

Retroequatorial myopexy in the management of adult-onset cyclic esotropia

Gunjan Saluja, Pradeep Sharma

A 65-year-old otherwise healthy female, with bilateral normal visual acuity, presented with a unique pattern of strabismus. She complained of esotropia and diplopia occurring after every 24 h. There was no history of previous injury or ocular surgery. Other differentials were ruled out and the patient was diagnosed as adult-onset cyclic esotropia. The patient underwent right eye medial rectus retroequatorial myopexy, which tackled both diplopia and strabismus, without causing exotropia on nonsquint days.

Key words: Cyclic esotropia, faden, management of cyclic esotropia and adult onset cyclic esotropia. retro equatorial myopexy, posterior fixation

Cyclic esotropia is a rare but interesting variety of strabismus with obscure pathogenesis.

The management is conventionally done according to the deviation on squinting days, but this can lead to a consecutive exo-deviation on the nonsquinting days. Hereby, we present a case of cyclic esotropia which was managed by retro equatorial myopexy of medial rectus and did not lead to a consecutive exo-deviation.

Case Report

A 65-year-old female patient presented to the squint clinic of a tertiary eye hospital with complaints of diplopia and esodeviation occurring every alternate day since the last 1 year, there was no history of trauma, previous ocular surgery, or any systemic illness. The cycles followed a fixed pattern of 24 h, which was confirmed during the patient's stay at our center. On examination, the patient had a best-corrected visual acuity of 6/6 on both squint and nonsquint days. The deviations on manifest days were 35 prism diopter (PD) on prism bar cover test for both near and distance. The deviation was consistent on all the manifest days, on nonsquint days patient was orthotropic with a near-stereopsis of 40 arc sec on Randot stereoacuity test [Fig. 1].

Access this article online	
Quick Response Code:	Website: www.ijjo.in
	DOI: 10.4103/ijjo.IJO_1229_20

Dr R P Centre for Ophthalmic Sciences, All India Institute of Medical Sciences (AIIMS), New Delhi, India

Correspondence to: Prof. Pradeep Sharma, Dr R P Centre for Ophthalmic Sciences, All India Institute of Medical Sciences (AIIMS), Ansari Nagar, New Delhi - 110 029, India. E-mail: drpsharma57@yahoo.com

Received: 02-May-2020

Revision: 15-Jul-2020

Accepted: 13-Sep-2020

Published: 26-Oct-2020

There was no limitation of extraocular movements on either days. There was no significant refractive error. Anterior and posterior segment examination was unremarkable.

Magnetic resonance imaging of brain and orbit, thyroid function test, and electromyography were within normal limits. Neostigmine test showed no improvement in signs, and ice pack test was negative. A diagnosis of adult-onset cyclic esotropia was made and right eye medial rectus retroequatorial myopexy was performed under local anesthesia, using 5-0 nonabsorbable mersilene suture, (Ethibond, Ethicon, Irvine CA). In the postoperative period she had an exotropia of 8PD, for distance and near on all days, with no diplopia. The findings were consistent at post operative 3 weeks [Fig. 2] and one year [Fig. 3].

Discussion

Cyclic strabismus is a rare but an interesting entity of strabismus. As the name suggests, it is characterized by a 24–48 h fixed cycles of orthotropia and heterotropia.

The exact etiology and pathogenesis of adult-onset cyclic esotropia is not known; however, various etiologies have been reported to cause cyclic esotropia such as traumatic aphakia,^[1] retinitis pigmentosa,^[2] Grave's disease,^[3] ocular myositis,^[4] scar stretch after squint surgery,^[5] craniofacial surgeries,^[6] and after brachytherapy for intraocular tumors.^[7]



Figure 1: Preoperative pictures on, (a) esotropic days and (b) orthotropic days

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

Cite this article as: Saluja G, Sharma P. Retroequatorial myopexy in the management of adult-onset cyclic esotropia. Indian J Ophthalmol 2020;68:2613-5



Figure 2: Post operative picture at 3 weeks on (a) esotropic days and (b) orthotropic days

Most of the cases reported managed cyclic esotropia according to the deviation on manifest days, by recession and resection of horizontal muscle. It was believed that, although the surgery done corrects esotropia on manifest days, it does not cause exotropia on nonsquint days.^[8-10] But this belief is not always true for adult-onset cyclic esotropia and there are few case reports of consecutive exotropia in the post-operative period on nonsquint days.^[7,11] Management thus remains tricky! Retroequatorial myopexy, or posterior fixation suture is an easily reversible procedure done with a nonabsorbable suture, thus creating a new insertion of muscle without actually disinserting it, and selectively reducing the torque in the direction of the action of the muscle. Retroequatorial myopexy is usually indicated in nonaccommodative convergence excess esotropia, nystagmus blockade syndrome, for additional weakening effect over a recessed muscle and in cases of dissociated vertical deviation and for fixation duress procedures.^[12] The procedure weakens the action of muscle in its field of action, and if recession is not performed along with retroequatorial myopexy, the length-tension relation is not altered, hence not affecting the deviation in primary position. This would help to control esotropia on esotropic days, without causing exotropia on orthotropic days.

In a previous case report by us, cycles of esotropia and exotropia, respectively, were managed by retroequatorial myopexy of medial rectus and recession-resection of lateral rectus which acted as faden.^[13]

Conclusion

To the best of our knowledge, there have been no other reports stating the application of retroequatorial myopexy as a primary procedure in the management of cyclic esotropia.



Figure 3: Post operative picture at 1 year, images obtained from the patient through tele-communication on (a) esotropic days and (b) orthotropic days

We suggest this may be a good option in cases of adult-onset cyclic esotropia.

Literature search

PubMed was searched without date restriction on 25th April 2020 using keywords cyclic esotropia, management of cyclic esotropia and adult-onset cyclic esotropia.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Cole MD, Hay A, Eagling EM. Cyclic esotropia in a patient with unilateral traumatic aphakia: Case report. *Br J Ophthalmol* 1988;72:305-8.
2. Hwang JM, Kim J. Cyclic exotropia associated with retinitis pigmentosa. *Graefes Arch Clin Exp Ophthalmol* 2006;244:1549-51.
3. Knapp P. Special types of muscle anomalies associated with Graves' disease. *Ophthalmology* 1979;86:2081-4.
4. Bau V, Sievert M, Roggenkamper P, Zierz S. Cyclic vertical deviation after ocular myositis and treatment by recession of the inferior rectus muscle. *Graefes Arch Clin Exp Ophthalmol* 2005;243:1062-5.
5. Pehere NK, Kommineni UB, Kekunnaya R. Consecutive cyclic esotropia – A case report. *Indian J Ophthalmol* 2019;67:280-2.
6. Metz HS, Searl SS. Cyclic vertical deviation. *Trans Am Ophthalmol Soc* 1984;82:158-65.
7. Garg SJ, Archer SM. Consecutive cyclic exotropia after surgery for adult-onset cyclic esotropia. *J AAPOS* 2007;11:412-3.

-
8. Helveston EM. Surgical treatment of cyclic esotropia. *Am Orthopt J* 1976;26:87-8.
 9. Di Meo A, Costagliola C, Della Corte M, Romano A, Foria C, Di Costanzo A. Adultonset cyclic esotropia: A case report. *Optom Vis Sci* 2013;90:e95-8.
 10. Souza-Dias C, Kushner BJ, Rebouças de Carvalho LE. Long-term follow-up of cyclic esotropia. *J Binocul Vis Ocul Motil.* 2018;68:148-53.
 11. Ngo CS, Araya MP, Kraft SP. Cyclic strabismus in adults. *J AAPOS* 2015;19:279-81.
 12. Helveston EM, *Surgical management of strabismus*. 5th ed. Belgium: Wayenborgh Publishing; 2005. p. 247.
 13. Gaur N, Sharma P, Verma S, Takkar B, Dhar S, Surgical correction of persistent adult-onset cyclic strabismus. *J AAPOS* 2017;21:77-8.
-