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The Manchester Large Macular Hole Study: Is it time to reclassify large macular holes?

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ABSTRACT

Purpose: To evaluate anatomical and functional outcomes of full thickness macular holes (FTMH) larger than 400 microns following vitrectomy, internal limiting membrane peel, gas tamponade and face down posturing.

Design: A retrospective interventional case series

Methods: 258 consecutive eyes with FTMH larger than 400 microns were enrolled at the Manchester Royal Eye Hospital study over a 5-year period from 2012 to 2017. All eyes underwent pars plana vitrectomy, ILM peel and gas tamponade. Anatomical success rates were measured. A correlation between macular hole size and closure was evaluated.

Results:

A total of 258 eyes were analysed. The anatomical closure rate was 89.92%. When divided into quartiles, the closure rate of FTMH was 98% (64/65) in the 400-477 microns quartile, 91% (59/65) in the 478-558 microns quartile, 94% (60/64) in the 559-649 microns quartile and 76% (49/64) in the 650-1416 microns quartile. Using receiver operating characteristic and area under the curve analysis, the maximum sensitivity and specificity was obtained with a cut off ≤ 630 microns (sensitivity 76.7%, specificity 69.2%) giving a Youden index (J) of 0.46. One hundred and forty-six eyes (56.6%) improved by 0.3 LogMAR units from their preoperative best-corrected visual acuity at 3 months following surgery.

Conclusion:

This study shows that standard FTMH surgical repair has very high success rate up to 650 microns. It may suggest that there is a need for a re-classification of large FTMH, and new surgical techniques such as internal limiting membrane flaps should be reserved for macular holes larger than 650 microns.

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