

# Effect of Autologous Platelet Concentrate in Surgery for Idiopathic Macular Hole

## Results of a Multicenter, Double-masked, Randomized Trial

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Michel Paques, MD,<sup>1</sup> Claude Chastang, MD, PhD,<sup>2</sup> André Mathis, MD,<sup>3</sup> José Sahel, MD,<sup>4</sup> Pascale Massin, MD,<sup>1</sup> Christine Dosquet, MD,<sup>5</sup> Jean-François Korobelnik, MD,<sup>6</sup> Jean-François Le Gargasson, MD, PhD,<sup>7</sup> Alain Gaudric, MD,<sup>1</sup> for the Platelets in Macular Hole Surgery Group\*

**Objective:** To evaluate prospectively the efficacy and safety of autologous platelet concentrate (APC) as an adjuvant in surgery for idiopathic macular hole.

**Design:** Multicenter, double-masked, randomized clinical trial.

**Setting:** Four university-based ophthalmology clinics.

**Participants:** One hundred ten patients with stage 3 or 4 idiopathic full-thickness macular holes of less than 3 years' duration were randomized (53 eyes to the platelet group and 57 eyes to the control group).

**Interventions:** Standardized macular hole surgery versus surgery combined with injection of an APC. In all cases, the procedure consisted of three-port pars plana vitrectomy, posterior hyaloid separation, and nonexpansile fluid-gas exchange. After the fluid-gas exchange, patients were randomized to receive either injection of an APC or no adjunctive treatment. After surgery, patients were positioned face down for 12 days. Platelet counts showed that the concentrates contained a mean of  $96.10^6$  platelets (range, 82–102).

**Main Outcome Measures:** Anatomic and functional evaluations were performed at 1, 3, and 6 months after surgery in a double-masked fashion by an independent observer. The main outcome was reapposition of the edge of the macular hole 1 month after surgery. Secondary outcomes were anatomic status at 3 and 6 months, changes in Early Treatment Diabetic Retinopathy Study score, and complications.

**Results:** One month after surgery, the anatomic success rate in the platelet group was 52 of 53 (98%; 95% confidence interval, 0.90–1.00) versus 47 of 57 (82%; 95% confidence interval, 0.70–0.91) in the control group ( $P = 0.009$ , Fisher's exact test; relative risk, 0.11; 95% confidence interval, 0.01–0.81). Visual acuity was not significantly different between the two groups at any timepoint. There were no complications specifically attributable to the platelet injection.

**Conclusion:** Injection of APC improved significantly the anatomic success rate of surgery for idiopathic macular holes of less than 3 years' duration, but postoperative visual acuity of the platelet group was not statistically different from the control group. *Ophthalmology* 1999;106:932–938

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