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COMPARISON OF TREATMENTS FOR RHEGMATOGENOUS RETINAL DETACHMENT

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✓ *Resume*

The work studied the results after surgical treatment of rhegmatogenous retinal detachment using peripheral vitrectomy of the base of the vitreous body in air with a combination of 360° laser retinopexy and the traditional method of vitrectomy in an aqueous environment with scleral pressure and laser retinopexy of the rupture only. The study found that the optimized technology had several advantages in terms of retinal detachment recurrence and iatrogenic breaks.

Key words: vitrectomy, retinopexy, air environment

СРАВНЕНИЕ МЕТОДОВ ЛЕЧЕНИЯ РЕГМАТОГЕННОЙ ОТСЛОЙКИ СЕТЧАТКИ

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✓ *Резюме*

В работе изучались результаты после хирургического лечения регматогенной отслойки сетчатки методами периферической витрэктомии базиса стекловидного тела в воздушной среде с комбинацией 360 лазерной ретинопексией и традиционным методом витрэктомии в водной среде с надавливанием склеры и лазерной ретинопексией исключительно разрыва. В ходе исследования было обнаружено, что оптимизированная технология обладает рядом преимуществ в плане рецидива отслойки сетчатки и возникновения ятрогенных разрывов.

Ключевые слова: витрэктомия, ретинопексия, воздушная среда

REGMATOGEN TO'R PARDA KO'CHISHINING DAVOLASH USULLARINI TAQQOSLASH

Xusanboyev X.Sh., Yusupov A.F.

Respublika ixtisoslashtirilgan ko'z mikroxirurgiyasi ilmiy-amaliy markazi, Toshkent, O'zbekiston

✓ *Rezyume*

Maqolada periferik vitrektomiyani havo muhitida bajarish va 360° lazerli retinopeksiya bilan kombinatsiyalangan usulni an'anaviy vitrektomiya usuli bilan, ya'ni suv muhitida skleral bosim orqali va faqat yirtiqning o'zini lazer retinopeksiyasini bajarish usuli bilan taqqoslashdir. Tadqiqot shuni ko'rsatdiki, optimallashtirilgan texnologiya to'r parda ko'chishini takrorlanishi va yatrogen yirtiqnlarni oldini olish nuqtai nazari buyicha afzalliroqdir.

Kalit so'zlar: vitrektomiya, retinopeksiya, havo muhiti

Relevance

Rhegmatogenous retinal detachment (ROD) is the most common type of retinal detachment, occurring in 1 in 10,000 people per year [1]. Blindness in the affected eye is inevitable without proper and timely treatment. According to many authors, among patients with RD, up to 84% are people of working age, which shows a high social significance and the importance of the optimal choice of treatment for this pathology [3,4]. To date, there are several generally accepted methods for the treatment of RRD, such as: scleral buckling, vitrectomy, pneumoretinopexy. Each of them has its own indications, advantages and disadvantages, which has been demonstrated in a huge number of scientific and practical works carried out around the world. Despite the relatively good anatomical and functional results, the recurrence rate in retinal detachment surgery varies from 6 to 38% [2]. The main reason for failure is proliferative vitreoretinopathy (anterior and posterior), unblocked hidden retinal tears. Vitrectomy involves the complete removal of the vitreous body from the cavity of the eye, as far as possible. So, a thorough "cleaning" of the base of the vitreous during RRD surgery is a mandatory procedure and is one of the main keys to the success of the treatment. Recently, several works have been described on the removal of remnants of the vitreous body in the air [6,7,8]. Air has a high surface tension and a low refractive index (1.0) compared to a balanced salt solution (1.33), which allows a wider visualization of the periphery of the fundus and, accordingly, the residual vitreous body. And a good tension, pressing the retina against the wall, makes the "cleansing" process safer. Also, there is no consensus on the advisability of using endolaser retinopexy in the course of RRD surgery, although the data of many authors have proven the safety and comparability of the method in comparison with standard local endolaser coagulation of the rupture zone [4,9,10].

The aim of the study: To optimize the technology of surgical treatment of rhegmatogenous retinal detachment by a combination of vitrectomy of the base of the vitreous body in air with 360° peripheral endolaser retinopexy and evaluate its clinical and functional effectiveness

Material and methods

For this retrospective study, patients with rhegmatogenous retinal detachment were selected who were operated on in the period 2020-2022 at RSSPMCMG. The control group included 25 patients with peripheral submerged vitrectomy (BSS) with laser limitation of the retinal tear. The study group included 25 patients with peripheral vitrectomy under air in combination with 360° laser retinopexy.

Groups were compared for preoperative visual acuity, duration of retinal detachment, presence of proliferative vitreoretinopathy, macular condition, number of retinal tears, lens condition (phakic/pseudophakic), postoperative visual acuity, and recurrent retinal detachment. The frequency of intraoperative iatrogenic retinal tears that occurred during peripheral vitrectomy was also assessed.

Table 1 Initial characteristics and preoperative ophthalmic parameters

	Air	Liquid
Number of eyes	25	25
Age, (mean, years)	46 ± 15	47 ± 12
Corrected visual acuity, (mean ±)	0.05 ± 0.05	0.04 ± 0.05
Detachment duration (mean ±, days)	40 ± 15	35 ± 10
PVR, degree		
C1 or less	19 (76%)	21 (84%)
C2-3	6 (24%)	4 (16%)
Macula		
Off	2 (12%)	1 (6%)
On	23 (88%)	24 (96%)
Breaks		
multiple	14 (56%)	10 (40%)
one	11 (44%)	15 (60%)
lens		
Native	18 (72%)	19 (76%)
IOL	7 (28%)	6 (24%)

* $P < 0.05$, PVR – Proliferative vitreoretinopathy.

As can be seen from the preoperative indicators, there are no statistically significant differences between the groups (Table 1).

Exclusions from the study were patients with congenital or concomitant severe eye diseases, PVR above stage C3, combined surgery with PE, aphakia, with choroidal detachment, with retinal dialysis, and a history of vitreoretinal intervention.

Surgical technique. Operations were performed on the Stellaris Elite apparatus (Bausch & Lomb, USA) with a 23 gauge vitrectomy. A Zeiss Opmilumera 700 ophthalmic microscope with a Resight 700 wide-field fundus imaging system (Carl Zeiss, Germany) was used. A standard 3-port vitrectomy was performed, with drainage of subretinal fluid through an existing gap or a specially formed posterior retinotomy. In the control group, peripheral vitrectomy was performed using sclerocompression in the "shave" mode, in the absence of an assistant, using a chandelier light guide (chandelier endoillumination), at the end, the rupture was limited with an endolaser. In the study group, peripheral vitrectomy was performed after liquid-air exchange, in air with the following parameters: 7500 cuts/min, infusion 35 mmHg, vacuum 400 mmHg. After cleaning, the periphery was cauterized with a 360° endolaser. In both groups, silicone oil Oxane 5700 (Bausch & Lomb, USA) was used for tamponade.

Result and discussion

After receiving the results, the groups were compared with each other in terms of visual acuity, erythrocytic breaks during peripheral vitrectomy, as well as relapses of retinal detachment (Table 2). vacuum up to 500 mmHg and reduction of cuts up to 6000 cuts/min. In the liquid group, there were 3 cases of touching the periphery of the retina with the appearance of a break during vitrectomy in the "shave" mode, due to very close work and high mobility of the retina. There are no statistically significant differences in visual acuity after 3-6 months. During the observation period, no retinal detachment recurrence was found in the air group. Whereas in the control group there were 2 relapses, one due to an untreated, possibly occult retinal tear. The second is due to anterior PVR and unblocking of the main tear in the pseudophakic eye.

Table 2 Postoperative visual acuity, intraoperative and postoperative complications

	Air	Liquid
Corrected visual acuity, (mean ±)	0.3 ± 0.15	0.2 ± 0.1
Iatrogenic tears during surgery	1/25 (4%)	3/25 (12%)
Detachment recurrence	0/25	2/25 (8%)

*P<0.05

Conclusions

The advantage of vitrectomy in air is a greater view of the periphery of the retina during surgery. Which in many cases does not require additional sclerocompression for better visualization, making the procedure more comfortable for both the surgeon and the patient. In most cases, the operations were performed under local anesthesia. Also residual glass between fabric-air environments is very well identified. Air pressing the retina with its tension eliminates its mobility, while vitrectomy with the developed parameters and technique becomes safer in terms of the occurrence of iatrogenic ruptures. 360° endolaser coagulation is a prophylactic procedure to prevent recurrence of retinal detachment. In this study, we found that peripheral air vitrectomy in combination with 360° laser retinopexy had comparable results to fluid vitrectomy in shave mode with the laser limited only around tears. Given the small number and relatively short period of observations, further clinical study of the technique is required.

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