

EYE SURGERY

CORNEAL DISEASES

Severe **erosive corneal diseases**, **keratitis sicca** or keratoconjunctivitis sicca (KCS), **neurotrophic keratitis** benefit from topical application of autologous serum. This treatment is also indicated in several manifestations of the ocular **graft-versus-host disease** following bone marrow transplantation (Biology of Blood and Marrow Transplantation 2006;12:375-396). Serum and natural tears share common components, the serum containing higher concentration of growth factors, fibronectin, lysozyme, and vitamin A. Clinical cohort studies have reported its successful use for severe dry eyes and persistent epithelial defects. The topical use of autologous platelet concentrate in these ocular conditions is an update of treating with the autologous serum.

MACULAR HOLES

More than a decade ago the healing properties of the concentrated platelets have been used to support **macular hole surgery**.

In a study from the Cork University Hospital, Ireland (Minian et al. Br J Ophthalmol 1997;81:1073-1079) tamponade was performed using either sulfur hexafluoride (SF₆), perfluoropropane (C₃F₈), or gas plus TGF-β₂, or gas plus concentrated platelets. The results evidenced the superiority of gas plus platelets the healing rate resulting 75% eyes treated with SF₆ gas alone; 66% eyes treated with SF₆ gas and TGF-β₂; 96% eyes treated with C₃F₈ gas and platelet concentrate. Interestingly the edge of the macular hole was visible postoperatively only in 5% of the eyes belonging to the platelet treated group, compared to 33% in the SF₆ only group, and 40% in the SF₆ plus TGF-β₂ group.

In a pilot study performed at the University of Paris 7 (Gaudric et al. Graefes Arch Clin Exp Ophthalmol 1995;233:549-54) the effect of autologous platelet concentrate deposited on the macula at the end of surgery was evaluated. The anatomical success rate (and the improvement of the visual acuity as well) was 95% in the eyes treated with the platelets and 65% in the control group.

It must be emphasized that macular hole treatment requires a great number of platelets in a very minute volume (0.4-0.6 mL). To achieve a small volume of highly concentrated platelets a differential sedimentation technique is required. Furthermore, since a small volume of platelet concentrate is required, a small quantity of the patient's blood can be processed to achieve fully satisfactory products. **Plateltex® is the cheapest device that meet all these requirements.**