Comparison of Bilateral Medial Rectus Recession Versus Unilateral Recession Resection as Surgery for Monocular Esotropia without Amblyopia

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INTRODUCTION

- Esotropia is a common horizontal strabismus, often requiring surgical correction.
- In patients with monocular non-alternating esotropia, unilateral surgery is often easier to recommend, since parents may fail to understand why the non-deviating eye needs surgery.
- Bilateral symmetric surgery is preferred by some surgeons, as it is believed to be less likely to cause incomitance
- This study compared unilateral recess-resect (RNR) versus bimedial rectus recession (BMR) in patients with monocular esotropia without amblyopia.

METHODS

- This retrospective study included 32 patients with monocular esotropia with similar visual acuities in both eyes undergoing RNR or BMR at our institution between 2010 and 2023.
- Surgical success was defined as ocular horizontal deviation of 10 prism diopters (PD) or less.

RESULTS

- 32 patients were included. 16 in the unilateral recess-resect (R&R) group and 16 in the bimedial rectus recession (BMR) group.
- There were no statistically significant differences between the groups in sex, eye laterality, BCVA, mean follow-up and preoperative horizontal deviation at distance and near.
- Mean age at surgery was lower and mean spherical equivalent was less myopic in the BMR group
- There were no statistically significant differences at the near or distance deviation between the BMR and RNR groups at the end of follow-up
- **Success rates were similar between the BMR and RNR groups** at the end of the follow up period.

Table 1. Demographics and baseline characteristics

	RNR (n=16)	BMR (n=16)	P Value
Male	10	10	1.00
Female	6	6	
Age at surgery	16.5±7.5 [4.6-31.0]	11.1±5.5 [6.3-29.5]	**0.02**
Preoperative deviation near (PD)	36.2±11.3 [25-65]	34.4±12.5 [20-65]	0.67
Preoperative deviation far (PD)	27.5±3.5 [0-60]	28.2±11.4 [14-55]	0.92
Follow-up [Range] (Months)	9.8±7.2 [3.2-24.0]	12.7±6.8 [4.4-23.2]	0.26
spherical equivalent refraction	-1.0±3.5 [-8.1-5.0]	1.7±2.7 [-4.2-5.5]	**0.02**
BCVA (logMAR)	1.1±0.3 [1-2.0]	1.2±0.3 [1-2.0]	0.85

Table 2. Surgical outcomes and follow-up data

	RNR (n=16)	BMR (n=16)	P Value
Medial Rectus Recession size (mm)	5.4±0.6 [4-6]	5.0±0.6 [4-6]	0.15
Lateral Rectus Resection size (mm)	5.7±1.3 [3-8.5]	N/A	
Last follow up horizontal strabismus - near (PD)	4.8±5.5 [-4-20]	5.0±5.8 [0-40]	0.93
Last follow up horizontal strabismus - far (PD)	3.4±5.7 [-4-16]	2.3±4.7 [0-18]	0.57
BCVA (logMAR)	1.1±0.2 [1-1.6]	1.0±0.0 [1-1.6]	0.03
Residual esotropia of more than 10PD at near	2 (12.5%)	2(12.5%)	1.0
Residual esotropia of more than 10PD at distance	2 (12.5%)	1 (6.2%)	0.5
Stereoacuity (soa)	163.3±205.0	462.5±1027.4	0.63
Surgical success	**87.5%**	**87.5%**	**1.0**

CONCLUSION

- Unilateral and bilateral surgery have good surgical outcomes in patients with non-alternating esotropia and similar visual acuity in both eyes.
- Surgical approach should be tailored based on surgeon discretion and patient or parental preferences.