

I CHOOSE

Inferior
oblique
myectomy

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Why myectomy?

Better results

 Arch Ophthalmol, 104 (6), 855-8  Jun 1986

Myectomy of the Inferior Oblique Muscle

G Davis, K W McNeer, R F Spencer

PubMed: 3718310

Abstract

Success rate 92%

The current surgical procedures usually selected to weaken clinically overactive inferior oblique muscles are recession, disinsertion, or myectomy. A review of published reports revealed that each technique appeared to produce the intended result but that investigators differed in their choices for reasons of simplicity, quickness, and complications. Our experience indicated distal myectomy to be simple, quick, predictable, and devoid of significant complications. To affirm our impressions, 130 myectomies performed in 81 patients were reviewed. The procedure was satisfactory, although 5% had a postoperative residual overaction, and 3% had a residual underaction. No significant complications, such as the "adherence syndrome," were observed.

Am Orthopt J, 66 (1), 79-86 ⓘ Jan 2016

Surgical Management of Unilateral Superior Oblique Palsy: Thirty Years of Experience

Qianqian Wang, Michael F. ...

Higher success rate than recession

Results: Mean forced primary position (PP) hypertropia decreased from 14.3^Δ (range 3-37^Δ) to 4.5^Δ (range 0-30^Δ) in Group 1, from 13^Δ (range 1-30^Δ) to 2^Δ (range -20-20^Δ) in Group 2, and from 25.7^Δ (range 6-40^Δ) to 1.3^Δ (range -12-18^Δ) in Group 3. Group 1 had the lowest re-operation rate (7.6%), followed by Group 2 (16%) and Group 3 (25.9%). Final surgical success rates were similar in three groups. Inferior oblique weakening was more predictable for small primary position hypertropia, but still yielded 85% success rate in large deviations. Inferior oblique disinsertion-myectomy resulted in more favorable results than inferior oblique recession ($P < 0.05$).

Comparative Study ⓘ Br J Ophthalmol, 97 (2), 184-8 ⓘ Feb 2013

Comparison of Inferior Oblique Myectomy to Recession for the Treatment of Superior Oblique Palsy

Reecha S Bahl, Andreas Marcotty ... Elias I Traboulsi + expand

Pub

Better in both smaller and larger angles

Conclusions: IO weakening procedures, including both recession and myectomy, are effective in the treatment of SO palsy. While the two procedures were similar in treatment of diplopia and abnormal head tilt, our findings support myectomy as slightly more effective than recession in improving HT in primary gaze; this difference is more pronounced in individuals with small-moderate preoperative hyperdeviations.

Comparative Study

Eye (Lond), 17 (9), 1013-8 Nov 2003

Unilateral Inferior Oblique Muscle Myectomy and Recession in the Treatment of Inferior Oblique Muscle Overaction: A Longitudinal Study

T Shipman, J Burke + expand

PubMed: 14704751

Better for vertical deviation

Conclusions: Single inferior oblique muscle-weakening procedures were effective in the vast majority of patients, even when the preoperative primary position hyperdeviation was 15 Delta or more. An improvement occurred in both groups immediately after surgery and in many throughout the follow-up period represented by a continuing drift towards orthotropia, but there was a recurrence of the hyperdeviation in some of the recession patients.

Comparative Study

J AAPOS, 16 (1), 21-5 Feb 2012

The Effect of Surgical Treatment of Superior Oblique Muscle Palsy on Ocular Torsion

Ceyhun Arici, Velittin Oguz + expand

PubMed: 22370660

Better for torsion

Results: A total of 28 patients were evaluated (mean age, 16.4 ± 12.4 years; range, 6-51 years). In 15 (53.6%) the superior oblique palsy was congenital; in 13 (46.4%) it was acquired. The mean decrease in subjective extorsion was $6.2^\circ \pm 2.3^\circ$ after superior oblique tuck, $2.3^\circ \pm 2.4^\circ$ after anterior transposition of the inferior oblique, $1.3^\circ \pm 2.7^\circ$ after inferior oblique recession, and $2.6^\circ \pm 4.7^\circ$ after inferior oblique myectomy. Objective extorsion decreased by $5.8^\circ \pm 0.8^\circ$, $4.4^\circ \pm 1.7^\circ$, $3.1^\circ \pm 3.2^\circ$, and $3.4^\circ \pm 4.7^\circ$, respectively.

Less complications

1- Undercorrection

Higher rate of undercorrection with recession

Inferior oblique recession frequently needs some augmentation

 Binocul Vis Strabismus Q, 16 (1), 23-8 © 2001

Outcome of Inferior Oblique Recession With or Without Vertical Rectus Recession for Unilateral Superior Oblique Paresis

Y Morad, V

PubMed: 11210555

Managed with subsequent myectomy

Results: In 16 cases of IO recession alone, 88% were "successful" and in 8 cases who had in addition either contralateral inferior rectus recession or ipsilateral superior rectus recession, 75% were "successful". IO 10 mm recession alone led to an average reduction of 9.1 PD of hypertropia in primary position.

Conclusion: A standard ungraded 10 mm recession of the IO alone or in combination with vertical rectus muscle recession is an effective weakening procedure with a high success rate for patients with unilateral SOP with mild to moderate IO overaction. In occasional cases of undercorrection, a subsequent IO myectomy is very feasible and effective.

Or combined with resection 'myectomy' from the start

J AAPOS, 2000 Dec;4(6):348-53.

A prospective evaluation of anterior transposition of the inferior oblique muscle, with and without resection, in the treatment of dissociated vertical deviation.

Quinn AG¹, Kraft SP, Day C, Taylor RS, Levin AV.

2- Anti-elevation syndrome

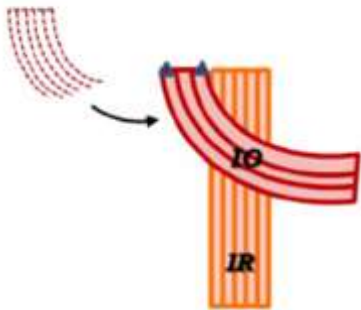
Case Reports J AAPOS, 1 (1), 55-62 Mar 1997

Restriction of Elevation in Abduction After Inferior Oblique Anteriorization

B J Kushner [+ expand](#)

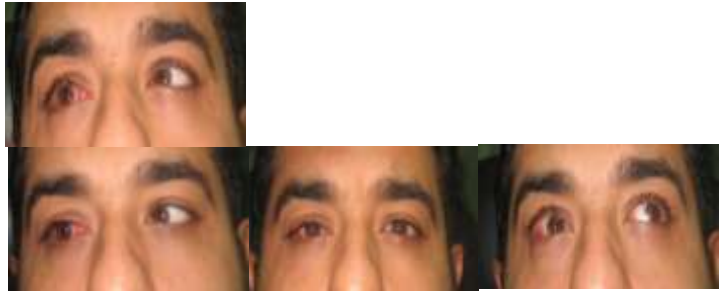
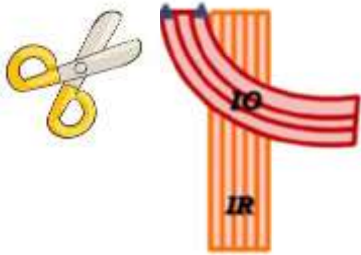
Occurs only with inferior oblique graded recession/anteriorization

2- Anti-elevation syndrome



2- Anti-elevation syndrome

Managed with inferior oblique myectomy



3- Unmasking of contralateral inferior oblique overaction



J AAPOS, 1 (1), 2-7 © Mar 1997

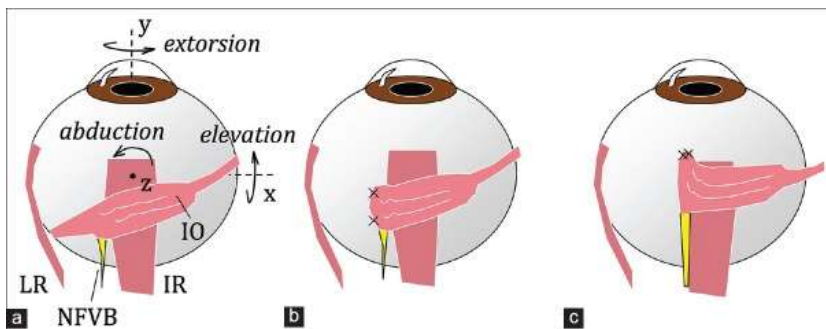
Apparent Contralateral Inferior Oblique Muscle Overaction After Unilateral Inferior Oblique Muscle Weakening Procedures

L A Stein, F J Ellis + expand

Before the operation, there was no difference in the inferior oblique muscle function of the contralateral eye among the three groups. However, after the operation apparent inferior oblique muscle overaction developed more frequently and to a greater degree in the contralateral eye among patients in the anterior transposition and 10 mm recession groups than among patients in the myectomy group.

More physiological

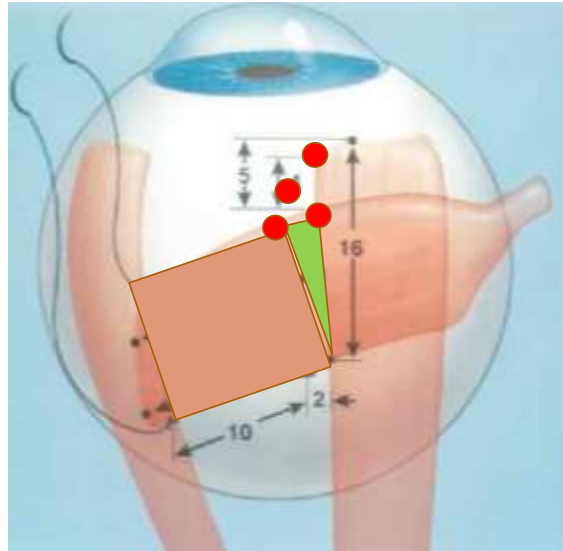
Recession is not a recession



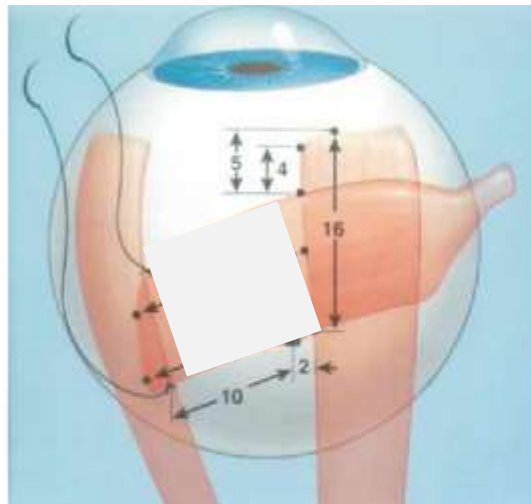
Fink point

Park-Scheie point

Graded recession



Myectomy is actually a recession without sutures



Predictability

Self-adjusting

The tighter the muscle the more it retracts “along its anatomical course”

In graded recession, you have to predict where to put the muscle

J AAPOS, 12 (6), 560-4 Dec 2008

Bilateral Inferior Oblique Myectomy for Asymmetric Primary Inferior Oblique Overaction

Self-adjusting and symmetrizing

Conclusions: In the presence of asymmetric inferior oblique overaction, bilateral symmetric inferior oblique myectomy may have a "symmetrizing" effect on the inferior oblique overaction and greatly improve the comitance of the versions.

The claimed risks

The muscle cannot be
retrieved later

1- Why do we need to retrieve it?

2- Can we retrieve it?

1- Why do we need to retrieve it

Arch Ophthalmol, 104 (6), 855-8 Jun 1986

Myectomy of the Inferior Oblique Muscle

G Davis, K W McNear, R E Spencer
PubMed: 3714

Very low reoperation rate

Abstract

The current surgical procedures usually selected to weaken clinically overactive inferior oblique muscles are recession, disinsertion, or myectomy. A review of published reports revealed that each technique appeared to produce the intended result but that investigators differed in their choices for reasons of simplicity, quickness, and complications. Our experience indicated distal myectomy to be simple, quick, predictable, and devoid of significant complications. To affirm our impressions, 130 myectomies performed in 81 patients were reviewed. The procedure was satisfactory, although 5% had a postoperative residual overaction, and 3% had a residual underaction. No significant complications, such as the "adherence syndrome," were observed.

2- Can we retrieve it?

J AAPOS, 11 (1), 48-51 Feb 2007

Reexploration and Inferior Oblique Myectomy Temporal to the Inferior Rectus to Treat Persistent Inferior Oblique Overaction

David M Squirrel, Katharine S Sears, John P Burke + expand

Results: Eight patients were identified. Three had previously undergone a standard IO myectomy, and five had undergone a standard IO muscle recession. The median period of postoperative follow-up was 12 months (range, 7 months to 2 years). The IOOA was eliminated in three patients and a reduction of IOOA of at least 1 unit was achieved in all patients. Seven patients showed improvement of their SO muscle underaction on versions, postoperatively. All patients achieved a marked improvement in their alignment across the three standard horizontal positions of gaze. The mean vertical deviations pre- and postoperatively was 23(Delta) versus 7(Delta) in contralateral gaze, 17(Delta) versus 4(Delta) in primary gaze, and 7(Delta) versus 1(Delta) in ipsilateral gaze.

Conclusions: Reexploration and myectomy of the IO muscle near to the temporal border of the inferior rectus muscle is a reliable and effective way of treating persistent IOOA.

Undercorrection

Can be retrieved

2- Can we retrieve it?

Overcorrection

Don't need to retrieve it

- Managed with contralateral superior rectus recession.
- Same management as inferior oblique recession

Adherence syndrome

Parks and only Parks

Disinsertion, and especially myectomy at the insertion, are capable of producing an adhesive syndrome manifest by hypotropia in the primary position, restricted elevation associated with a positive traction test, and absence of reattachment of the muscle to the sclera.

 Int Ophthalmol Clin, 16 (3), 113-26 © Fall 1976

Surgical Weakening of the Inferior Oblique

E M Helveston, B A Haldi

PubMed: 971984

Abstract

1. The inferior oblique may be weakened effectively by recession, disinsertion, or myectomy, disrupting the muscle continuity between Lockwood's ligament and the muscle's insertion. 2. A successful unilateral inferior oblique weakening produces 20 prism diopters less hypertropia or more hypotropia in the field of action; a bilateral inferior oblique weakening produces 20 prism diopters less hypertropia or more esotropia in upgaze. 3. Complications include overaction, operation on the wrong muscle, and the adherence syndrome. The adherence syndrome is not related to the myectomy procedure specifically but is probably related to (or caused by) fat rupture with hemorrhage, which may accompany any type of inferior oblique weakening. 5. The adherence syndrome can be avoided by careful surgical technique.

Adherence is not related to myectomy

More
Physiological

Less
Complications

More
Predictable

Better
Outcome



J AAPOS. 2007 Feb;11(1):7-9.

The pen, the pencil, and the inferior oblique.

Ellis FJ.

Comment on

Anterior and nasal transposition of the inferior oblique muscles in patients with missing superior oblique tendons. [J AAPOS. 2007]
Inferior oblique muscle fixation to the orbital wall: a profound weakening procedure. [J AAPOS. 2007]

It has been said that considerable engineering efforts and monetary resources were expended by the United States in an effort to develop an effective ink pen for use in the minimal gravity of space. While such a device was engineered by the United States, the Soviet solution of using a pencil proved entirely adequate and practical. Are we trying to invent another zero-gravity pen with regard to the surgical approach to weakening the inferior oblique (IO) muscle?

Thank You

