino Fraga Filho University Hospital and Marcilio Dias Naval Hospital, both in Rio de Janeiro, and it has been approved by the Ethics in Research Committee. The study thus accompanies the recent world studies² in search of biological sealants, with the advantage of being an autologous blood component, which also causes, as it indicates, a decrease of the most frequent complications in the postoperative period of patients undergoing surgery with detachments and large flaps – the seroma. The plasma is presented as a good choice for industrial adhesives, which have similar properties of adhesion and hemostasis, but with higher costs and also

the risk, albeit small, of viral transmission and allergic reactions.

METHODS

The plasma is isolated from blood collected from the patient during anesthesia. The collected blood is taken to the hematology laboratory and, according to an already established protocol^{3,4}, subjected to centrifugation for a period of ten minutes at 400G. With this procedure, there is separation of the plasma, red blood cells and an intermediate layer, called the fog zone or *buff coat*, composed of leukocytes. The plasma is separated and submitted to another centrifugation, this time at 800G, also for ten minutes. The volume is then reduced to a third, separating a portion rich in platelets (one-third of the total) and one with a slightly lower concentration (two thirds of total volume). Both have platelets and thus growth factors.

The plasma is mixed with (also autologous) thrombin before being used. (Figure 1)

Thrombin is added to the plasma in order to obtain the gelation of plasma. The production of thrombin also follows the same obtaining protocol¹, with inclusion of calcium, a compound that serves as thrombin activator.

Study conducted at the Clementino Fraga Filho University Hospital, Federal University of Rio de Janeiro (HUCFF-UFRJ) and Marcilio Dias Naval Hospital (HNMD) - Rio de Janeiro - RJ, BR.

1. Master's Degree Graduate, Plastic Surgery Service, HUCFF-UFRJ – Rio de Janeiro, Brazil; 2. Associate Professor, Plastic Surgery Service, HUCFF-UFRJ – Rio de Janeiro, Brazil; 3. Professor, Plastic Surgery Service, HUCFF-UFRJ – Rio de Janeiro, Brazil.



Figure 1 - Autologous plasma (reservoir) and thrombin (syringe) before being used.

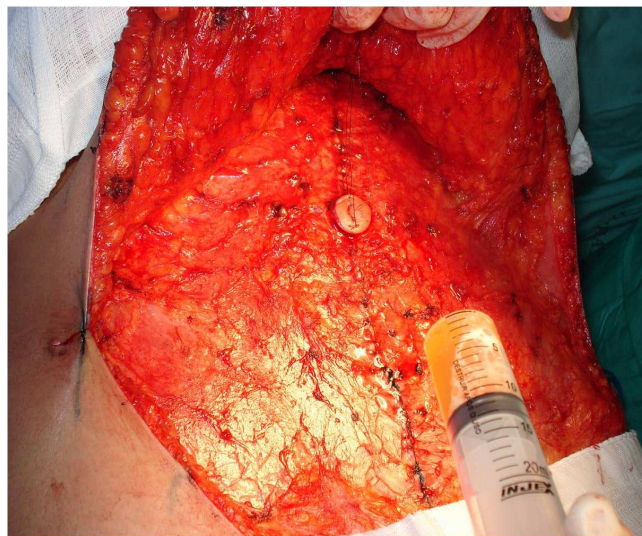


Figure 2 - Application of plasma before suturing the flap.

To date, we analyzed data from 12 patients undergoing abdominoplasty using autologous plasma in its less platelet-concentrated portion – biological glue (Figure 2).

Initial results

There was a reduction in the time of continuous suction drain, normally used in this type of operation because of the large detachment. There was also reduction in the number of seromas and, therefore, in the number of aspiration punctures in the postoperative period after removal of drains. The longest follow-up of ambulatory patients is three months.

Comments

The research results are still preliminary and need further study, but show promise. There seems to be a reduction in postoperative collections, mainly seroma, reducing the need for punctures in the office and the time of permanence of continuous suction drains. All that at low cost, resulting only from the use of syringes, test tubes and the structure of the laboratory, with centrifuges and laminar flow, present in any hospital environment.

The research will continue in order to increase the number of patients undergoing the procedure with autologous plasma usage and the data will be analyzed in comparison with literature data and with a control group.

RESUMO

O plasma autólogo começou a ser estudado na década de 90, principalmente por suas propriedades adesivas, de angiogênese e pela presença de fatores de crescimento de origem plaquetária. Na verdade, o plasma pode ser isolado de modo autólogo, a partir do sangue do próprio paciente e obtido nas suas duas porções: uma com alta concentração de plaquetas (plasma rico em plaquetas- PRP) e outra com concentração baixa de plaquetas (plasma pobre em plaquetas- PPP). O presente estudo está em desenvolvimento no Hospital Universitário Clementino Fraga Filho, da Universidade Federal do Rio de Janeiro (HUCFF-UFRJ) e no Hospital Naval Marçílio Dias (HNMD), ambos no Rio de Janeiro. O objetivo é avaliar as propriedades do plasma pobre em plaquetas, principalmente a sua ação adesiva, em pacientes com indicação de dermolipectomia abdominal reparadora, de modo a reduzir as coleções no pós operatório, como hematoma e seroma, duas das principais complicações nesse tipo de cirurgia.

Descritores: Procedimentos cirúrgicos reconstrutivos. Cicatrização. Plasma rico em plaquetas. Adesivos teciduais.

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Correspondence to:

Diogo Franco

E-mail: contato@diogofranco.com