Farabi Eye Hospital

Tehran University of Medical Sciences

Pseudo Inferior Oblique Overaction

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- *Pseudo inferior oblique muscle overaction is a rare type of pattern strabismus firstly described by Kushner in 1991.*
- *It is characterized by a Y- or less commonly a V-pattern with what appears to be marked IOOA.*

- *Kushner BJ. Pseudo inferior oblique overaction associated with Y and V patterns. Ophthalmology 1991;98:1500-5.*

True vs Pseudo IOOA

- Patients with pseudo IOOA show marked abduction and hypertropia of the adducting eye when elevation is carried out in side gaze but there is no elevation of the adducting eye on direct side gaze.

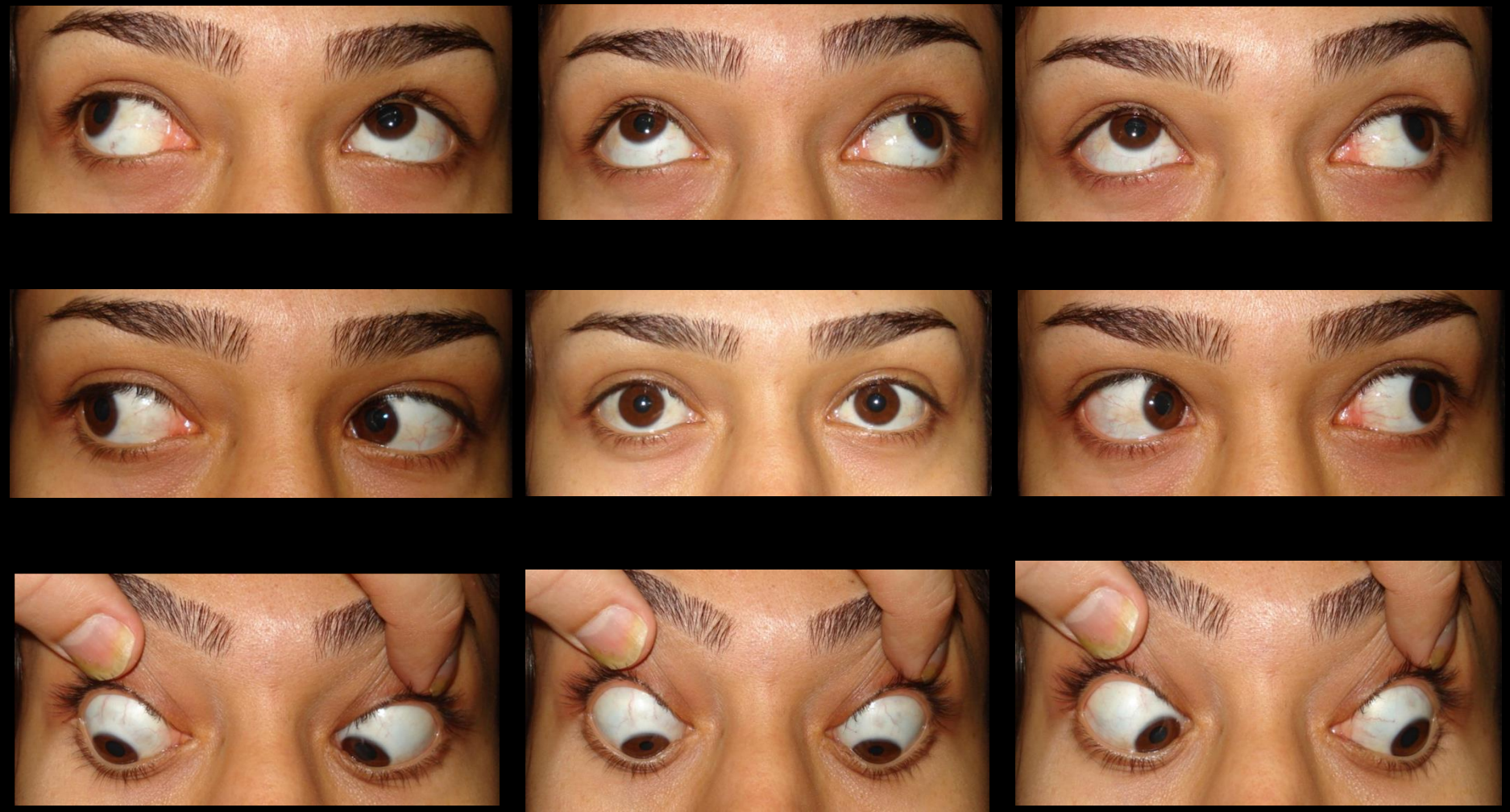
- Patients with true IOOA, unlike pseudo IOOA, show hypertropia of adducting eye in horizontal side gaze.

True vs Pseudo IOOA

- In addition, in true IOOA, some degrees of superior oblique underaction or objective extorsion is usually seen. In contrast, no superior oblique underaction or objective extorsion is seen in pseudo IOOA.

- In pseudo IOOA, there is no difference in vertical deviation with head tilts.

- A 23 Y/O F
- CC: ocular deviation in upgaze
- VA OU:10/10
- Ref OU:plano



Pathophysiology (Aberrant Innervation)

- Superior rectus – lateral rectus synkinesis (co-contraction)
- This miswiring involves activation of the LR in upgaze when the SR is activated giving a Y or V pattern exotropia

Pathophysiolgy (Aberrant Innervation)

- Patients with pseudo IOOA do not respond to surgical weakening of inferior oblique muscle.
- Injection of the IO with Xylocain has not relieved the syndrome
- LR injection with xylocain correct the deviation
- Recruitment of the EMG signal from the LR during elevation in adduction

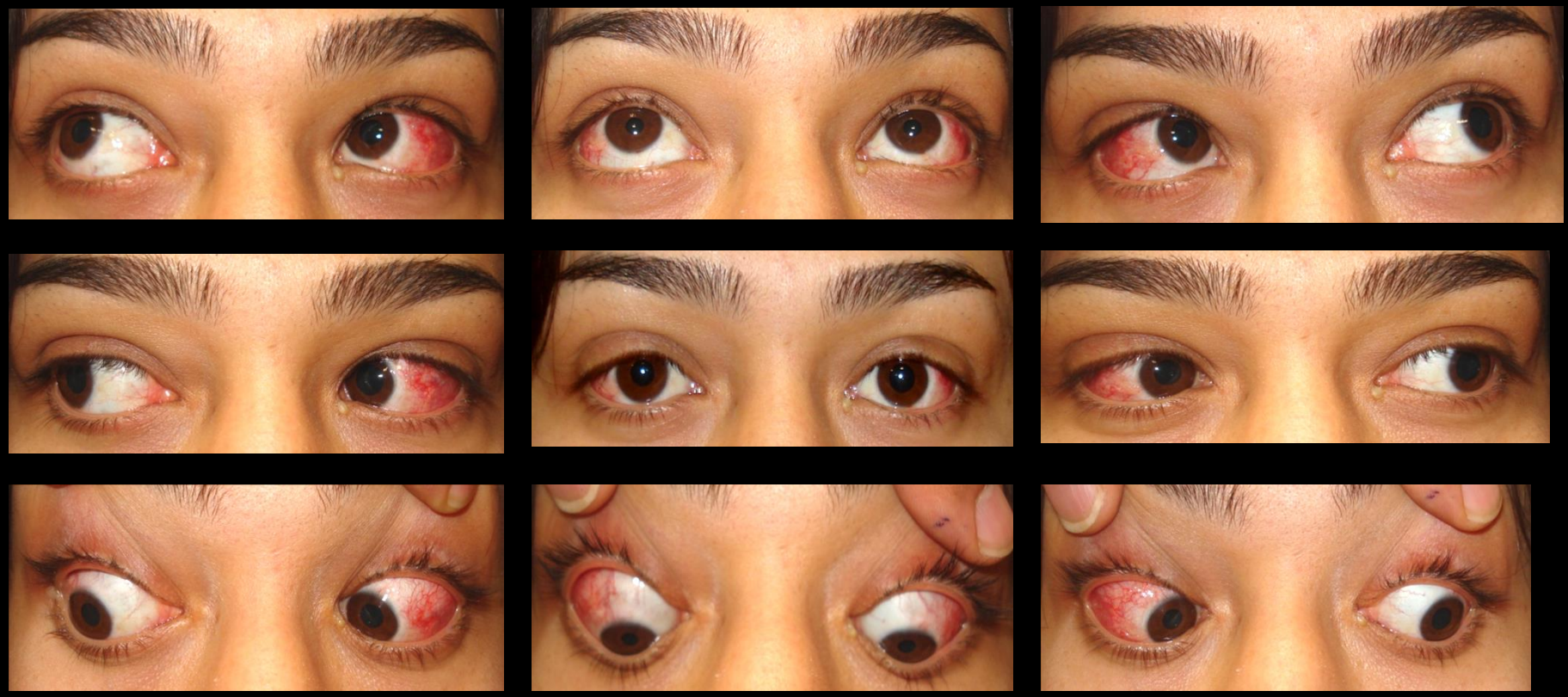
Pathophysiology(Heterotopic Muscle Pulley)

- *According to this hypothesis, because of "lateral misplacement of superior rectus muscle pulley", medial rectus muscle must contract in elevation to maintain alignment.*
- *Then, the lateral rectus muscle of the opposite eye, must also contract and abduct the eye in elevation.*

- *Clark RA, Miller JM, Rosenbaum AL, Demer JL. Heterotopic muscle pulleys or oblique muscle dysfunction? J AAPOS 1998;2:17-25*

Treatment

- The best treatment involves recessions with elevation of the lateral recti
- Nasal transposion of the SR muscles



BLR Recession 2mm with Full Tendon Width Supraplacement

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- We conducted a retrospective study between 2012 to 2018 in Farabi Eye Hospital, Tehran, Iran.(submitted to AAPOS journal) .
- In all subjects, we patched one of the eyes for 45 minutes to rule out intermittent exotropia.

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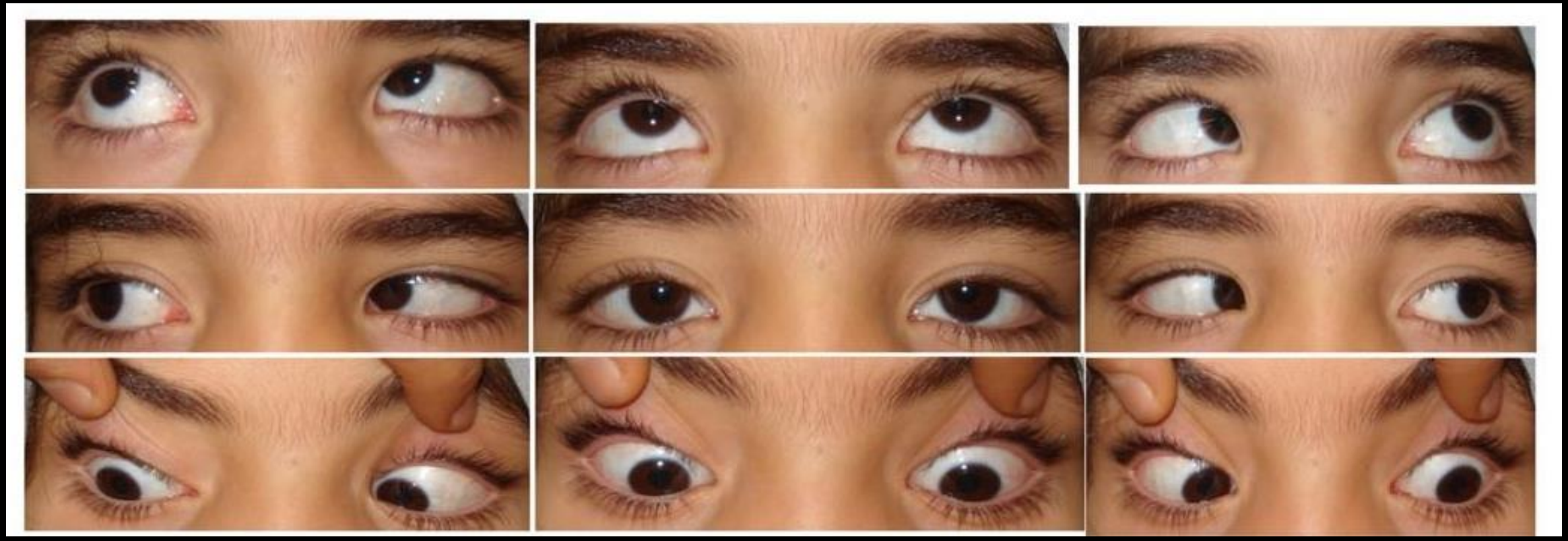
- From sixteen patients were studied, thirteen were female.
- Mean age of patients was 9.6 ± 6.1 (4 to 23) years.

- All patients had Y pattern strabismus and mean pre-operative deviation in upgaze was 25.06 ± 5.9 PD (18 to 40).
- In primary position and downgaze all patients were orthophoric or exophoric .
- 14 patients undergone surgical correction.

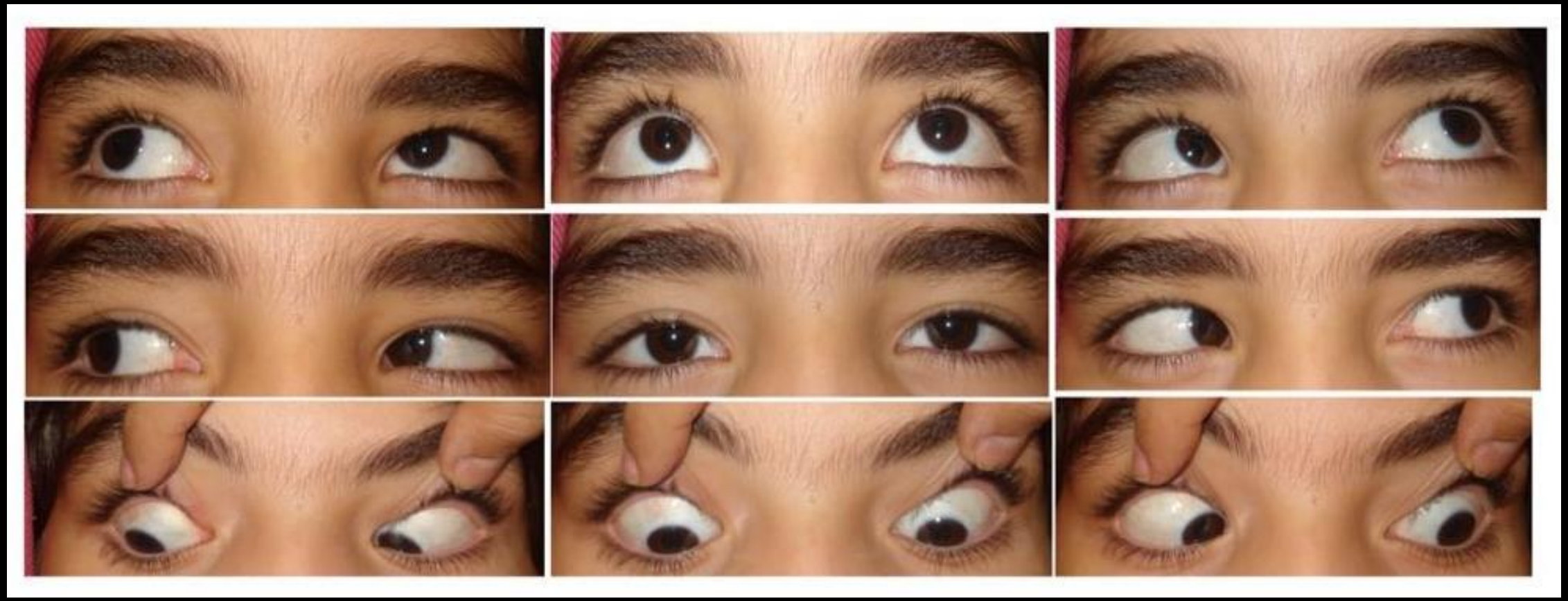
- 2 mm Bilateral lateral rectus recession (to compensate for the resection effect of muscle disinsertion) and 2/3 to full tendon supraplacement was performed.
- Post operatively, all patients (except one case) were orthotropic in up (in 30 degrees from primary position) and downgaze and primary position.

- Success rate after first surgery was 92.8% in this study.
- One case needed second operation and considering the outcome of second surgery in that case, final success rate of the study was 100%.
- Two patients reported diplopia in up gaze pre operatively that resolved after strabismus surgery.

A 7-year-old girl with Y pattern and pseudo IOOA, more prominent in left eye
25 PD XT in upgaze.
PP and down gaze were orthotropic
2 mm bilateral LR recession with full tendon supraplacement



After surgery she had 18 PD esotropia and diplopia in primary position, 18 PD esotropia in upgaze, 2 PD esotropia in downgaze, chin up head posture and A pattern strabismus.



Bilateral LR advancement for 2 mm and ½ tendon infraplacement was performed
After second operation she was orthotropic in primary position, up and downgaze

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In Summery

- The differentiation between pseudo IOOA and true IOOA is very important.

- Weakening the lateral recti with supraplacement seems to be a safe and reasonably effective treatment.

Thanks for your kind attention