Long-term outcomes of scleral buckle retinal detachment repairs done using the modified McHugh method

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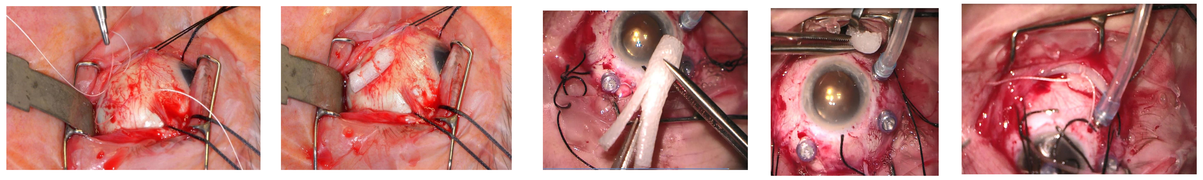
Introduction

Rhegmatogenous retinal detachment (RRD) is primarily treated either by external approach with scleral buckling, an internal approach with pars plana vitrectomy or both. The scleral buckling versus primary vitrectomy in RRD study showed that buckling had superior visual outcomes in phakic eyes [1]. Buckling has been falling out of favour over the last two decades and is quickly becoming a lost art of vitreoretinal surgery. We aim to look at the anatomical and functional outcomes using the modified McHugh method (MMM) of scleral buckling compared to the conventional method **(Figure 1).** This method is simpler perform and teach residents. It involves 4 muscle slings, identifying breaks, cryotherapy to breaks, placing encircling 276 silicone rubber explant and a 5mm radial plomb under the 276 if the break is posterior.

Methodology

We looked at all cases of scleral buckle performed using the modified McHugh method done at a single centre from 1st January 2010 till 31st March 2024. All surgeries were performed by either the senior fellow or consultant, with the consultant teaching the modified McHugh method present. Medical records were analysed for presentation, time to treatment and post-operative follow-up times and outcomes.

Figure 1: The modified McHugh Method



Sponge application Preplaced sutures

Insertion of sponge

Cut sponge lengthways

Slide buckle under tire in radial location of break

Suture sponge to tire to stabilise

Results

A total of 118 eyes from 113 patients who have had scleral buckle surgery since 2010. Of these patients, 32 eyes from 31 patients were performed using the modified McHugh method. The median age of patients was 32 years [IQR 20.5 – 48] and 16 (51.6%) were males. The right eye was affected in 19 (59.4%) of the eyes. Most of the retinal detachments were rhegmatogenous (n= 27, 84.4%), two (6.25%) were associated with retinal dialysis and one was a schisis detachment (3.2%). The median number of breaks is 2 [IQR 1-3], with the inferior location being the commonest n=18, 56.3%). The macula was off in 13 cases (40.6%) and off in 7 cases (21.9%). Only one (3.2%) patient was pseudophakic at time of diagnosis and four (12.5%) patients had proliferative vitreoretinopathy at the time of diagnosis. Median best corrected visual acuity at time of diagnosis was 0.3 [IQR 0.1 – 0.80]. Median time till surgery (from date of diagnosis) was 4 days [IQR 3-8 days]. Median follow-up time is 18.5 months [IQR 9-48 months]. The best corrected visual acuity achieved post-operatively was 0.3 [IQR 0.1-0.7] *(p=0.36)*. Anatomy was achieved in all at immediate post-operative FU and at 3-month interval.

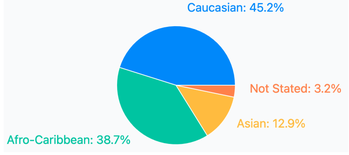


Figure 2: Patient ethnicity distribution

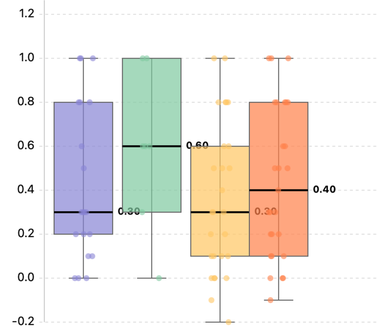


Figure 3: LogMAR Best corrected visual acuity at time of diagnosis (purple), 24 hours post-operatively (green), best acuity obtained post-operatively (yellow) and acuity at time of discharge (orange)

Conclusions

The national audit of the outcome of primary surgery for rhegmatogenous retinal detachment found that the overall reattachment rate with a single procedure was 77% (95% CI 73.9–80.2) [2]. They also found that over one third of patients had at least one complication noted at some point in the 3-month follow-up period and 6.35% retinas were not attached at 3 months post-operatively. The outcome of RRD repair by buckling from a tertiary centre in Scotland found a re-detachment rate of 9.23% [3]. Therefore, the modified McHugh method has anatomical and functional outcomes comparable with conventional outcomes with low re-detachment and complication rates. It is a cheap, simple to teach and widely applicable method to a range of RRD presentations.

Table 1: Complications in cohort of patients and their management

Complication	Management
Vitreous Hemorrhage	Further laser to breaks 1 month post-op
Secondary exotropia	Adult motility clinic
Re-detachment 10 years following surgery date	Multiple operations as had extensive PVR
Buckle exposure	Buckle removal 3 months later
Diplopia, restriction of EOM	Adult motility clinic
Induced myopia	Referred for refractive surgery

References

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