Complications of Strabismus Surgery

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Wat vind je erger?

- Ondercorrectie
- Overcorrectie
**DELLEN**

Corneal dellen are small areas of thinning associated with adjacent conjunctival swelling.

**Prevention**
- Smooth closure of the conjunctiva
- Fornix incision

**Treatment**
- Occlusion of the eye for one to two days
- Lubricating drops
- Excision of the offending conjunctiva

**Visible line of previous muscle insertion**

- When a muscle is recessed the former site of the original muscle insertion becomes visible through the conjunctiva
- There is no treatment for this minor complication and reassurance and explanation are all that is required
**Prolapse of Tenon’s capsule**

- Tenon’s capsule may prolapse through conjunctival wounds as a result of edema during the postoperative period.

**Prevention**
- Conjunctival closure should be meticulous with accurate apposition of the tissues.

**Treatment**
- In most cases, the prolapsed Tenon’s capsule will retract or disappear spontaneously without surgical intervention.

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**Increased vascularity of the conjunctiva**

- Increased vascularity of the conjunctiva is common after strabismus operation.
- The eye may not be constantly red but becomes erythematous with exposure to irritants.
**Chronic suture granuloma**

- Localized, hyperemic mass over the muscle insertion
- It represents a nonallergic foreign body reaction to the suture material

**Prevention**
- Use of synthetic absorbable sutures

**Treatment**
- Topical corticosteroid drops or excision of the granuloma

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**Scleral perforation**

Occurs intraoperatively during reattachment of a rectus muscle

**Prevention**
- Prevent an excessively deep scleral entry by keeping the needle parallel to the sclera
- The scleral needle track should allow visualization of the needle through the entire length

**Treatment**
- Dilate the pupil and study the retina
- No treatment should be carried out unless retinal detachment is present or impending
Anterior segment ischemia

Occurs when the anterior ciliary arteries are interrupted during the course of strabismus surgery.

Clinical manifestations of ASI

- Most clinically detectable cases of ASI are characterized by mild, self-limited iritis.
- More severe ASI results in significant iritis with pupillary abnormalities, keratopathy, iris atrophy, corectopia, immobile pupil, corneal clouding, cataract, glaucoma, hypotony, and phthisis bulbi.

Risk factors

- Advancing age
- Abnormalities affecting blood flow (leukemia, homocystinouria, hemoglobinopathies)
- Small- and large-vessel abnormalities (diabetes, hypertension, atherosclerosis, carotid artery disease, carotid-cavernous fistula, etc)
- Orbital and ocular abnormalities (prior uveitis, thyroid related orbitopathy)
- Operation on 3 or more rectus muscles
- Prior eye surgery (scleral buckle, diathermy, cryotherapy), or other procedures that may affect anterior segment blood flow.
Anterior segment ischemia

Prevention

- Limiting the number of rectus muscles operated on
- Fornix incision
- Use of botulinum toxin
- Anterior ciliary vessel sparing

Treatment

- Cycloplegic agents
- Topical and systemic corticosteroids
- Hyperbaric oxygen
- Control of intraocular pressure

Slipped muscle

A slipped muscle occurs when the muscle capsule rather than the muscle itself is sutured to the sclera

Prevention

- Place sutures securely into muscle or tendon tissue

Treatment

- Surgical exploration can identify the muscle
- Reattachment of the muscle to the proper scleral location
Lost/Slipped muscle LR OS

Lost muscle
A lost muscle is one which has completely released from the sclera, retracting posteriorly into the pulley sleeve in the orbit.

Prevention

• Place the needle into sclera and not just episclera

Treatment

• A muscle transposition procedure is usually required
Postoperative appearance in a case of a lost right medial rectus muscle, after rectus muscle transposition operation (Hummelsheim operation augmented with resection of the transposed medial halves of the vertical recti)

Lid fissure anomalies

- Lid displacement after vertical rectus surgery occurs in the same direction as the shift in the insertion of the vertical rectus muscle
- MR or LR recessions may induce widening of the palpebral fissure
- MR or LR resections may produce narrowing of the palpebral fissure
Lid fissure anomalies

Prevention
- Do not recess or resect the inferior rectus more than 5 mm
- Carefully dissect the intermuscular septum, check ligaments, and associated Tenon’s capsule
- Avoid excessive recessions or resections of the horizontal rectus muscles, especially in uniocular or asymmetric operations

Treatment
- Perform the appropriate plastic surgical procedure

Internal Ophthalmoplegia

This complication is seen rarely, primarily following inferior oblique surgery

Prevention
- Avoid excessive traction on the inferior oblique during surgery

Treatment
- No specific therapy is indicated or possible for this condition
- In some patients spontaneous resolution occurs
**Fat adherence syndrome**
- Restricted elevation of the globe occurs rarely after inferior oblique muscle surgery
- It is caused by inadvertent rupture of Tenon’s capsule and prolapse of orbital fat adjacent to the sclera

**Prevention**
- Application of the proper surgical technique

**Treatment**
- Reoperation to remove the scarred tissue
- Recurrences are common

**Inclusion of the inferior oblique in the lateral rectus insertion**
Occurs after surgery on the lateral rectus resulting in limitation of elevation in adduction

**Prevention**
- Adequate visualization with avoidance of blind, posterior sweeps with a muscle hook when isolating the lateral rectus muscle

**Treatment**
- Surgical exploration with freeing of the oblique from the inferior border of the lateral rectus
Orbital cellulitis
This complication is very rare after strabismus operation

Clinical signs
• Eyelid edema, conjunctival injection, decreased motility, proptosis, fever, and leukocytosis

• When this complication is suspected, computed tomography is necessary for the diagnosis and can differentiate preseptal from orbital cellulitis

Treatment
• Hospitalization and treatment with intravenous antibiotics

Subconjunctival Abces LSR
Endophthalmitis

- This potentially blinding complication generally is associated with inadvertent scleral perforation
- While the incidence of scleral perforation is in the level of 10% the incidence of endophthalmitis after strabismus operation is very low (1 in 30,000)

Postoperative diplopia

- Diplopia is quite common after surgery for comitant strabismus and usually lasts a few minutes, days, or weeks
- Persistent postoperative diplopia is rare and more common in adults especially when they are overcorrected

Prevention
- Preoperative correction of the deviation with prisms can give a hint for the possibility of postoperative diplopia
- In adult patients avoid overcorrection
- Use of adjustable sutures

Treatment
- Prisms
- Occlusion of one eye
- Reoperation
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