

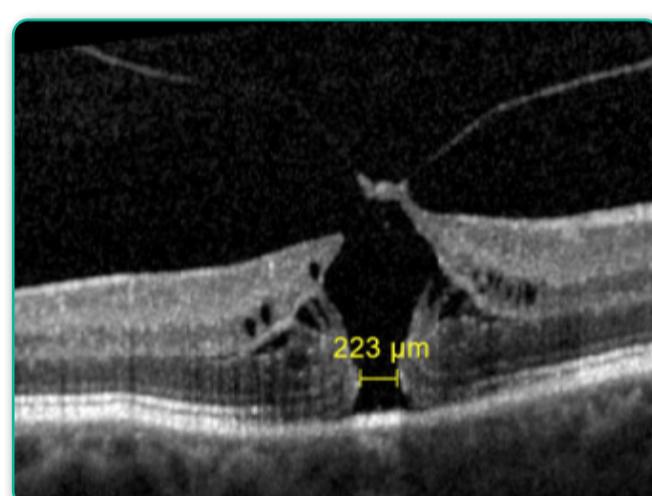
A Retrospective Audit of Macular Hole Surgical Repair Outcomes Over a Five Year Period in Glasgow Gartnavel Hospital

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Introduction

Macular hole repair is one of the most frequent indications for vitrectomy. Patients present with decreased visual acuity and metamorphopsia¹. 'The International Vitreomacular Traction Study Group Classification'² (IVTSG) is used to classify macular holes. A small macular hole has a minimum linear diameter (MLD) <250um; medium 250-400um; and large >400um. OCT calipers are used to measure macular hole size. The MLD is the narrowest point in the largest cross-section of the hole, parallel to the retinal pigment epithelium (e.g. see picture 1). Vitrectomy and ILM peeling is the preferred surgical treatment³. Anatomical success rates decrease with increasing MLD⁴.

Picture 1: OCT Image - MLD of a Macular Hole



Objectives

To find if macular hole repair surgery will be associated with macular hole closure post-operatively.

To determine if macular hole size pre-operatively predicts macular hole closure post-operatively.

To establish if macular hole repair surgery leads to an improvement in the patient's best-corrected visual acuity post-operatively.

Methods

Participant data was collected by two participating vitreoretinal consultants over 2015 – 2019. Only idiopathic macular holes were included. Seven variables were investigated: gender, age, eye laterality, macular hole closure, macular hole size,

Methods cont

pre-operative BCVA and post-operative BCVA. BCVA logMAR measurements were categorised into two groups: below driving vision which is worse than 0.3 logMAR, and above driving vision: equal to or better than 0.3 logMAR. Normally distributed variables were analysed via student t-test and categorical variables were analysed via chi-square testing.

Results

287 participants were included: 225 (78.4%) were female. Mean participant age was 69.6 years. Macular hole size is associated with gender ($p < 0.05$) (see figure 1). 148 (51.6%) of macular holes were classified as large according to the IVTGS classification (see figure 4). 94.7% of all macular holes, and 100% of holes <400 microns, were closed after one operation. Pre-operative (MLD) was predictive of macular hole closure post-operatively ($p < 0.01$) (see figure 2). Pre-operatively 7 (2.5%) participants had a BCVA of 0.30 logMAR (6/12 Snellen) or better. This increased to 132 (47.3%) (see figure 3).

Figure 1: Macular Hole Size in Males and Females

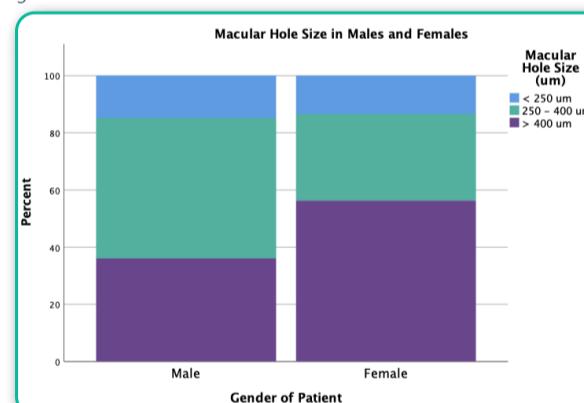
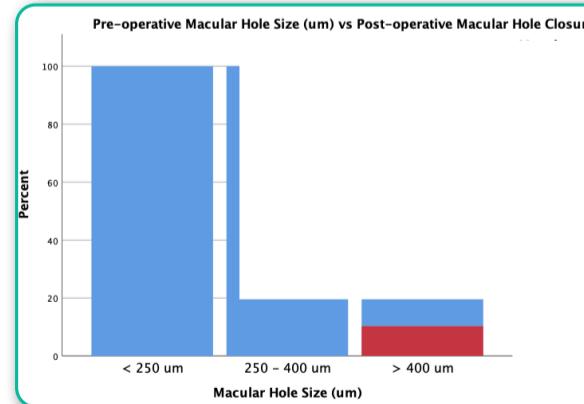
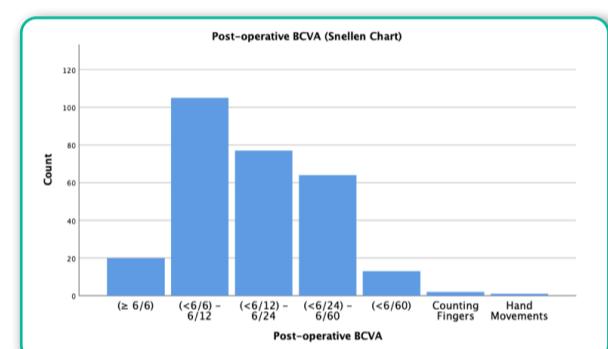
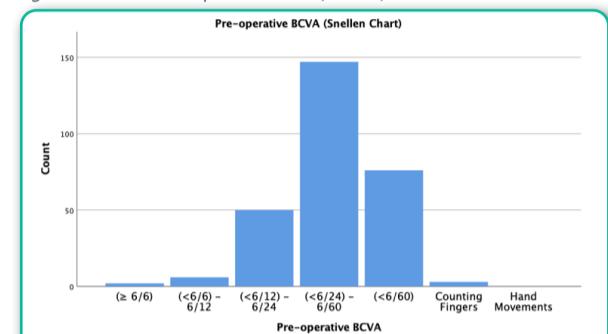


Figure 2: Pre-operative Macular Hole Size vs. Macular Hole Closure



Results cont

Figure 3: Pre- vs. Post-operative BCVA (Snellen)



Conclusions

Pre-operative macular hole size was a significant predictor of macular hole closure in this study. Macular hole surgery improves BCVA post-operatively.

Key Points

- Macular hole repair surgery closes macular holes.
- Increasing macular hole size is associated with macular hole closure failure post-repair surgery.
- Macular hole surgery improves post-operative BCVA. **The number of participants eligible to drive increased from seven to 132 post-operatively following macular hole surgery in this study.**
- Early macular hole referral improves post-operative outcomes.

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⁶ Foundation Year One Doctor, Glasgow Royal Infirmary.

⁷ Consultant Ophthalmologist, Glasgow Gartnavel Hospital.

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