iovs investigative ophthalmology & visual science

June 2013
Volume 54, Issue 15
ISSUE

FREE

ARVO Annual Meeting Abstract | June 2013

Iatrogenic retinal breaks in 25-gauge air vitrectomy compared with the standard 25-gauge system for macular diseases

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Investigative Ophthalmology & Visual Science June 2013, Vol.54, 5788. doi:https://doi.org/

Abstract

Purpose: To compare the incidence rates of iatrogenic retinal breaks in eyes that underwent 25-gauge air vitrectomy and 25-gauge standard vitrectomy for macular diseases.

Methods: Retrospective, comparative, interventional study. We compared the incidence of iatrogenic retinal breaks in 197 eyes of 197 consecutive patients undergoing 25-gauge air vitrectomy (air-group) and 238 eyes of 238 consecutive patients undergoing 25-gauge standard vitrectomy (standard-group) for either idiopathic macular holes (MH) or idiopathic epiretinal membranes (ERM). All surgeries were performed by one surgeon at a single hospital. Main outcome measure was the incidence rate of iatrogenic peripheral retinal breaks discovered intraoperatively and postoperatively.

Results: The incidence rate of iatrogenic retinal breaks was significantly higher in the standard-group than in air-group (8% and 2% respectively; P = 0.005). The percentage of intraoperative retinal breaks was 6% in eyes undergoing standard vitrectomy and 2% in eyes undergoing air vitrectomy (P = 0.034). Retinal breaks were identified postoperatively in 5 eyes (2%) in the standard-group and no eyes (0%) in the air-group (P = 0.066). A postoperative rhegmatogenous retinal detachment developed in 2 eyes (1%) in the standard-group, whereas none in the air-group (0%). The incidence rate of retinal breaks in eyes that underwent vitrectomy for MH was higher in eyes that underwent standard vitrectomy compared with eyes treated by air vitrectomy (17% and 3%, respectively, P = 0.010). In ERM cases, the number of iatrogenic retinal breaks was higher in the standard-group than in the air-group (5% and 1%, respectively), with not quite statistically significant difference (P = NS). A statistically significant relation between posterior vitreous detachment induction and presence of retinal breaks was identified in the standard-group.

Conclusions: 25-gauge air vitrectomy is associated with a low incidence rates of iatrogenic retinal breaks compared to standard 25-gauge vitrectomy.

Keywords: 762 vitreoretinal surgery • 586 macular holes