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Alizada A., Dogan M., Yozgat Z., Akdogan M.

ANATOMIC AND VISUAL OUTCOMES OF PRIMARY PNEUMATIC RETINOPEXY FOR RHEGMATOGENOUS RETINAL DETACHMENT

Deparment of Ophthalmology, Afyonkarahisar Health Sciences University Medical School, Afyonkarahisar, Turkey

Key words: *rhegmatogenous retinal detachment, pneumatic retinopexy, intraocular pressure*

Retinal detachment (RD) is the separation of the neurosensory retina from the underlying retinal pigment epithelium (RPE). Rhegmatogenous RD (RRD) is the most common type of RD, and it results from breaks in the neurosensory retina, which leads to the leakage of liquefied vitreous into the sub-retinal space, resulting in detachment [1]. The sub-retinal compartment is delineated by RPE cells in the outer part and the external limiting membrane (ELM) in the inner part. There is no anatomical connection between the ELM and the RPE, but there is nevertheless a strong adhesion between the two layers. This adhesion is mediated by several factors: compression from the vitreous body, intraocular pressure, RPE water transport out of the sub-retinal space, interphotoreceptor matrix (IPM) binding properties (which are dependent on hydration and location), the ionic environment (which is controlled by RPE), and microvilli adhesion to the outer segments of the cone. The retinal tears and holes that lead to a RRD are caused by vitreous traction (posterior vitreous detachment [PVD]). The retinal tear occurs in the neuroretina, leaving the RPE untouched. Through the opening, liquefied vitreous can enter the sub-retinal space and separate the neuroretina from the RPE [2]. PVD is the most common age-related condition among patients aged 45 years and older. The main complications associated with PVD include retinal breaks and hemorrhage [1, 2]. Retinal breaks can cause retinal detachment.

For RRD repair, surgeons have several options; like scleral buckling surgery (SB), pneumatic retinopexy (PR), or pars plana vitrectomy (PPV). Pneumatic retinopexy was first described by Dominguez and by Hilton and Gizzard in 1911 [2]. This minimally invasive procedure was introduced as the intravitreal injection of a gas bubble and post-operative positioning. In later years, the prospective studies of Tornambe compared PR to SB and found comparable anatomic results, which shed further light on the issue [3, 4]. He also employed PR using expanded inclusion criteria such as multiple breaks in upper multiple clock-hours, large tears, and the presence of mild proliferative vitreoretinopathy (PVR), with favorable anatomical success [5]. In a case series studying PR in the treatment of RDs on 302 eyes, Tornambe determined the single-operation success rate to be 61%, compared to a 95% final success rate [6]. The following were shown to negatively influence the final outcomes: pseudophakia or aphakia, a larger number of retinal breaks, and a greater extent of detachment [6].

Advantages of PR include immediate access, reduced morbidity and complications owing to its minimal invasiveness, no requirement for sedation or general anesthesia, the possibility of better visual outcomes, and reduced costs. Disadvantages include the need for careful pre-operative examination to identify all breaks, post-operative positioning for 5–7 days, and the increased possibility of requiring an additional procedure (laser retinopexy, cryoretinopexy, or operating room surgery) [7]. The recent of study Chan et al. [8] included a total of 4138 eyes over a 21-year period; most complications were reported as new retinal breaks 484 (11.7%) and PVR 215 (5.2%) eyes. In their study, the authors also reported that the efficacy of repairing a RD depends on three crucial steps: introduction of retinopexy around all retinal breaks with cryopexy or laser; intraocular gas injection; and strict post-operative head positioning for an appropriate amount of time to allow the gas tamponade to achieve the closure of retinal breaks [8]. The study of Fabian et al. [9], which included 258 eyes (93.5%), found no significant difference in best corrected visual acuity (BCVA) outcomes between successful PR cases and those with only one additional operation, but significantly worse outcomes in those cases requiring two or more additional operations.

Ideal candidate patients for PR are those with phakic eyes who are mentally and physically able to undergo positioning; additionally, the ideal candidate has small tears in the 1 o'clock-hour or a single tear smaller than the 1 o'clock-hour located in the superior 8 o'clock-hour of the fundus, with clear media and no PVR [10]. PVR is approximately 80% successful with a single injection and the appropriate choice of patient as sub-optimal anatomic considerations have been reported by some surgeons, including inferior retinal breaks, the absence of an identifiable break, lattice degeneration, pseudophakia, PVR, media opacity including vitreous hemorrhage, retinal breaks larger than than the 1 o'clock-hour, retinal tears in both attached and detached retina, and very large retinal tears [11].

Aim – to describe anatomic and visual outcomes of pneumatic retinopexy in patients with rhegmatogenous retinal detachment.

Material and methods

In this retrospective, single-centered study; patients who underwent the pneumatic retinopexy operation with rhegmatogenous retinal detachment in Ophthalmology Department of Afyonkarahisar Health Sciences University Hospital between December 2013 and September 2017 were evaluated. All procedures were performed in accordance with the tenets of the Declaration of Helsinki. Institutional review board approval was obtained from the Ethics Committee of Afyonkarahisar Health Sciences University.

All fifty-eight patients underwent complete ophthalmological examination including; measurement of the best corrected visual acuities (BCVA) refraction using an automated refractometer, anterior segment examination using slit lamp biomicroscopy, intraocular pressure measurement, and the posterior segment examination using slit lamp biomicroscopy with a three-mirror contact lens. The patients were detailed informed of the technique and the postoperative position and signed a consent form. Patients who met study criteria underwent PR using one of the tamponade injection types of sulfur hexafluoride (SF6), perfluoropropane (C3F8), hexafluoropropane (C2F6). Excluding criteria of patients in this study were inferior localized breaks, more than localization 5 and over, patients with PVR.

The patients' age, sex, the BCVA as the logarithm of the minimum angle of resolution (logMAR), intraocular pressure, preoperative retinal tear location, macular involvement, tamponade type (C3F8, SF6, or C2F6), coexisting complications, functional and anatomical success rates at preoperative, postoperative examinations were recorded.

The anesthetic was topical 0.5% proparacaine (Alcaine, Novartis, USA). The pupil was dilated preoperatively using a mixture of 1% tropicamide and 2.5% phenylephrine eye drops. After the anesthetic procedure eye and the surrounding area were cleaned with povidone-iodine 10%. After draped and lip speculum placed, gas was injected through a needle intravitreally 3.5-4 mm posterior to the limbus through the inferotemporal quadrant. Patients deferred in treatment criteria and gas selection. Injection included: 0.35-0.45 ml 100% SF6, 0.25-0.35 ml 100% C3F8, or 0.25-0.50 ml 100% C2F6. After injection of gas if necessary high intraocular pressure was observed anterior chamber paracentesis (ACP) was performed with 20-gauge MVR knife (Beaver and Edge Ahead Sideport MVR knife, Beaver Visitec International Inc., MA, USA). Postoperatively patients were warned to appropriate position themselves so that the bubble completely above the break approximately 1st week.

Postoperatively 1st and 2nd day the laser photocoagulation with an argon laser (Laserex, Integre 532, Ellex Corporate Inc., Adelaide, Australia) was performed around the break with contact lens (QuadrAspheric fundus lens, Volk Optical Inc. Mentor, OH, USA). The laser included the duration of 0.1 seconds to 0.2 seconds and spot size 250 nm to 350 nm. The laser was applied in 2 or 3 confluent 360° rings around the retinal hole under gas bubble postoperatively.

If the retina around the hole was not sufficiently flat photocoagulation on the 7th day after gas injection, the procedure was considered as failed. In failed patients, PR was repeated additionally, and if the second failure occurred the PPV was applied as the operation in this patients.

Patients with less than one month of follow-up or coexisting neovascular macular degeneration, uveitis, endophthalmitis, or prior posterior segment surgery were excluded.

Statistical analysis was performed using SPSS software (Version 18, SPSS Inc., Chicago, IL, USA) and Microsoft Excel(Microsoft Corp., Redmond, Washington, USA). Statistical significance decided when $p<0.05$.

Results and discussion

Thirty-two patients 32(55.2%) were men and 26(44.8%) were women (Table 1). The average age of patients was 59.5(24-83). Macula detachment was in 22 (37.9%) patients.

Table 1

Single operation success rates of pneumatic retinopexy

Variables		Number of eyes
Sex	Men (n=32) Women (n=26)	20(62.5 %) 18 (69.23 %)
Lens status	Phakic (n=55) Pseudophakic (n=3)	37 (67.27%) 2(66.6%)
Macula status	Attached (n=36) Detached (n=22)	21(58.33%) 15 (68.18%)
Number of breaks	Single (n=51) Two (n=7)	38(74.50%) 2(28.57%)
Injected gas	Perfluoropropane(C3F8) (n=40) Sulfur hexafluoride (SF6) (n=14) Hexafluoroethane (C2F6) (n=4)	29(72.5%) 8(57.14%) 1(25%)

Localization of breaks were: 51 patient (87.9%) at 1 o'clock, 4 patients (6.9%) were at 1 and 4 o'clock, and 3 patients (5.2%) at 1 and 3 o'clock; localization number of breaks were at 1 amount at 51 (88%) patient, 2 amount at 7 (12%) patients. 14 patients underwent to pars plana vitrectomy surgery. 55 patients were phakic (94.8%), and 3 patients (5.2%) were pseudophakic.

40 patients (69%) were injected perfluoropropane(C3F8), 14 patients (24.1%) – sulfur hexafluoride (SF6), and 4 patients (6.9%) hexafluoroethane (C2F6).

The anatomical success rate after a single injection was 65.5 %, after the second injection of 10.34 %.

Intraocular pressure average rate was 14.42 mmHg before application and 17.07 mmHg one day after application. 5 patients required antiglaucomatous drops to decrease intraocular pressure. 15.03 mmHg at postoperative 1 week. 15.30 mm Hg 1. month and 15.09 mmHg 6. months.

BCVA before application, postoperatively 1st day and 6th month were 0.20, 0.35 and 0.60 logMAR respectively. In the subgroup analysis macula on patients BCVA was 0.52 logMAR preoperatively, 0.3 logMAR at 1st day and 0.15 logMAR 6th month postoperatively, and in macula-off patients were 1.20 logMAR preoperatively, 0.7 logMAR at 1st day and 0.4 logMAR at 6th month postoperatively.

No endophthalmitis, vitreous hemorrhage, subretinal gas, proliferative vitreoretinopathy has noted in any eye of patients. The average follow-up time was 16.8 months.

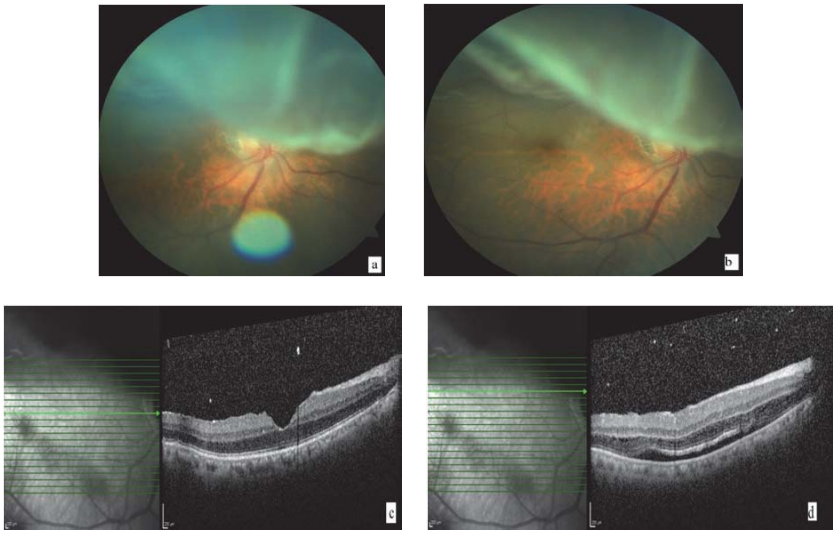

Figure 1. Fundus images (a,b) and Spectral-Domain Optic Coherence Tomography (SD-OCT) images (c,d) of patient with retinal detachment at right eye, 58 year old men,preoperatively

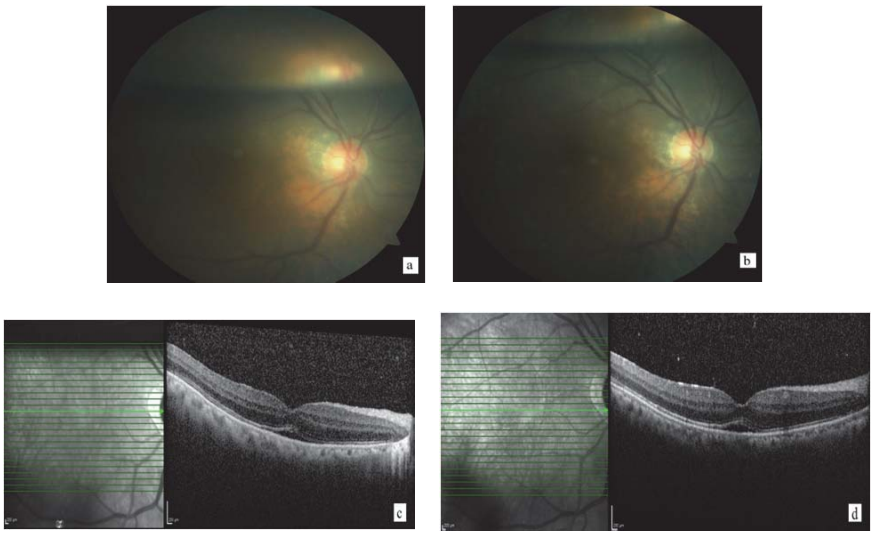

Figure 2. Fundus images (a,b) and Spectral-Domain Optic Coherence Tomography (SD-OCT) images (c,d) of patient with retinal detachment at right eye, 58 year old men, postoperatively 3rd and 5th days

Discussion

Pneumatic retinopexy is an effective, minimally invasive, and cost-effective method to repair primary RRD. Learning of PR procedure is relatively easy for this reason, younger surgeons are more interested to do PR as their first approach to RRD than their older colleagues [8-11].

PR has, in general, a lower single surgery success rated with scleral buckling and vitrectomy, which primary anatomic success rates that published before vary widely from 68.2% to 93% and 62.6% to 97%, respectively [12]. PR also sometimes requires more, postprocedural clinic visits than the surgical alternatives [8, 10].

As mentioned before, study Hilton et al3, which consists of 1.000 consecutive patients operated for retinal detachment were studied prospectively to determine the incidence of complications, showed that PR has the advantages of reduced tissue trauma, no hospitalization, minimal complications, and reduced expense. Recorded success in this study with six months follow up was 90%. For the authors, the major disadvantage of the PR is the need for postoperative positioning for five days. Also at the end of 1989s trials of Tornambe et al. [4-7] showed us that PR had less morbidity and better postoperative visual acuity compared with SB and PPV. At the multicentre, randomized, controlled, clinical trial with 198 patients, which were followed for at least 6 months and scleral buckling was compared with PR [4] , authors recorded that the overall success of SB comparing with PR reattachment with reoperations was 98 versus 99%. These outcomes showed that the anatomic results of two operations were not significantly different but PR had less morbidity and better postoperative visual acuity. At another study of 2 years follow-up [5] consisting 179 patients of 198 eyes enrolled in a previously published trial, comparing PR with SB, authors recorded success PR as 99 %, and SB as 98%. The study of forty eyes which were treated with PR [6] the overall success rate for PR was 75%. Also one of the largest case study Tornambe's [7], the average single operation success rate at 302 cases was 68% and 95% that were finally attached with additional surgery.

Chan et al. [8] recorded at surgical outcomes for the 4.318 eyes in the 21-year period, which included between 1986-2007 years, single operation successes 74.4% and final operation successes as 96.1% of rate. At the study of Fabian et al. [9] from 258 eyes were included in the study from 2000 to 2011, final anatomical success reported as 99.2%. Also, Gilca et al. [13] had documented at 406 patients which having undergone 422 primary PRs, single operation success rate as 60.7%, and final anatomical success as 99.5% of rate. A prospective study that was performed by Ellakwa [14] in 75% of cases was reported success rates. A review study of 97 patients who had undergone PR injection of sulfur hexafluoride, the single operation success rate was 82.5%. Case studies of Modi et al. [16] which occurred between 2000 and 2012 years, which collected 63 eyes of 63 patients, single operation success occurred in 40 eyes (63%), and the retina was successfully reattached in 21 of the other 23 eyes (91%) with one additional surgery.

Recently published study of Dhami et al. [17] retrospectively analyzed 54 eyes who underwent PR for RRD by injecting perfluoropropane (C3F8) a cryopexy to break in the same sitting, primary success rates with PR alone were in 15 (60%) eyes, 29 eyes (52.7%) underwent to scleral buckle or PPV which success rate was 65.5%.

In our study findings of anatomical success rate after a single injection was 65.5%, after the second injection of 10.34%. These results weren't comparable with earlier studies in the 1980s and 2000s, but they were comparable with recent studies such as Modies'[16] and Dhamis'[17].

One of the causes of the lower success rate of PR in pseudophakic or aphakic eyes as compared to phakic eyes [6, 7, 21, 22]. Davis et al. [21] reported success rate as 57.1% in pseudophakic eyes versus 67.5% in phakic eyes. Rootman et al. [23], on multivariate analysis, found pseudophakic status to be significantly related with PR failure. Ling et al. [20] described as pseudophakic eyes with a lower success rate, too. Authors related pseudophakic eyes with poor localization of breaks, missed breaks, migration of gas bubble anteriorly. Retinal tears of aphakic or pseudophakic eyes have a tendency to be smaller in size. In the study which was reported at 2007 by Heiman et al. [12], to compare SB and PPV in RRD patients collected 416 phakic and 265 pseudophakic patients, results of follow-up were in 93% at the phakic eyes and 89% at the pseudophakic eyes. At the study of Goldman et al. [11] the comparison between phakic and pseudophakic eyes was similar (79.1% versus 78%). Dhami et al. [17] reported success rates as 82.1% at phakic and 65.4% at pseudophakic eyes. The ''classic'' aphakic/pseudophakic retinal tears tend to be smaller in size. These challenges are further compounded by optical aberrations from the intraocular lens (IOL) implant and posterior capsule opacity. Eyes with anterior chamber IOL and iris-fixated IOLs have the worst success rate [20].

In our study cause of unequal arrangement of patients with phakic or pseudophakic eyes status, significantly success difference between the two groups couldn't be diagnosed (from 58 patients 55 were phakic (94.8%), and 3 were pseudophakic (5.2%)). Anterior chamber paracentesis (ACP) could be performed before or after gas injection. Each method has its advantages and disadvantages. With the technique of performing an ACP before gas injection, the globe may become hypotonic, and the scleral wall may buckle during needle entry, making the procedure more challenging. Besides, poor amount of aqueous withdrawal may prompt repeating the procedure. However, with performing an ACP after gas injection, post-injection critical rise in the intraocular pressure (IOP)

is more anticipated. In principle, the very high IOP on needle withdrawal may induce gas egress or vitreous incarceration through the needle tract [15].

In this study we performed ACP immediately after gas injection, if IOP was hypertonic. Routinely, in PR procedure ACP is performed by a 27-gauge insulin syringe without the plunger while the pupil is dilated [3]. We used in our study for ACP 20 gauge MVR, routinely. Some authors [14] reportedthat of using 30-gauge needle can minimize leakage.

There were authors such as using sterilize air for intravitreal injection for PR [14, 15]. Air does not expand, but SF6 doubles, C2F6, and C3F8 quadruple after 24 hours to 36 hours after injection. For these reasons, the volume of injection for acceptable tamponade is maximum for air and minimum for C3F8. The more volume of initial injection, as typically required for air, increase the possibility of dangerous IOP rise in the first 24 hours. In addition, most of the injected air is usually absorbed within 3 days, a period that seems inadequate for retinopexy to take effect. However, C3F8 can persist up to 6 weeks in the vitreous, considerably greater than the period that is required for tamponade [15]. Unnecessary persistence of intravitreal gas may cause retinal breaks through mechanical forces on the vitreous humor or induce cataract formation. Therefore, SF6, a gas with moderate expansion a persistence, seems to be ideal for PR [19]. At the study of Fabian et al. [9] used 0.3-0.4 ml C3F8. These values were 0.35-0.45 ml of SF6 and 0.25-0.35 ml of C3F8 in Goldman et al. [11], 0.3-0.4 ml of C3F8 in Ellakwa et al. [14], 0.35-0.60 of SF6 in Rahat et al. [15], 0.3 ml of C3F8 in Dhami et al. [17], 0.45 ml of SF6 and 0.4 ml C3F8 in Ling et al. [20].

In our study, we used SF6, C3F8, and C2F6 as tamponades for PR. We used 0.35-0.45 ml of SF6, 0.25-0.35 ml of C3F8, and 0.25-0.50 ml of C2F6.These values of tamponades were similar to recent studies.

Goldman et al. [11] detected visual outcomes as similar between the phakic versus pseudophakic groups (logMAR 0.23 versus 0.28), and overall visual acuity improved significantly from baseline to 6 months (logMAR 0.48-0.25). Gilca et al. [13] found the mean visual acuity at the end of follow-up for single operation success patients as 0.2 logMAR, compared 0.5 LogMAR with for failure patients. At the study of Ellakwa et al. [14] BCVA was 0.40±0.21 logMAR after 3 years applied PR. Rahat and colleagues in their study [15], which the mean follow-up was 8.2 months, for all eyes, mean logMAR BCVA was improved from 2.26 baseline to 0.70 after PR and 0.49 at the last follow-up examination. Dhami et al. [17] reported as 0.84±0.74 logMAR units, comparing phakic with pseudophakic eyes, there was superiority in phakic eyes (preoperative BCVA logMAR were in phakic eyes 0.99±0.788 versus in pseudophakic 1.638±0.929, postoperative BCVA were in phakic eyes 0.677±0.643 versus in pseudophakic 1.034±0.821). At their retrospective study of Anaya et al. [24] including repeat PR, PPV, and combined SB plus PPV(SB+PPV), visual acuities at initial presentation at the time of PR failure, and at the 1-year follow-up, the overall mean BCVA 1 year after surgery for failed PR improved, with statistical significance, from the BCVA at the time of PR failure 1-year follow-up, 0.43 logMAR versus time of PR failure, 0.60 logMAR. But the final BCVA did not improve compared with the BCVA at initial presentation 0.52 logMAR versus 1-year follow-up, 0.43 logMAR.

In our study, we reported BCVA before application, postoperatively 1st day and 6th month as 0.20, 0.35 and 0.60 logMAR respectively ($p<0.05$). These final visual outcomes were comparable with earlier studies. Cause of unequal arrangement in patients with phakic or pseudophakic status, significantly success difference between the two groups couldn't be diagnosed.

In conclusion, pneumatic retinopexy is a cost-effective, secure and effective procedure for selective retinal detachment cases, which described as an office-based procedure. Despite this procedure may elevate intraocular pressure for a while, topical drops helps to control this elevation.

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Ализада А., Доган М., Йозгат З., Акдоган М.

АНАТОМИЧЕСКИЕ ВИЗУАЛЬНЫЕ РЕЗУЛЬТАТЫ ПЕРВИЧНОЙ ПНЕВМАТИЧЕСКОЙ РЕТИНОПЕКЦИИ ПРИ РЕГМАТОГЕННОЙ ОТСЛОЙКЕ СЕТЧАТКИ

Кафедра офтальмологии, Медицинская школа при Университете Здравоохранения г.Афьонкарахисар, Турция

Ключевые слова: *регматогенная отслойка сетчатки, пневматическая ретинопексия, внутриглазное давление*

РЕЗЮМЕ

Цель – оценить анатомический эффект и визуальные результаты пневматической ретинопексии у пациентов с регматогенной отслойкой сетчатки.

Материал и методы

В этом ретроспективном исследовании были проанализированы записи 58 глаз 58 пациентов, у которых была пневматическая ретинопексия вследствие регматогенной отслойки сетчатки в отделении офтальмологии Университета медицинских наук Афьонкарахисар в период с декабря 2013 года по сентябрь 2017 года. Были зарегистрированы возраст, пол пациента, коррекция остроты зрения, внутриглазное давление, предоперационная локализация разрывов сетчатки, макулярное вовлечение, тип тампонады, сопутствую-

щие осложнения, а также функциональные и анатомические показатели в предоперационном и послеоперационном периоде (1 день, неделя, 1-й, 6-й и последний месяцы).

Результаты

Из 58 пациентов 32 (55,2%) были мужчины и 26 женщины. Средний возраст пациентов составил 59,5 (24–83) лет. У 22 (37,9%) пациентов была макулярная отслойка. 40 пациентам (69%) вводили перфлуропропан, 14 пациентов (24,1%) получали гексафторид серы, и 4 пациента (6,9%) получали гексафторэтан. Среднее внутриглазное давление составило 14,42 мм рт.ст. до применения и 17,07 мм рт.ст. через день после применения. 5 пациентам (8,6%) потребовались антиглаукоматозные капли для снижения внутриглазного давления. Частота анатомического успеха после одной инъекции составила 38 (65,5%), а после второй инъекции – 6 (10,34%) пациентов. 14 (24,1%) пациентов перенесли операцию витрэктомии pars plana. Наилучшая коррекция остроты зрения до применения и после операции в 1-й и 6-й день составила 0,20, 0,35 и 0,60 logMAR соответственно. Эндофтальмит, кровоизлияние в стекловидное тело, субретинальный газ или пролиферативная витреоретинопатия не были отмечены в глазах пациентов. Среднее время наблюдения составило 16,8 месяца.

Заключение

Пневматическая ретинопексия – это рентабельная, безопасная и эффективная процедура для выборочных случаев отслойки сетчатки, которая описывается как кабинетная процедура. Несмотря на то, что эта процедура на некоторое время повышает внутриглазное давление, местные капли помогают контролировать это повышение.

Əlizadə A., Doğan M., Yozgat Z., Akdoğan M.

TOR QİŞANIN REQMATOGEN QOPMASI ZAMANI İLKİN PNEVMATİK RETİNOPEKSİYANIN ANATOMİK VİZUAL NƏTİCƏLƏRİ

Afyonkarahisar Tibb Elmləri Universitetinin Tibb Fakültəsi, Oftalmologiya Bölümü, Türkiyə

Açar sözlər: *tor qişanın reqmatogen qopması, pnevmatik retinopeksiya, gözdaxili təzyiq*

XÜLASƏ

Məqsəd – tor qişanın reqmatogen qopması olan pasiyentlərdə pnevmatik retinopeksiyanın anatomik effektini və vizual nəticələrini qiymətləndirmək.

Material və metodlar

Hazırki retrospektiv tədqiqata 2013-cü ilin dekabr ayından 2017-ci ilin sentyabr ayına qədər müddətdə Afyonkarahisar Tibb Elmləri Universiteti Tibb Fakültəsinin Oftalmologiya Bölümündən keçmiş tor qişanın reqmatogen qopması nəticəsində yaranmış pnevmatik retinopeksiya ilə 58 pasiyent (58 göz) daxil edilmiş və alınan nəticələr təhlil edilmişdir. Pasiyentin yaşı, cinsi, görmə itiliyi, gözdaxili təzyiq, əməliyyatdan öncə tor qişa qopmalarının lokalizasiyası, makulada olan dəyişikliklər, tompanada tipi, yanaşı gedən fəsadlar, həmçinin əməliyyatdan əvvəl və sonra (1-ci gün 1-ci həftə, 1-ci ay, 6-cı ay və son aylar) funksional və anatomik göstəricilər qeydə alınmışdır.

Nəticə

58 pasiyentdə 32 nəfər (55,2%) kişi, 26-sı – qadın olmuşdur. Orta yaş həddi 59,5 (24-83) təşkil etmişdir. Makulyar yırtıq 22 (37,9%) aşkar edilmişdir. 40 pasiyentə (69%) perfluropropan, 14 pasiyentə (24,1%) kükürd heksafluorid və 4 pasiyentə (6,9%) hexafluoroetane yeridilmişdir. İnyeksiyanın tətbiqindən əvvəl orta gözdaxili təzyiq 14,42 mm c.s., sonra 17,07 mm c.s. təşkil etmişdir. 5 pasiyentə (8,6%) gözdaxili təzyiqin endirilməsi üçün antiqlaukomatoz damcılar tələr olunmuşdur. Anatomik müvəffəqiyyətə birinci inyeksiyadan sonra 38 (65,5%), ikinci inyeksiyadan sonra – 6 (1034%) pasiyentdə nail olunmuşdur. Vitrektomiya pars plana əməliyyatı 14 (24,1%) pasiyentdə aparılmışdır. Görmə itiliyinin daha yaxşı korreksiyası əməliyyatdan əvvəl, əməliyyatdan 1 və 6 gün sonra müvafiq olaraq 0,20, 0,35 və 0,60 logMAR təşkil etmişdir. Heç bir xəstədə endoftalmit, şüşəvari cismə qansızma, subretinal dəyişikliklər və ya proliferativ vitreoretinopaya qeyd edilməmişdir. Orta müşahidə dövrü 16,8 ay təşkil etmişdir.

Yekun

Pnevmatik retinopeksiya – kabinet şəraitində aparıla biləcək seçilmiş tor qişa qopmaları hallarının səmərəli, təhlükəsiz və effektiv proseduru sayılır. Baxmayaraq ki, bu prosedur qişa müddətli gözdaxili təzyiqin artmasına səbəb olur, lakin yerli damcılar bunu nəzarət altında saxlamağa imkan verir.

Corresponding authors:

Anar Alızada, MD, Corresponding Author, Deparment of Opthalmology, Afyonkarahisar Health Sciences University Medical School, Afyonkarahisar, Turkey

E-mail: anareli16@hotmail.com

OFTALMOLOGİYA
ELMİ-PRAKTİK JURNAL
UOT: 617.711-004:617.77-002

Aslanova V.Ə.

XRONİKİ BLEFARİT FONUNDA "QURU GÖZ SINDROMU" OLAN XƏSTƏLƏRİN MÜALİCƏSİNİN BİR SIRA ASPEKTLƏRİ

Ə.Əliyev adına Azərbaycan Dövlət Həkimləri Təkmilləşdirmə İnstitutu, oftalmologiya kafedrası, Bakı şəh.

Açar sözlər: *xroniki blefarit, quru göz sindromu, kortikosteroid, 0,05% siklosporin*

Quru göz sindromu (QGS) dünyada geniş yayılıb və müasir oftalmologiyanın aktual problemlərindən hesab olunur. Rus tədqiqatçılarına görə, 40 yaşa qədər oftalmoloji profilli xəstələrin 12%-ə qədəri, 50 yaşdan yuxarı olanların 67%-dən çox hissəsi bu xəstəlikdən əziyyət çəkir. Son 30 ildə"quru göz" sindromuna rastgəlinmə tezliyi 4,5 dəfə artmışdır [1-5].

İkincili quru göz sindromunun formalaşmasında göz səthinin xroniki iltihabi xəstəliklərinin (ön və arxa blefaritlər, xroniki residivverən xalazionlar, rozasea, sapvari keratit, buynuz qişanın herpetik mənşəli residivverən eroziyaları, meybomi vəzi disfunksiyası, adenovirus keratokonyunktivitlərinin gec fazaları) rolu sübut olunmuşdur. İkincili quru göz sindromu xroniki blefariti olan xəstələrin 73,7-79,4%-ində aşkarlanıb [5-8]. Digər tərəfdən xroniki blefarit, öz növbəsində QGS-nun səbəbləri arasında kifayət qədər böyük və xüsusi yer tutur. MayçukY.F. və başqalarına görə QGS əlamətləri olan xəstələrin 35%-65%-ində meybomi vəzi disfunksiyası ilə olan blefarit əlamətləri aşkar olunmuşdur [5,8]. Q.S.Polunin həmmüəlliflərlə QGS-nun blefarokonyunktival formasını ayırmağı təklif etmişdir. Müəllifə görə bu forma QGS olan xəstələrin ümumi sayının 65%-ni təşkil edir [7].

Blefaritlərdə meybomi vəzin disfunksiyası (MVD) müşahidə olunur ki, bu da sekretin qatılaşmasına, vəz axarlarının çapıqlaşması ilə hiper- və ya hiposekresiyaya gətirib çıxarır [9]. Gözyaşı pərdəsinin xarici qatının tərkibinə daxil olan lipid sekretini hazırlayan meybomi vəzinin axarları qapağın arxa kənarında intramarginal sahəyə açılır [10]. MVD-da gözyaşı pərdəsinin lipid qatının qalınlığı azalır və göz yaşının buxarlanması artır ki, gözyaşı pərdəsinin stabilliyinin uzunmüddətli pozulması nəticəsində "quru göz"sindromu meydana çıxır [11,12].

Buynuz qişada, konyunktivada və gözyaşı pərdəsinin komponentlərini sekresiya edən vəzilərdəki iltihabla mübarizə quru göz sindromu ilə olan xəstələrin konservativ müalicəsinin əsas istiqamətlərindən biridir. İltihab əleyhinə müalicə dedikdə, qlükokortikoidlərin, iltihab əleyhinə qeyri-steroid preparatların yerli istifadəsi və sistem şəklində tetrasiklin, doksisiklin və minosiklinin qəbulu aiddir. Kataraktanın əmələ gəlməsini sürətləndirdiyi və gözdaxili təzyiqi yüksəltdiyi üçün kortikosteroidlərin uzun müddətli istifadəsi arzuolunmazdır. Hazırda müasir müalicə metodlarından heç biri QGS-nun formalaşmasında əsas amil olan göz səthinin iltihabına istiqamətlənən patogenetik xarakter daşımır. Bu fonda spesifik iltihab əleyhinə (T-limfositlərin aktivliyinin azalması və pro-iltihab sitokinlərinin ekspressiyası) və göz səthi hüceyrələrinin apoptozunun aktivliyini azaltma effekti ilə səciyyələnən preparatın işlənməsi bütünlüklə QGS-nun müalicəsinin təkmilləşməsində vacib və prinsipial hesab olunur [13,14,15]. Ancaq buna oxşar vəziyyətlərin müalicə metodlarında iltihabi prosesə uzunmüddətli nəzarətə istiqamətlənmə amili yoxdur. Belə amil kimi 0,05% siklosporin göz damcısının istifadəsi ön plana çıxır. Siklosporin uzun müddət davam edən iltihabı aradan qaldırmaq üçün istifadə olunur. Siklosporin kalsinevrin inhibitoru olub, T-hüceyrələrin təsirini blokada edərək iltihab sitokinlərinin çıxmasını azaldaraq qədəhəbənzər hüceyrələrin apoptozunun qarşısını alır və bu yolla QGS-nun simptom və əlamətlərini azaldır [16,17].

Blefaritlərin ənənəvi müalicə sxeminə ilıq kompresslərlə göz qapağının gigiyenası, aşağı dozada tetrasiklinin peroral qəbulu, yerli antibiotiklər, lazım gəldikdə steroidlər aiddir. Ağır gedişli blefaritlərin müalicəsində siklosporinin müsbət rolu təsdiqlənmişdir [18].

Məqsəd – kliniki və laborator tədqiqatların nəticələri əsasında xroniki blefarit fonunda inkişaf edən QGS olan xəstələrdə blefaritin klinik gediş xüsusiyyətinə əsasən onun səmərəli müalicəsini müəyyən etmək.

Material və metodlar

Tədqiqata 2018-ci ildə akad. Zərifə Əliyeva adına Milli Oftalmologiya Mərkəzinə müraciət etmiş xroniki blefarit fonunda inkişaf edən QGS olan 48 xəstə daxil edilmişdir. Yaş həddi 25-65 arasında olmuşdur. Təyin olunan müalicədən asılı olaraq xəstələr 2 qrupa ayrılmışdır ki, 1-ci qrupa 25 xəstə (onlardan 7 kişi və 18 qadın) (50 göz) və 2-ci qrupa 23 xəstə (onlardan 7 kişi və 16 qadın) (46 göz) daxil edilmişdir. 1-ci qrup xəstələrin müalicəsinə lubrikantların və kortikosteroidlərin azalan sxemlə instillyasiyası daxil edilmişdir. İkinci qrup xəstələr göstərilən terapiyadan əlavə gözlərinə 3-4 ay müddətində gündə 2 dəfə olmaqla 0,05% siklosporin məhlulu (Depores, Vefa İlaç) damızdırmışlar. Müşahidə müddəti 6 aydan 12 aya qədər olmuşdur. Standart oftalmoloji müayinə – anamnezin toplanması, vizometriya, pnevmotonometriya, biomikroskopiya, oftalmoskopiya aparılmışdır. Əlavə metodların köməyilə gözyaşının hasili (Şirmer I), qapaq kənarının və meybomi vəzilərinin vəziyyəti (biomikroskopiya), gözyaşı pərdəsinin stabilliyi (Norn sınağı), gözyaşı meniskinin ölçülməsi, göz səthinin vəziyyəti (sitoloji müayinə) qiymətləndirilmişdir.