

Surgical treatment of idiopathic macular hole using different types of tamponades and different postoperative positioning regimen

Summary

Aim: To compare the effect of different types of intraocular tamponade and different types of postoperative positioning on the closure of an idiopathic macular hole (IMH).

Design: Prospective randomized clinical trial.

Methods: In this work we evaluate the surgical results of 104 eyes of 100 patients (76 women, 24 men) who were operated for IMH. The mean age of the patients was 70,8 years (57 - 87). The mean initial best corrected visual acuity (BCVA) was 0,15 (0,05 - 0,50). The mean extend of the macular hole at the narrowest point was 408,5 μm (133 - 741). All patients were operated using a 25-gauge pars plana vitrectomy (PPV) with internal limiting membrane (ILM) peeling under retrobulbar anesthesia. Patients were randomized into the following four groups: SF6 + reading position (n = 26), air + reading position (n = 25), air + prone position (n = 26) or SF6 + prone position (n = 27).

Results: The follow-up period is 6 months. Closure rate of all IMD was 83,7 % (In the 1st group 100 %, in the 2nd 56 %, in the 3rd 84,6 % and in the 4th group 92,6 %). The air tamponade + reading position group was statistically significantly less successful compared to the other three groups. Macular holes of size $\leq 400 \mu\text{m}$ were closed in 97,2 % of cases and there was no statistically significant difference between the groups. IMD with a size $> 400 \mu\text{m}$ were closed in 70.9 % of cases. Both groups with air tamponade were statistically significantly less successful compared to SF6 + reading position, but not statistically significant compared to SF6 + prone position. There were no statistically significant differences between the two groups with the air tamponade, as well as between the two groups with the gas tamponade SF6. The final average BCVA of the whole group improved to 0,56 (0,16 - 1,0). In terms of postoperative comfort and quality of sleep, the reading position was subjected to a better subjective evaluation. On the contrary, we have not shown better air tamponade tolerance than SF6 tamponade.

Conclusion: PPV with ILM peeling, intraocular tamponade and positioning remains the basic surgical approach in the treatment of IMH. For macular holes $\leq 400 \mu\text{m}$ the high closure rate can be achieved sufficiently with air tamponade with and reading position. For macular holes $> 400 \mu\text{m}$, the greatest anatomical success can be achieved by using the SF6 tamponade in combination with the reading position.