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INTERNATIONAL CONGRESS OF THE
EGYPTIAN OPHTHALMOLOGICAL SOCIETY
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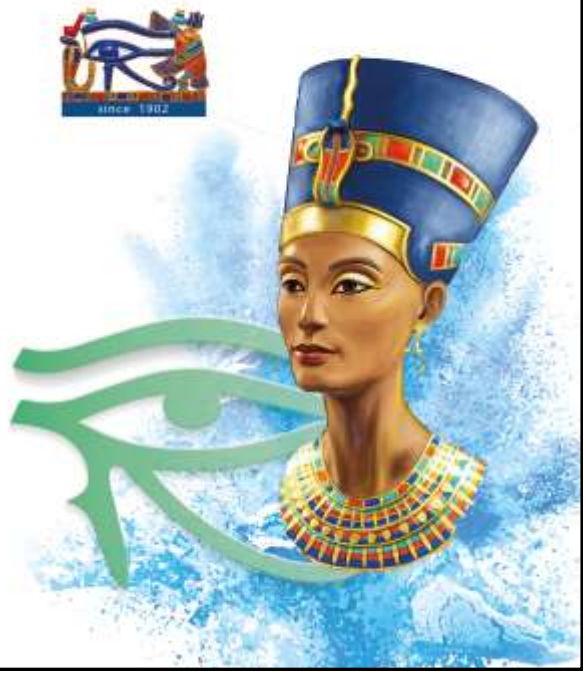
Intermittent Exotropia
Lateral rectus recession

Manar A. Ghali; MD
Zagazig University



CONCEPT OF ARC OF CONTACT

- The point at which the tendon first touches globe – **Tangential point**
- The **arc of contact** is distance between the tangential point and the centre of anatomic insertion of the muscle
- MR – 6 mm , LR – 15 mm , SR-8.4mm, IR-9mm
- Power of a muscle is proportionate to its arc of contact hence recession weakens muscle by reducing arc

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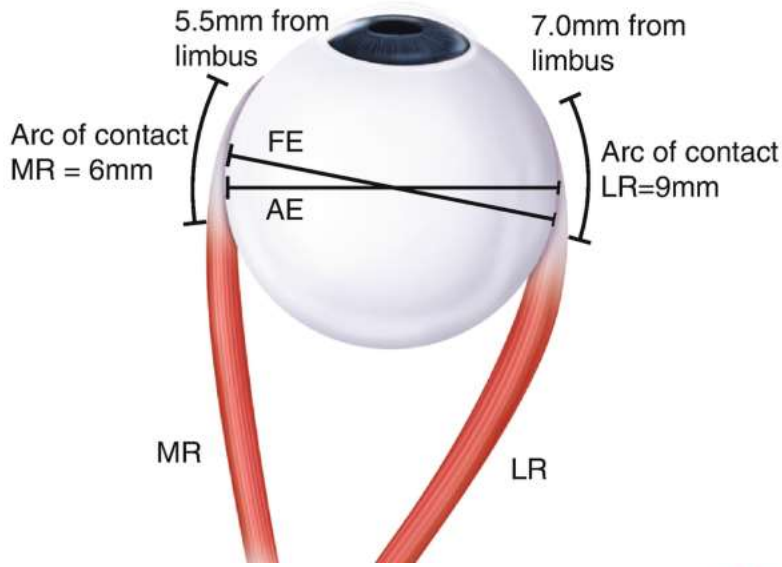

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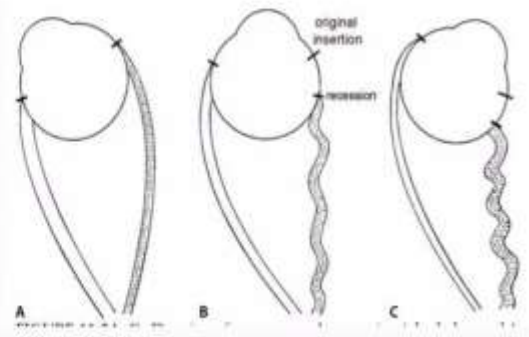
- A recession has its greatest effect in the field of action of the muscle.
- On rotation of eye away from recessed muscle , 2 things happen

- Recessed muscle slack is reduced

- The recessed muscle is inhibited by reciprocal inhibition(Sherrington s law)



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Conjunctival incision and exposure of the globe

Limbal incision or **von Noorden's approach**	Over the muscle (**Swan approach**)	Cul-de-sac (fornix) incision (**Park's aaproach**)

• **Adv:**
  • very little dissection of Tenon's capsule required
  • Maintains normal anatomic relations
  • Easy and quick
• **Disadvan:**
  • Dellen
  • Retraction of conjunctival flap
	• **Adv:**
	  • No limbal disturbance
	  • No dellen formation
	• **Disadv:**
	  • Fibrosis
	  • scarring
		• **Adv:**
		  • No suture required
		  • No visible scars
		  • Can be used for hz , vt, obliques
		• **Disadv:**
		  • Difficult

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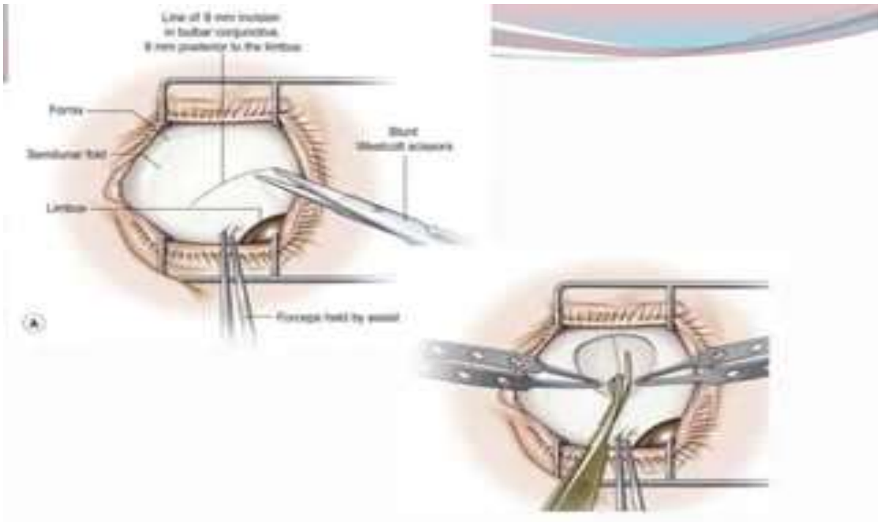

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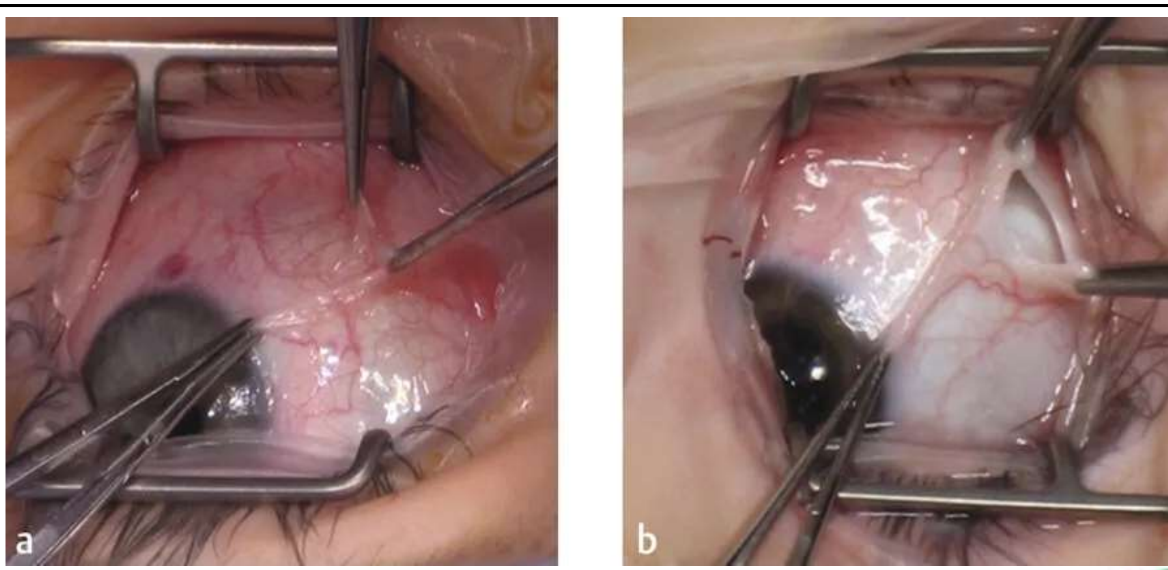

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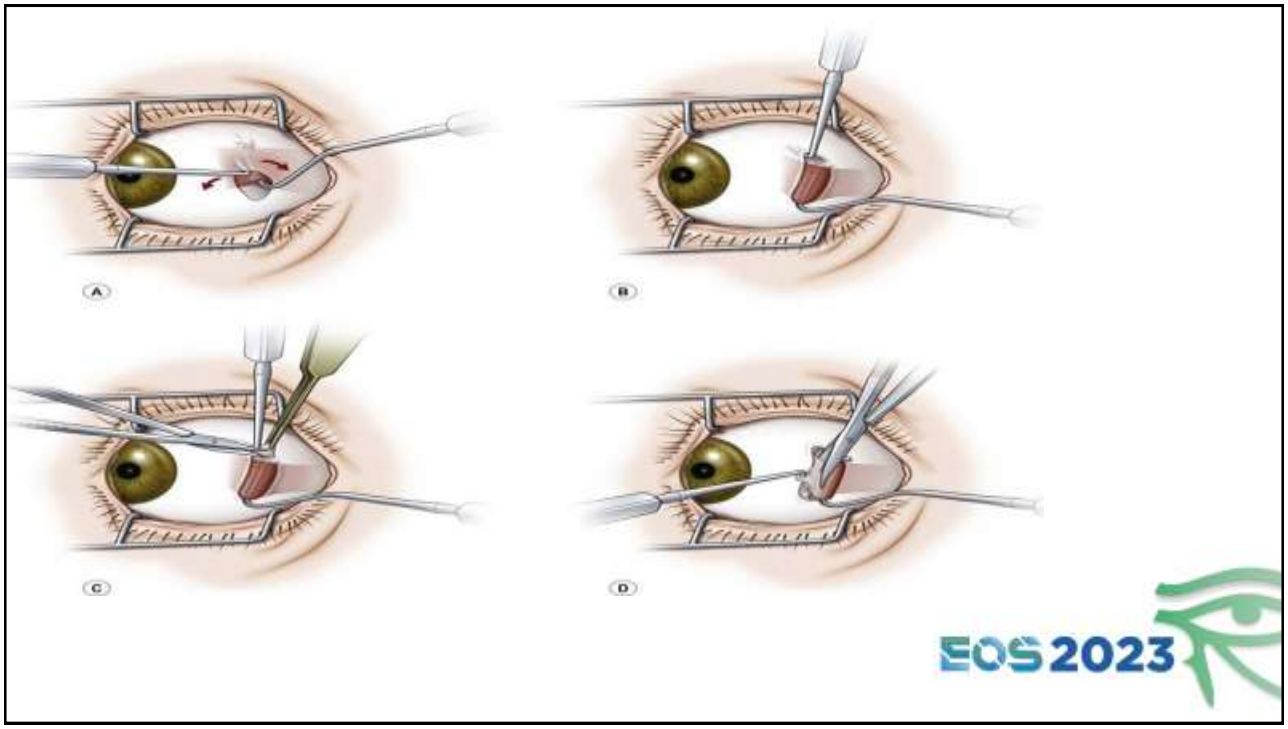
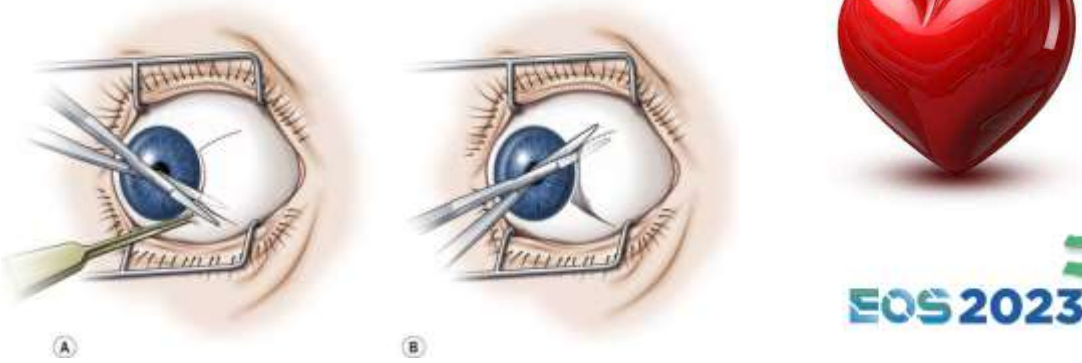


Limbal incision technique

- Limbal incisions are commonly used when performing surgery on the rectus muscles . The conjunctiva is grasped with forceps along one border of the muscle undergoing surgery, and blunt Westcott scissors are used to make 2 radial incisions that begin at the limbus and extends about 3–4 mm posteriorly



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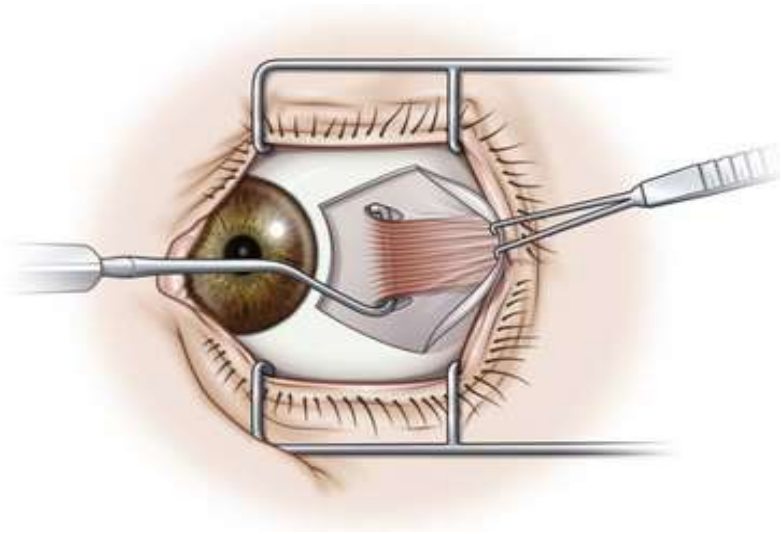

Types of LR recession

- Conventional recession
- Hang back recssion +/- adjustable sutures
- Hemihang back recession
- Anchored hang back recession
- Maximum recession of LR is 11-12mm

1.CONVENTIONAL RECESSION

Principle –Moves the muscle insertion CLOSER to the ORIGIN creating a muscle slack

- The muscle slack reduces muscle strength as per starling 's length –tension curve
- It does not reduce the moment arm when eye is in primary position
- The muscle should be re-inserted within the length of its arc of contact
- Hence , there is maximum limit up to which a recession can be done for each muscle

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Procedure

- Anesthesia
- Lids retracted by self retaining speculum
- FDT done
- Limbal conjunctival incision is made and two radial incisions made at the ends of the limbal incision
- The intermuscular septum is button holed
- The jameson s hook and the green s hook are passed underneath the muscle

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- Check ligaments and intermuscular septum are separated
- 2 interlocking loops of 6-0 vicryl are passed at the two ends of muscle insertions
- Muscle is cut with tenotomy scissors leaving a stump of 0.5 mm
- Measurement of recession is made with callipers and the recessed muscle is sutured at the new site

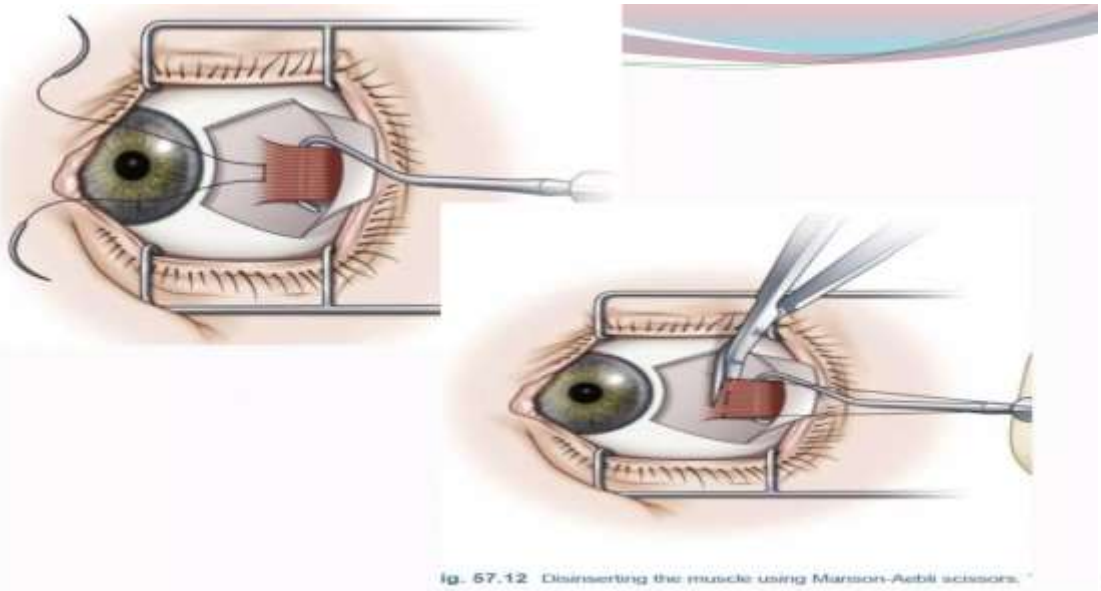


Fig. 67.12 Disinserting the muscle using Manson-Aebli scissors.

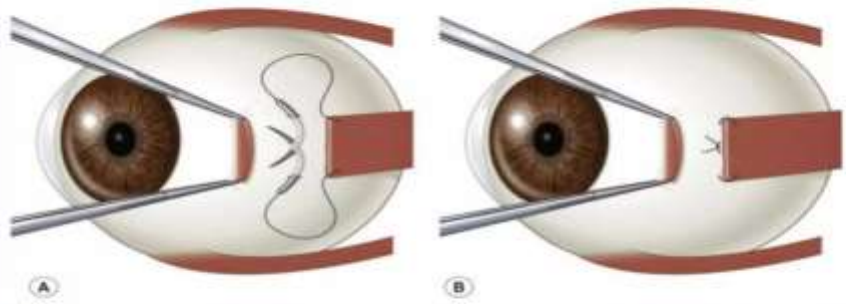
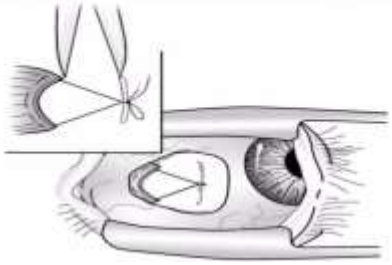


Fig. 57.9 Direct scleral attachment. (A) The suture needles are passed intrascleral at the desired position of insertion creating a tunnel 2 to 5 mm long and parallel to the original insertion of the muscle. By allowing the needles to exit in a 'crossed swords' fashion, the sutures can be placed close to one another without the risk of damaging the suture. (B) The muscle is pulled up to its new position and secured directly to the sclera.

2 .HANG BACK RECESSION

- **Principle** -Suspends the muscle back, posterior to scleral insertion , with a suture to weaken the muscle.

- Small to medium sized recessions of 3- 6 mm can cause overcorrection because of central muscle sag



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- **Indications**
  - A supramaximal recession is needed but unable to pass suture posteriorly due to risk of scleral perforation
  - Recession over a retinal buckle
  - Recession over an area of scleral ectasia as in high myopes
  - Large recession of a tightly contracted muscle

- **Advantage** – Needle passes through thick anterior sclera and excellent exposure

- **Disadvantage** – Narrowing of muscle insertion causing central muscle sag

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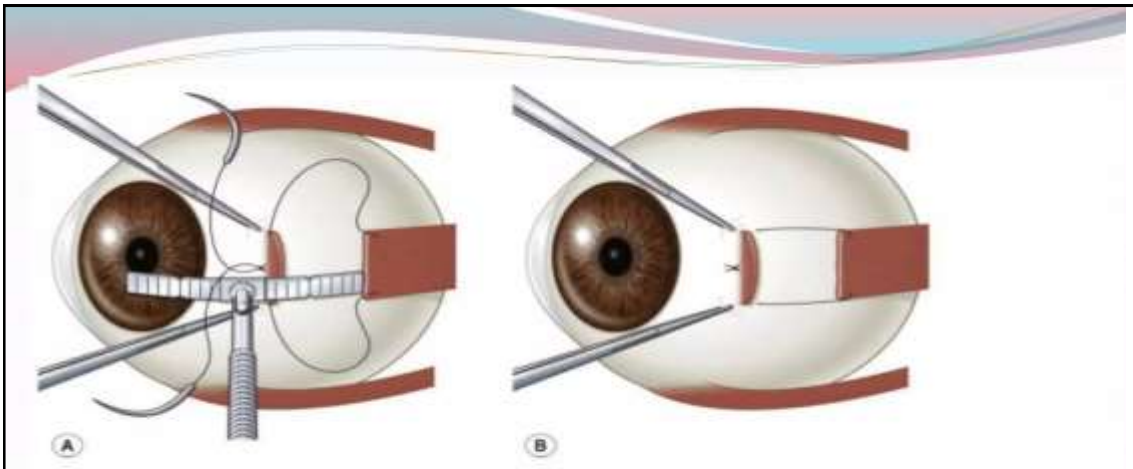

Fig. 57.10 Hang back method. (A) Sutures are passed through the thicker sclera just anterior to the muscle insertion. After placing a double throw in the suture, the position of the muscle is measured with a Scott curved ruler. (B) The sutures are then tied in a square knot being careful to not pull up the sutures while the knot is being tied. The muscle adheres to the new insertion site within a few days.

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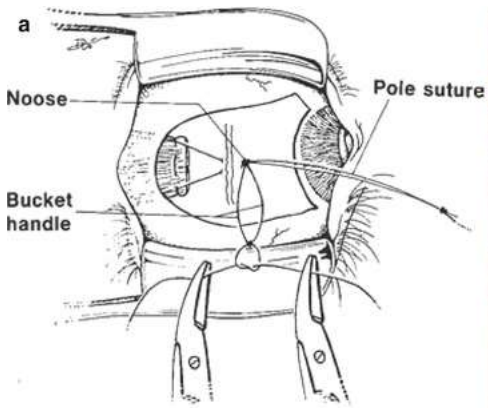

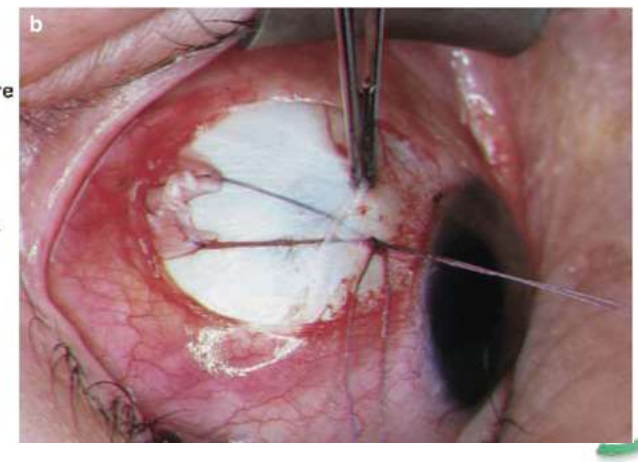

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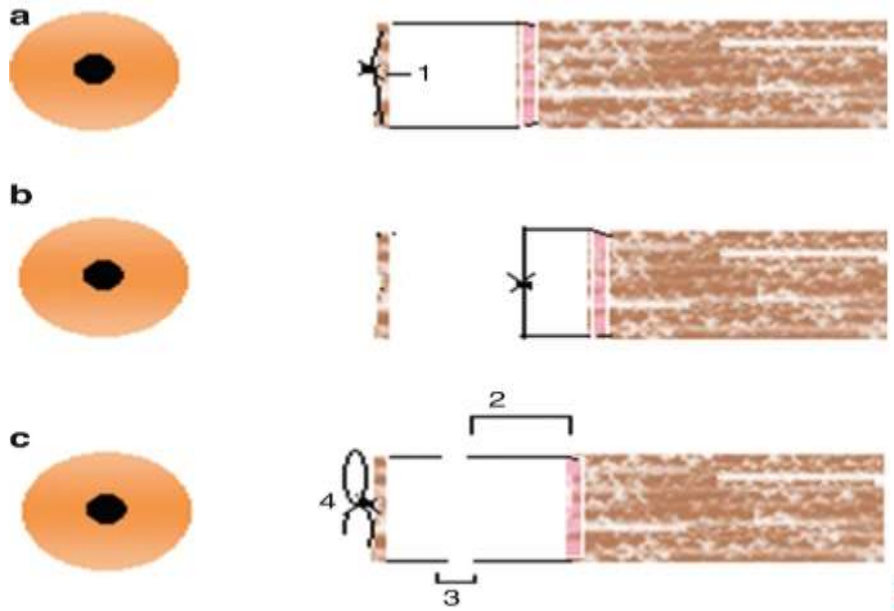
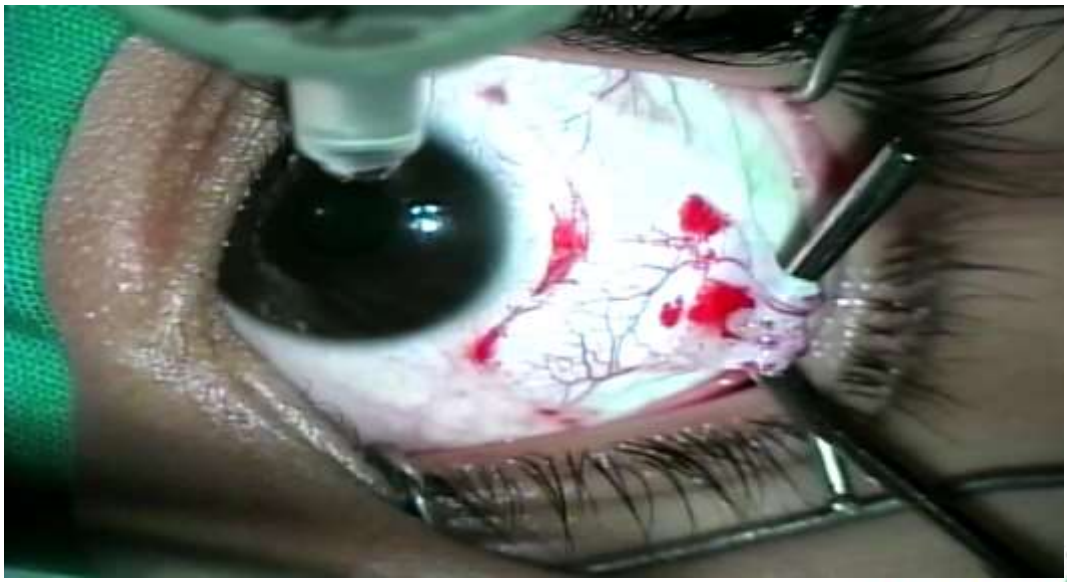
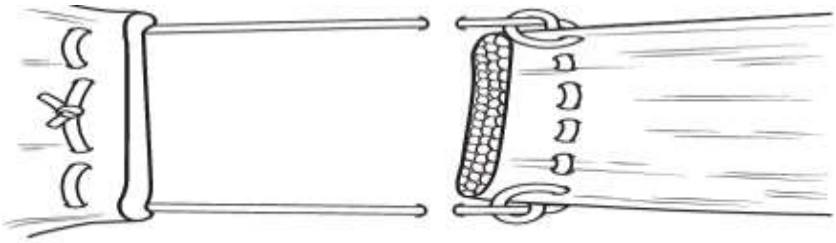
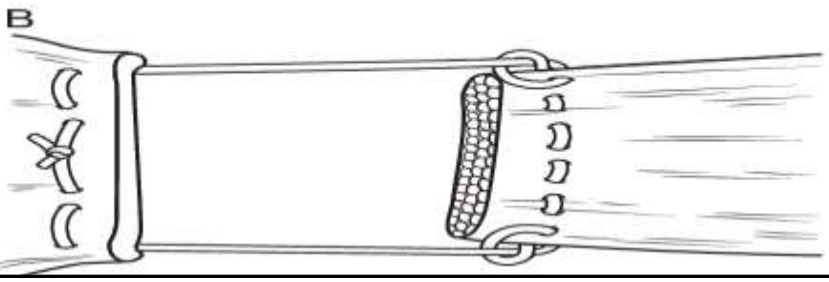

a
1
b
c
2
4
3



Anchored hang back technique





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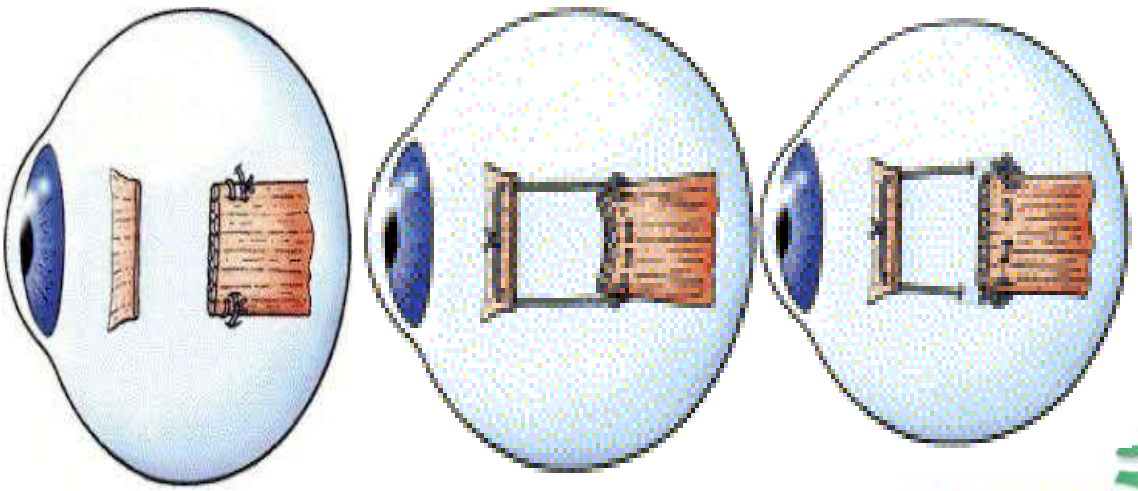

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Randomized Controlled Trial

Anchored versus conventional hang-back bilateral lateral rectus muscle recession for exotropia

Reza Nabie et al. J AAPOS. 2011 Dec.

Show details

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Abstract

Purpose: To compare the results of conventional hang-back and anchored hang-back technique for bilateral lateral rectus muscle recessions in patients with exotropia.

Methods: In a prospective, randomized clinical study, 60 patients underwent lateral rectus muscle recession by either conventional hang-back or anchored hang-back technique. Patients were then followed for 6 months; postoperative deviation and complications were compared. Surgery was considered successful if the postoperative deviation was within 10(Δ) of orthophoria.

Results: The mean age of patients was 14.2 ± 10.3 years (median, 12 years) in the conventional hang-back group and 11.5 ± 9.3 years (median, 8 years) in anchored group (P = 0.85). The mean preoperative deviation at distance and near between the 2 groups was not statistically significant. The mean postoperative deviation was 8(Δ) ± 9(Δ) at distance

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Axial length & effect of recession

- In exotropia: **MDR=4.28–(0.11×AxL)+(0.019×preoperative angle).**

  So if the preoperative angle was 30 prism diopter (PD) and the AxL 23 mm, MDR will be 2.32 PD/mm, which means that we need to recess each lateral rectus 6.5 mm, whereas if the same preoperative angle exists in patient with AxL 26 mm, MDR will be 1.99, which means that we have to recess each lateral rectus by 7.5 mm.
- ***Negative*** correlation

Tendon width & effect of recesion

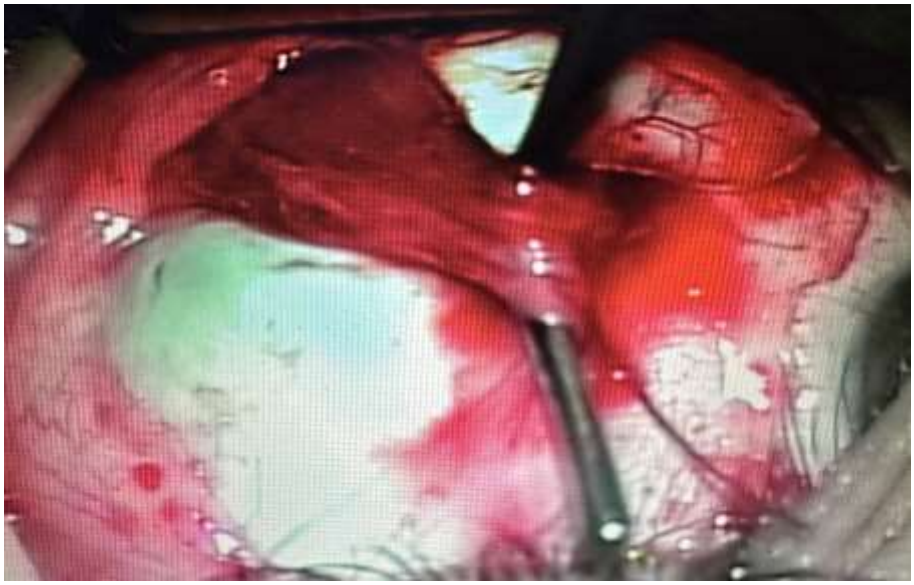
- Considering the growth pattern of an eyeball, application of tendon width for estimation of the effect of lateral rectus recession in patients younger than 5 years of age with intermittent exotropia was not appropriate
- Tendon width of the lateral rectus muscle for prediction of the effect in intermittent exotropia should be applied in patients 5 years of age or older.
- the mean effect per millimeter was 3.5±0.40, 2.9±0.24 , and 2.7±0.26PD when ranges of tendon width were 7- 7.5mm, 8-8.5mm, and 9-9.5mm, respectively.
- ***Negative*** correlation

Limbus insertion distance & effect of recession

- **MDR=0.16+0.28∗LID+0.01∗preoperativeangle**
- So, if the preoperative angle was 30, and LID was 7, the MDR will be 2.86. So we recommend bilateral rectus recession 5.5 mm. While if LID was 4.25, the MDR will be 1.65, so here we recommend bilateral 9 mm.
- ***Positive*** correlation

Age & effect of recession

- patients 4–7 years old, the standard tables work well.
- Patients **12 years or older**, ***increasing*** the amount of recession by ***1.5 mm*** significantly increased the success rate from 41% to 80%.



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THANK YOU

See you next year

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