

Persistent strabismus after cataract extraction

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Background. Transient ocular misalignment as a complication of paravulbar and peribulbar anesthesia has already been reported in the literature. The aim of our study was to present a case of irreversible iatrogenic vertical strabismus after cataract surgery, which had to be operated on. **Methods.** Clinical and orthoptic evaluation of a female patient with vertical diplopia after phacoemulsification cataract surgery. **Results.** One week after the uneventful surgery, a 68-year-old patient complained of a sudden vertical deviation in the operated eye. The patient had not had a history of previous motility disorders. On examination, the patient showed hypertropia in the left eye of 15–20 degrees in primary position. Three and 6 months postoperatively, there was no a spontaneous improvement, while the persistent vertical deviation was 40 prism dioptres. Strabismus surgery was required 1 year after the cataract surgery. **Conclusion.** Diplopia is a complication of peribulbar anesthesia which could be persistent. The superior and inferior rectus muscle are especially vulnerable. Its occurrence may be technique - related and the incidence increases when hyaluronidase is not available.

Key words : cataract extraction; diplopia; anesthesia, local; enzymes; strabismus; iatrogenic disease.

Introduction

Diplopia is an infrequent, but well-known complication after cataract surgery (1, 2) Postoperative misalignment may result from many mechanisms, some of which are the disruption of fusion due to poor vision caused by cataract (decompensated heterophoria), the disclosure of pre-existing strabismus masked by the cataract, disorders related to pseudophakia, and optical aberrations, and operative or anesthetic damage to the extraocular muscles (3, 4).

We report the case of a persistent iatrogenic vertical strabismus after cataract surgery in our hospital, which had to be reoperated further.

Case report

This case was one of a very few persistent postoperative vertical deviations out of 2100 retrospectively reviewed patients, who underwent extracapsular or phacoemulsification cataract extraction with intraocular lens implantation. All of them were performed under peribulbar anesthesia in

the clinic during a 2-year-period when hyaluronidase was not available.

A 68-year-old woman had uneventful phacoemulsification cataract surgery with a posterior chamber intraocular lens (PCIOL) implantation in the left eye. Peribulbar anesthesia (4 ml Bupivacaine 0.5% and 4 ml Lidocaine 2.0% without hyaluronidase) were used and given by the well trained anesthesiologist, in the inferotemporal and the superonasal quadrants. Cataract in the other eye was operated before. The best corrected vision was 20/30 in both eyes.

On the 8th postoperative day, the patient noticed the extreme vertical deviation (VD) of the left eye, and diplopia. The patient had no history of previous motility disorders. We confirmed primary position of hypertropia in the left eye of 15–20 degrees, with the underaction of the left inferior rectus muscle, and the overaction of the left superior rectus muscle. The forced duction test was negative.

Six months after the operation, the patient showed no significant improvement. Because of the big angle of deviation, the pupil was covered by the lid, and diplopia was well tolerated without prisms.

Strabismic deviations were measured in the five diagnostic gaze positions for far and near by the prism alternate cover test. Persistent angle in primary position was -VD 35 prism dioptres, left gaze was -VD 45 prism dioptres and up-gaze was -VD 50 prism dioptres (Figure 1).

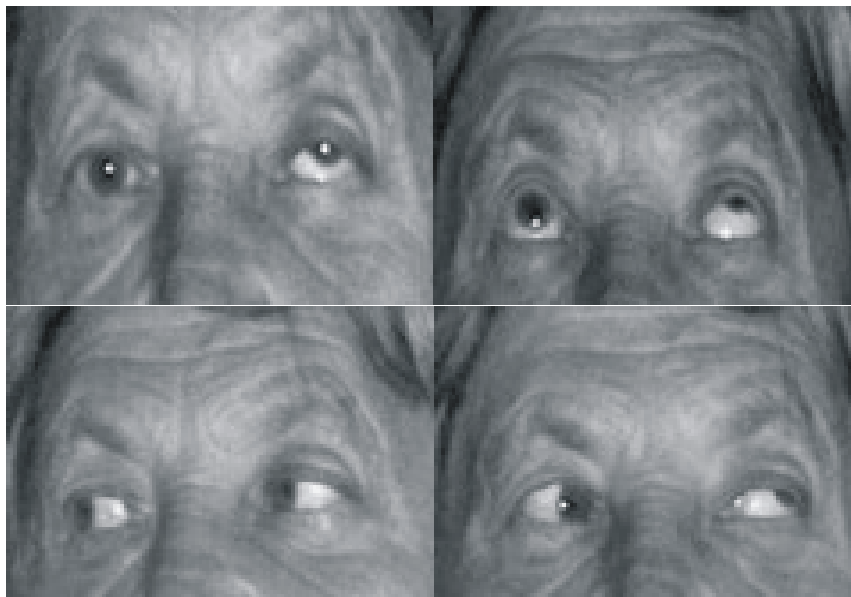


Fig. 1 – Hypertropia, left eye

Strabismus surgery was required. Retroposition of the superior rectus muscle for 6.0 mm and the resection of the inferior rectus muscle for 5.0 mm were done. Two months after the surgery, we confirmed 5 prism dioptres -VD for near and far (Figure 2). The histology examination of the inferior rectus muscle revealed no morphologic changes.

The real cause of permanent misalignment in a case of our patient was not clear. We could speculate that the rectus muscles suffered from the ischemic injury (7). This could be caused by a high tissue pressure and vascular compromise with a subsequent inflammation and fibrosis (8).

Myotoxic effect of anesthesia could be another reason for diplopia. It is well – known that the presence of hyaluronidase improves the rapidity of onset, dispersion, depth and the duration of anesthesia (9–12). The possible cause of diplopia in a case of our patient could be the hyaluronidase shortage, which allowed the greater exposure of an extraocular muscles to the anesthetic and, hence, the increased myotoxicity to the muscle.



Fig. 2 – After surgery, left hypertropia 5pd

Discussion

The occurrence of diplopia after paravulbar and peribulbar anesthesia for cataract surgery has been well described (4–6). Transient ocular misalignment mostly resolves in a few weeks postoperatively. Surgery for strabismus as a consequence of a prolonged hyperopia, as far as we know, has not been reported by now.

Conclusion

Considering all the benefits of hyaluronidase, and ptosis and diplopia reported in the literature after anesthesia without hyaluronidase, we think that the hyaluronidase shortage could be the problem in cataract surgery as indicated in our case.

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Apstrakt

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PERZISTIRAJUĆI STRABIZAM POSLE OPERACIJE KATARAKTE

Uvod. Prolazni poremećaji okulomotorne ravnoteže koji nastaju kao komplikacija parabolbusne ili peribulbusne anestezije poznati su u literaturi. Predstavljamo slučaj ireverzibilnog jatrogenog vertikalnog strabizma nastalog posle operacije katarakte koji je hirurški lečen. **Metode.** Klinički i ortoptički pregled bolesnice sa vertikalnom diplopijom posle operacije katarakte. **Rezultati.** Sedam dana posle operacije katarakte koja je protekla bez komplikacija, šezdesetosmogođišnja bolesnica, javila se na pregled sa novonastalom vertikalnom devijacijom operisanog oka. Ranije nije bilo poremećaja motiliteta. U primarnoj poziciji vertikalna devijacija iznosila je 15 do 20 stepeni. Tri i šest meseci posle operacije nije došlo do spontanog poboljšanja i perzistentna devijacija iznosila je 40 prizma dioptrija. Zbog strabizma je bolesnica operisana godinu dana nakon ekstrakcije katarakte. **Zaključak.** Diplopija, kao komplikacija peribulbusne anestezije, može biti perzistentna, a gornji i donji pravi mišić su najčešće pogođeni. Oštećenja mogu biti uslovljena načinom davanja anestezije i njihova učestalost je veća u odsustvu hijaluronidaze.

Ključne reči: katarakta, ekstrakcija; diplopija; anestezija, lokalna; enzimi; strabizam; jatrogena bolest.