(57)

Detachment of the choroid after strabismus surgery in high myopia

Odłączenie naczyniówki po operacji zeza w wysokiej krótkowzroczności

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Summary: We present a case of 60 years old woman, who underwent strabismus surgery due to cosmetically disturbing large divergent strabismus. Before surgery we found exotropia of the LE of 40 PD with hypotropia of 15 PD. Patient had surgery of convergent strabismus on this eye in childhood. LE was amblyopic since childhood, BCVA = 1/50, with moderate axial myopia and astigmatism (-2.75/ -2.0 ax 165). We performed lateral rectus recession of 8 mm and medial rectus anteposition of 2 mm with simultaneous vertical transposition of these muscles 7 mm upwards. Despite special attention during scleral pass of the needle due to thin myopic sclera, a single microperforation occurred, followed by seemingly insignificant vitreal flow. On the next day after surgery horizontal orthoposition was achieved with reduction of hypotropia to 7 PD. However, we found small vitreal hemorrhage and significant retinal folding. On USG exam we found large choroidal detachment in all quadrants. As there was possibility of simultaneous retinal detachment, patient was hospitalized in Department of Ophthalmology of Medical University of Gdańsk, where conservative treatment was applied and retinal detachment excluded. Four weeks after surgery complete choroidal attachment was achieved.

Słowa kluczowe: krótkowzroczność, zez, odłączenie naczyniówki.
Key words: myopia, strabismus, choroidal detachment.

Introduction

Technically speaking scleral intrusion can be divided into scleral penetration and real scleral perforation (1). Scleral penetration occurs when the needle doesn't pass through the whole thickness of scleral wall and the adjacent layers including retina, but stays within choroid or subchoroidal space. In case of scleral perforation we deal with the needle perforating the full thickness of the wall of the globe including all the inner layers, retina in particular. In fact only scleral perforation can always be detected on the fundus examination, while scleral penetration may sometimes pass unnoticed, especially by the inexperienced surgeon, and be not included in published statistics.

Scleral perforation/ penetration during strabismus surgery is a relatively rare complication. According to different papers published after 1990 it occurs in 0.1% to 5% of surgical procedures of strabismus (2-6). In the 60-ties and 70-ties the percentage of accidental perforation of the globe during strabismus surgery was estimated as 8-12% (4,5). It appears, that introduction of modern surgical needles and more frequent use of surgical microscope has significantly reduced incidence of scleral perforation. Perforations can occur at any stage of surgery, however they are more frequent in recessions of the muscles and while applying posterior fixation sutures (3,5,6). They occur most often during muscle reattachment to the globe (3,5,6). They happen less often during muscle detachment or when using traction sutures. Risk of scleral perforation is also higher in reoperations (6). Scleral perforations are naturally associated with thin sclera, which is typical for high myopia (2,6). Usually, unintended scleral perforation doesn't have serious consequences. In its place usually a chorioretinal scar is formed. Rarely it results in endophthalmitis or retinal detachment (4,6).

Case report

We present a case of 60 years old women, who underwent strabismus surgery due to cosmetically disturbing left exotropia. Before surgery left eye was exotropic of 40 PD as well as left hypotropic of 15 PD. In childhood the patient had strabismus surgery due to esotropia of that eye. Left eye has been amblyopic since childhood, with BCVA = 1/50 and moderate axial myopia and astigmatism (-2.75/ -2.0 ax 165). During surgery we performed lateral rectus recession of 8 mm and anteposition of medial rectus of left eye of 2 mm with vertical transposition of those muscles upwards by 7 mm. Despite special attention while performing scleral pass and use of surgical microscope, scleral perforation with seemingly insignificant vitreous flow has occurred. After surgery we achieved practically full horizontal orthoposition with reduction of hypotropia to 7 PD (Fig. 1). At the same time on the first postoperative day we found hypotonia in the left eye, moderate vitreal hemorrhage and significant retinal folding (Fig. 2, 3). On the ultrasound examination large choroidal detachment in all quadrants was revealed (Fig. 4).

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Fig. 1. Eye position on the first postoperative day.
Ryc. 1. Ustawienie gałek ocznych dzień po zabiegu operacyjnym.

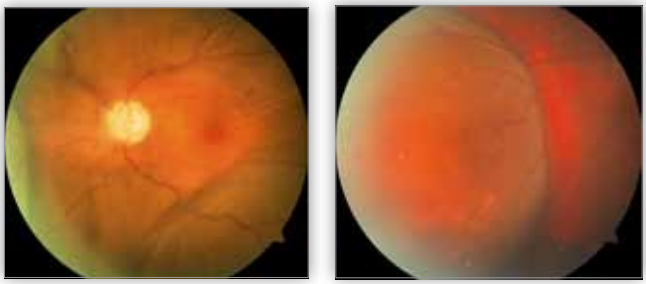

Fig. 2,3. Image of the fundus on the first postoperative day – minor intravitreal hemorrhage and choroidal detachment, most significant in nasal sector.
Ryc. 2,3. Fotografia dna oka dzień po zabiegu – widoczne są niewielki krwotok doszklistkowy i odłączenie naczyniówki, największe w sektorze nosowym.

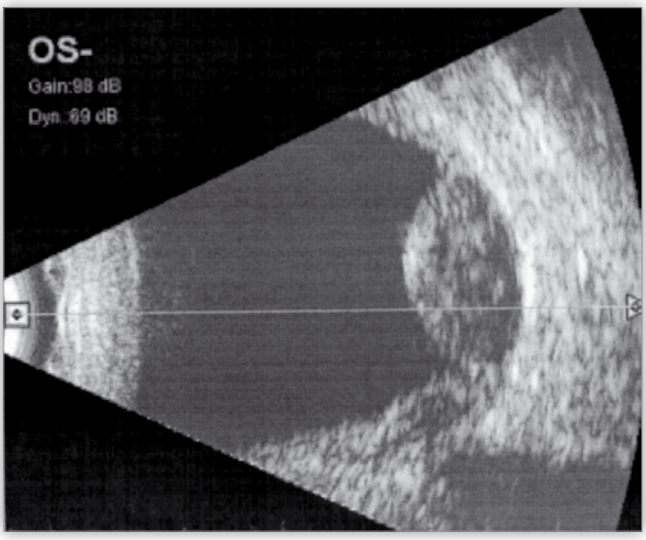

Fig. 4. Choroidal detachment on ultrasound exam.
Ryc. 4. Odłączenie naczyniówki w obrazie USG.

Due to possibility of simultaneous retinal detachment, the patient was admitted to Department of Ophthalmology of Medical University in Gdańsk, where conservative treatment was applied. After two days, due to absorption of vitreal haemorrhage, it was possible to examine periphery of the fundus and exclude presence of unsealed retinal tear as well as retinal detachment. Tendency towards reduction of choroidal detachment was ob-

Fig. 5. Eye position one month after surgery.
Ryc. 5. Ustawienie gałek ocznych miesiąc po zabiegu.

Fig. 6. Image of the fundus 4 weeks after surgery – lack of choroidal detachment.
Ryc. 6. Fotografia dna oka 4 tygodnie po zabiegu – brak odłączenia naczyniówki.

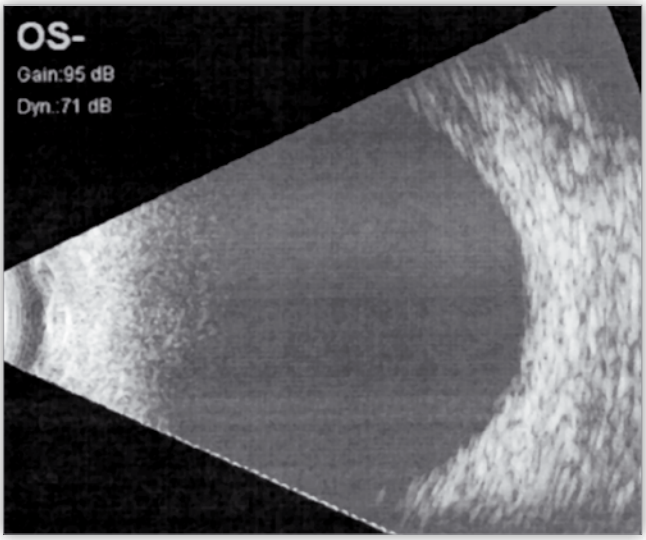

Fig. 7. Ultrasound exam of the fundus 4 weeks after surgery – lack of choroidal detachment.
Ryc. 7. USG gałki ocznej 4 tygodnie po zabiegu – brak odłączenia naczyniówki.

served during the next weeks of observation. After 4 weeks since surgery, full attachment of the choroid was achieved as well as satisfactory for the patient cosmetic result of the operation (Fig. 5, 6, 7).

At certain point during postoperative observation period, it was possible to visualize a very small whitish spot in the midperiphery of the retina in its temporal part, that could be interpreted as very small chorioretinal scar. Its location could refer to the place of possible perforation during strabismus surgery. As there was no sign of retinal edema or retinal flap present, as well as due to very small size of this finding, we decided not to use retinal photocoagulation, but to regularly examine the patient during the following months.

Discussion

Despite optimistic statistics concerning occurrence of scleral perforation during starbismus surgery, procedures performed on eyes with high myopia bear an increased risk of this complication, especially during muscle recession. To avoid possible complications surgeon should first know how to recognize the occurrence of scleral perforation/ penetration. Experienced surgeons usually can feel, that the needle has passed too deeply, however residents might not recognize it during surgery. Sometimes a small amount of blood might appear in scleral tunnel or vitreous might be present – signs, which herald the complication. Some authors suggest intraoperative transscleral cryopexy after accidental bulbar microperforation with vitreal flow (7). In case of suspicion of intraoperative scleral perforation, surgeon should examine the fundus as soon as it is possible, preferably during the surgery. In case of perforation he may found intravitreal heamorrhage and should localize the retinal break. If present, it often doesn't result in retinal detachment. Usually the break heals and chorioretinal scar forms. However, careful fundus examination, including ultrasound exam is necessary. In our case postoperative hypotonia occurred, consequence of which was choroidal detachment, luckily without retinal detachment. There are surgical techniques which help to avoid scleral perforation in patients at risk. While planning strabismus surgery on eyes with high myopia we can consider applying a „hang-back" technique in case of muscle recession (8). This technique eliminates necessity of passing the needle through very thin sclera, using muscle insertion as the spot for fixation of the suture on which the operated muscle is hanged. In postoperative care of strabismus patients, especially myopic, we should routinely pay special attention to examining the fundus, not only concentrate on estimation of eye deviation. In case of suspicion of intraoperative scleral perforation it is worth to administer systemic antibiotic therapy in postoperative period, this way diminishing the risk of endophthalmitis.

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