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Visual Outcome after 27 Gauge Vitrectomy in Patients with Rhegmatogenous Retinal Detachment at a Tertiary Care Center in Kashmir

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Purpose: To assess visual outcome, efficacy, safety and complications of 27-gauge vitrectomy in patients with rhegmatogenous retinal detachment. **Methods:** A prospective, observational study was conducted for a duration of one and a half year in which a total of 95 eyes of 95 patients with mean age of 46.1 ± 16.42 with rhegmatogenous retinal detachment who underwent 27-gauge vitrectomy were enrolled in the study. **Results:** Postoperative BCVA improved from 2.17 ± 0.296 logMAR to 0.86 ± 0.354 logMAR at the end of three months. which was found to be statistically significant (p<0.001). Mean IOP initially increased on the first post operative day followed by a gradual decline. Mean operating time was 40.04 ± 4.05 minutes and mean duration of vitreous removal was 25.4±5.2 minutes. Postoperative complications included choroidal detachment (1.05%), inadvertent retinal breaks (3.15%), transient ocular hypertension (32.6%), emulsification of oil (15.7%), recurrent retinal detachment (4.2%) and transient hypotony (1.05%). **Conclusion:**27-gauge vitrectomy was safe and effective for treatment of rhegmatogenous retinal detachment with good visual outcome.

Key words: 27-gauge vitrectomy, rhegmatogenous retinal detachment

I. INTRODUCTION

Retinal detachment is a typically progressive condition in which the neuroretina separates (detaches) from the retinal pigment epithelium. Sub-retinal fluid accumulates, and the retina temporarily loses its function. In case of a rhegmatogenous retinal detachment, the separation is due to a retinal discontinuity (break, tear)1. Small gauge vitrectomy was first introduced in 1990. While the sclerotomies performed in the 20-gauge (20G) vitrectomies were 0.9 mm in diameter, the sclerotomies in 23-gauge (23G) and 25-gauge (25G) vitrectomies are only 0.65 mm and 0.5 mm in diameter, respectively. Small-gauge allows the passage of instruments directly into the vitreous through conjunctival and scleral wounds that are not sutured. 2 With its smaller instrumentation, it is intended to be transconjunctival, self-sealing, and sutureless; and has theoretical advantages including decreased ocular trauma and inflammation, decreased corneal astigmatism, reduced operating times, faster postoperative recovery, increased patient comfort, reduced conjunctival scarring, and conjunctival preservation, especially in patients with prior or pending glaucoma surgery. 3, 4, 5. Smaller gauge vitrectomy instruments are also better suited to the narrower spaces of paediatric eyes.

Potential benefits of 27-gauge instrumentation include improved wound integrity, reduced disturbance of surrounding tissue (‘sphere of influence’), improved port geometry for membrane dissection. Moreover, the elimination of sutures also shortens the surgical opening and closing times. However, miniaturization of instruments limits instrument diameter and lumen, with counterproductive effects on instrument flexibility, efficiency, and performance. Additionally, tool fragility, and unavailability of corresponding instruments were early concerns. Advances in wound construction, instrumentation, fluidics, cuttertechnology, illumination, and wide-angle viewing systems (WAVS) have overcome the handicaps ofsmaller gauge instrument size. 6 Rigidity of instruments is dependent on material, thickness, and diameter (gauge), and length. 27-gauge cutters, endoilluminators, and laser probes are

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shorter to increase stiffness. Tapered stiffening sleeves have also been developed as another means to increase rigidity of the thinner 27-gauge instruments. Due to the improvements in instrument stiffness, instrument array in the smaller gauge systems has expanded accordingly, as well as application to a wider range of surgical indications, including simple andcomplex retinal detachments, macular surgeries, tractional retinal detachments, and stages 4 and 5 retinopathies of prematurity. A high cut rate with a low aspiration rate reduces vitreoretinal traction from the probe tip, which would benefit peripheral shaving and possibly reduce iatrogenic retinal breaks. In addition, 27-gauge vitrectomy port is larger (0.079 mm2 vs. 0.066mm2) and closer to the cutter tip (0.211 mm vs. 0.330mm). Cutter serves as a dissection tool by enabling access to the very narrow tissue planes during membrane dissection. We aimed to study the visual outcome, safety andefficacy of 27-gauge vitrectomy in patients with rhegmatogenous retinal detachment at our tertiary care center in Kashmir.

II. METHODS

Place of study: Study was conducted for a duration of one and a half years, after due approval from the Institutional Ethical Committee.

Case Selection: This prospective, observational type study was conducted on 95 patients with rhegmatogenous retinal detachment who underwent 27G Transconjunctival Sutureless Vitrectomy. Patients with rhegmatogenous retinal detachment with one or more retinal breaks were included in the study. All affected eyes were operated by the same surgeon.

Methodology:

Inclusion criteria:

- Eyes with rhegmatogenous retinal detachment with one ormore retinal breaks.
- Patients who gave written informed consent.
- Patients with atleast 3 months of follow up.

Exclusioncriteria:

- Patients with tractional retinal detachment or exudative retinal detachment.
- History of any previous vitreoretinal surgical procedure or penetrating ocular trauma.
- Ocular comorbidities such as uveitis, uncontrolled glaucoma, amblyopia that can affect the visual outcome.
- Corneal opacities precluding adequate posterior segment visualization.

Preoperative evaluation consisted of a complete medical, surgical and ophthalmic examination.

Preoperative evaluation included age, gender, operative eye,thebest corrected visual acuity (BCVA), intraocular pressure (IOP), lensstatus, slit lamp examination, indirect ophthalmoscopy B-scan in cases of opaque media.

Surgical technique:

In each case, peribulbar block was administered. Surgical eyes were prepared using 5% povidone-iodine (Betadine; Purdue Fredrick Co, Norwalk, Connecticut, USA). All surgeries were performed using Constellation Vitrectomy System (27+ Total Plus Pak- Alcon Laboratories, Fort Worth, Tx, USA). A noncontact wide-angle viewing system (BIOM II; Oculus, Germany) was used for visualization during surgery. Cannulas were inserted in the inferotemporal, superotemporal, and superonasal quadrants, 3-4 mm posterior to the limbus. A core vitrectomy was performed in all cases using a cut rate of 7500 cuts per minute (cpm) and linear aspiration of 0-650 mmHg. Port bias was initially set to open. Machine settings were then modulated according to surgeon preference, as required by the surgical maneuver being performed. Fluid-air and fluid-gas exchange (16%-18% sulphur hexafluoride (SF6) or 12%-16% perflouropropane (C3F8) were performed as appropriate and according to surgeon preference. Silicon oil (1000 centistokes) was used as tamponade as determined by the operating surgeon. At the conclusion of each case, a peripheral retinal examination was performed to evaluate for retinal beaks. All sclerotomy sites were inspected after removal of cannulas, and if required per surgeon discretion, a suture was placed to prevent leakage. At the end of the surgery, the vitrectomy time and difficult situations handling were recorded. The patients were asked to maintain prone or lateral positioning

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for 7 days, depending on the position of the break. All patients received a combination of antibiotic (0.5% Moxifloxacin) and steroid (1% Prednisolone) eye drops with tapered frequency during the first month after surgery. Eyes that developed ocular hypertension (IOP>30 mm Hg) in the follow up period were treated with anti-glaucoma eye drops, such as carbonic anhydrase inhibitors (2% Dorzolamide) and beta-blockers (0.5% Timolol).

Patients were followed up at postoperative day 1,1week,1month and3 months with BCVA, IOP measurement, slit lamp biomicroscopy and indirect ophthalmoscopy.

Statistical Methods

Analysis was carried using SPSS software. A p-value of <0.05 wastaken as statistically significant.

III. RESULTS

Male to female ratio was 1.56: 1. Mean ±SD age of the patients was 46.1±16.42 (16 - 75). Of the 95 eyes operated, 49 (51.6%) were right eyes and 46 (48.4%) were left eyes.

Majority of the study eyes (42.1%) were phakic clear while 37.8% were pseudophakic .19 patients (20%) had a history of phacoemulsification and 18 (18.9%) had a history of small incision cataract surgery. 17.8% of the patients had a cataractous lens and 2 underwent concurrent cataract extraction and intaocular lens implantation at the time of surgery. 15 patients underwent lensectomy. 1 patient (1.05%) was aphake and 1 patient (1.05%) had a subluxated lens. Out of the 95 patients included in our study, 14 (4.7%) gave a history of blunt ocular trauma, 8 (8.4%) Nd YAG capsulotomy for posterior capsular opacity, 24 (25.2%) were high myope and 1 patient (1.05%) was a known case of downs syndrome.

The RD configuration in 46 patients (48.4%) was total RD, followed by partial temporal RD in 15 (15.8%) patients and 13.7% each of subtotal RD and partial inferior RD. Partial nasal RD was found in 6 patients (6.3%) and partial superior RD in just 2 patients (2.1%). 54 study eys had extensive RD involving 10-12 clock hours, 26 had RD involving 6-9 clock hours and only 15 study eyes had RD of less than 6 clock hours. The macula was attached preoperatively in 10 patients (10.5%) and 85 patients (89.5%) had detached macula. Lattice degeneration was present in 13 (13.7%) of the patients, giant retinal tear in 8 (8.4%), dialysis in 1 (1.1%) and subretinal fibrous bands in 8 (8.4%) of the patients.

The best corrected visual acuity improved from a preoperative mean of 2.17 +_ 0.296 (logMAR) to a mean of 0.86 +_ 0.354 (logMAR) over a period of three months ($p<0.001$).

There was a climb in mean IOP on the first postoperative day (18.3±5.41) ($p<0.001$) from a preoperative mean IOP of 13.2 ±2.89. IOP at day 7 and 1 month was recorded to be 19.2 ±4.98 ($p<0.001$) and 19.1± 6.14 ($p<0.001$), respectively. At final follow up at 3 months, mean IOP was 18.2 ±4.67 ($p<0.001$). There was a statistically significant difference from preoperative IOP as vitreous substitutes like heavy silicon oil, silicon oil and SF6 gas were used. Overall, the mean operating time was 40.04 minutes (SD 4.05). The mean duration of vitreous removal was 25.4 minutes (SD 5.2). Operative time was evaluated after every three months. The operating time decreased as the study duration increased. This can be attributed to surgeon's learning curve.

One patient developed choroidal detachment intraoperatively by infusion cannula slippage into the suprachoidal space because of sudden movement of patient. After managing the complication, surgery then proceeded without any further complications. Inadvertent retinal breaks occurred in 3 cases during vitreous base shaving. Intraoperative laser photocoagulation was carried out around the retinal breaks, and no iatrogenic retinal break resulted in postoperative rhegmatogenous retinal detachment. Transient hypotony was noted in 1 eye. Transient ocular hypertension occurred in 31 (32.6%) patients and was managed conservatively with antiglaucoma medications. None of the eyes required subsequent IOP lowering surgery. Recurrent retinal detachment occurred in 4 eyes (4.2%). 15 (15.7%) cases had emulsification of silicon oil and underwent subsequent silicon oil removal for it. No case of endophthalmitis was reported. No complication occurred related to phacoemulsification such as posterior capsule rupture or zonular dialysis.

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The primary and final anatomical success rate of 95.8% and 100% was obtained.

IV. DISCUSSION

Several studies have evaluated the surgical outcomes of 27G Vitrectomy for the treatment of various vitreoretinal diseases. Mean age of the patients in our study was 46.1±16.42 (16 - 75). Otsuka K et al (2018)7 compared the anatomic and visual outcomes of 25-gauge and 27-gauge transconjunctival sutureless pars plana vitrectomy for the management of primary rhegmatogenous retinal detachment. The mean±SD 55±9 in 27-gauge group. Sborgia G et al (2019) 8 compared the safety and efficacy of 27G versus 25G TSV for the treatment of uncomplicated RRD over a one year follow up.The age of the patients ranged from 39-75 years in 27-gauge group. Rizzo S et al (2017) 9 compared the vitrectomy time, clinical outcomes and complications between 27-gauge (27G) and 25-gauge (25G) vitrectomy in patients with primary rhegmatogenous retinal detachment (PRRD). The mean age of the patients was 64.7±9.7 years (range 46 - 78 years) in 27-gauge group. This is comparable to our results.

There was a slight preponderance of males over females in our study. Out of the 95 patients enrolled in the study, 58 were males and 37 were females. Similarly, a multicentre survey by Shinkai Y. et al (2019) 14 had 259 male eyes and 151 female eyes. Sborgia et al (2019) 8 too reported similar findings in their study with 31 males and 11 females enrolled in their study. Rizzo et al (2017) 9 also showed male preponderance in their study with 15 men and 5 women.

We found a significant improvement in logMAR visual acuity ($p<0.05$). The best corrected visual acuity improved from a preoperative mean of 2.17 ±0.296 (logMAR) to a mean of 0.86 ±0.354 (logMAR) over a period of three months ($p<0.001$). Khan et al (2016) 10 reported a significant improvement in VA from 1.10±0.44 before the surgery to 0.44±0.34 ($p=0.02$) after the surgery. Minimum follow up was 3 months. Similar to our study, significant improvement in logMAR VA was seen in patients with RRD without PVR. Study conducted by Shinkai et al 14 showed that in 184 eyes (44.9%) with macula off RRD, logMAR VA improved 1.06±0.77 pre surgery to 0.26±0.35 ($p<0.001$) which is consistent with our study. In the study by Li et al (2018)11, overall logMAR VA improved significantly from 1.7+1.0 preoperatively to 1.1+0.8 at final follow up. Significant improvement in VA was noted in cases with rhegmatogenous retinal detachment. The overall results of our study are comparable with the above studies. In yet another study by Rizzo et al (2017) 9 mean logMAR VA improved from 1.70±1.18 preoperatively to 0.22±0.14 at final post operative visit ($p<0.001$) in the 27-gauge group which were in agreement with our study. Sborgia et al 8 showed VA improvement from 1.5±1.09 logMAR to 0.38±0.55 logMAR ($p<0.001$), consistent with our study.

Otsuka et al showed a preoperative BCVA of 0.38 ±0.61 improving to -0.02±0.17 ($p=0.002$) which was found to be statistically significant. 15.In the study conducted by Veritti et al, BCVA significantly improved in the 27-gauge group. Mean BCVA change at 6 month follow up was -0.67 LogMAR .13.Li et alretrospectively compared the safety and effectiveness of 27-gauge (27G) microincision vitrectomy surgery (MIVS) with 25-guage (25G) MIVS for the treatment of primary rhegmatogenous retinal detachment (RRD) with silicone oil tamponade. Baseline and final visit best-corrected visual acuity (BCVA) were 1.7 ± 1.0 and 1.1 ± 0.8 in the 27G group. Last visit BCVA increased significantly in both groups ($P < 0.001$).Shrestha et al, in their study conducted in Nepal, found a preoperative BCVA of 2.29±0.14 to improve to post operative BCVA of 0.45±0.22 which was statistically significant. 16Romano et al compared the safety and efficacy of 27-gauge (G) pars plana vitrectomy (PPV) with 25-G PPV for the treatment of primary rhegmatogenous retinal detachment (RRD). After six months, both groups showed a statistically significant improvement in mean BCVA ($P < 0.001$). All these studies were in consistent with our study. 17

Intraoperative complication rate was low in our study. One case of intraoperative suprachoroidal haemorrhage occurred in our series and three cases had inadvertent retinal breaks. No other intraoperative complication was noted in our series. None of the cases needed a sclerotomy site suture or experienced sclerotomy site leakage. Previously published studies on 27G systems

have reported similarly.12, 13 Sclerotomy suture rates ranging from 0 to 7.1% have been reported in 23G and 25G studies. None of the cases developed postoperative hyphema, endophthalmitis or sclerotomy related retinal breaks.

Limited postoperative complications were noted. Transient hypotony was documented in one case (1.05%). This hypotony rate lies in the previously reported range of 0-9.2%. 13, 14 For 25G studies, the reported rate of hypotony lies in the range of 0 to 25.6%. In our series, 31 eyes developed transient ocular hypertension (32.6%). All of these were managed conservatively with topical antiglaucoma medication. This rate of transient ocular hypertension is more comparable with a rate of 31.1% reported by Li et al (2018) 12.

4 eyes experienced recurrent detachment in the postoperative period due to PVR (4.2%). Anatomic reattachment of the retina was achieved after resurgery. Our rate for resurgery for retinal detachment is lower than reported in previous studies.12, 13.

In our series, we compared the IOP outcomes among tamponade agents. There was a significant increase in IOP at final follow up due to use of silicon oil ($p<0.001$) as tamponade. The increase in IOP was statistically significant overall as well, at final follow up ($p<0.001$). Compared with the mean preoperative IOP of 13.2 ±2.89 mm Hg, the mean IOP was 18.3±5.41mm Hg on postoperative day 1,19.2± 4.98mm Hg on day 7, 19.1±6.14mm Hg on 1 month and 18.2±4.67 mm Hg at the final follow up of 3 months.

One of the major concerns about small gauge vitrectomy has been the reduced flow rates and consequently, reduced efficiency during surgery. Dugel et al found that smaller gauge instruments have a 'reduced sphere of influence' that limits the involvement of the surrounding tissue during membrane dissection at high cut rates. It has been postulated that the use of the 27G vitrector as a dissection tool may help offset delays caused by decreased flow rates. This is possible because the port in a 27G cutter is placed 0.2 mm away from the tip of the probe. We also found that the 27G cutter could be used as a membrane pick and soft tip needle because of its flexibility. The multifunctionality of the tool possibly helped save time by reducing instrument exchanges. Our study has limitations, which include the limited follow up duration of 3 months. Comparison of our results with 25G systems would have provided a clearer picture of the advantages of the smaller gauge.

V. CONCLUSION

We found the 27G system to be safe and effective for the treatment of rhegmatogenous retinal detachment. Overall, the surgery provided perfect self-sealing wounds and increased patient comfort postoperatively. Minimal complications were encountered with this system. The statistically significant rise in intraocular pressure was attributable to the tamponade agents used.

Expectedly, operative time was longer with the 27G vitrectomy system due to the smaller gauge and decreased flow rates. Operative time is also a reflection of the choice of cases and the learning curve of the surgeon. Use of the 27G cutter as a dissection tool and vertical scissors may help offset these delays in operative time.

Despite these perceived disadvantages, we observed favourable visual and anatomic outcomes with this surgery in our study.

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FINANCIAL SUPPORT AND SPONSORSHIP
Nil

CONFLICTS OF INTEREST
Nil

Gender	Number	Percentage
Male	58	61.1
Female	37	38.9
Total	95	100

Gender distribution

Age distribution

Age (Years)	Number	Percentage
≤ 20	7	7.4
21-30	13	13.7
31-40	20	21.1
41-50	21	22.1
51-60	13	13.7
61-70	18	18.9
> 70	3	3.2
Total	95	100
Mean±SD (Range)=46.1±16.42 (16-75)		

Duration of diminution of vision

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Duration	Number	Percentage
< 2 Weeks	23	24.2
2 Weeks-1 Month	12	12.6
1-3 Months	30	31.6
3-6 Months	12	12.6
6-12 Months	8	8.4
≥ 12 Months	10	10.5
Total	95	100
Mean±SD=2.9±3.87		

Predisposing factors in our study

Predisposing Factors		Number	Percentage
Lens status	Phakic clear	40	42.1
	Pseudophakic	36	37.8
	Aphakic	1	1.05
	Cataract	17	17.8
	Subluxated	1	1.05
History of trauma		14	14.7
History of Nd YAG capsulotomy		8	8.4
High myope		24	25.2
Down syndrome		1	1.05

Characteristics of Retinal detachment

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		Number	Percentage
RD Configuration	Partial superior RD	2	2.1
	Partial nasal RD	6	6.3
	Partial inferior RD	13	13.7
	Partial temporal RD	15	15.8
	Subtotal RD	13	13.7
	Total RD	46	48.4
Number of clock hours	< 6	15	15.8
	6-9	26	27.4
	10-12	54	56.8
Number of breaks	1 break	63	66.3
	2 breaks	21	22.1
	3 breaks	8	8.4
	4 breaks	2	2.1
	5 breaks	1	1.1

		Number	Percentage
Gaint retinal tear	Present	8	8.4
	Absent	87	91.6
Macular status	Macula on	10	10.5
	Macula off	85	89.5
Lattice degeneration	Yes	13	13.7
	No	82	86.3
Subretinal fibrous bands	Yes	8	8.4
	No	87	91.6
Dialysis	Yes	1	1.1
	No	94	98.9

Visual acuity and time interval

Time interval	Mean	SD	95% CI	Diff from preop	P-value
Preop	2.17	0.296	2.11-2.23	-	-
Day 1	2.13	0.249	2.08-2.18	0.04	0.297
Day 7	1.47	0.381	1.39-1.54	0.7	0.007*
1 Month	1.05	0.339	0.97-1.12	1.12	<0.001*
3 Months	0.86	0.354	0.79-0.94	1.31	<0.001*

***Statistically Significant Difference (P-value<0.05); P-value by Repeated measures ANOVA**

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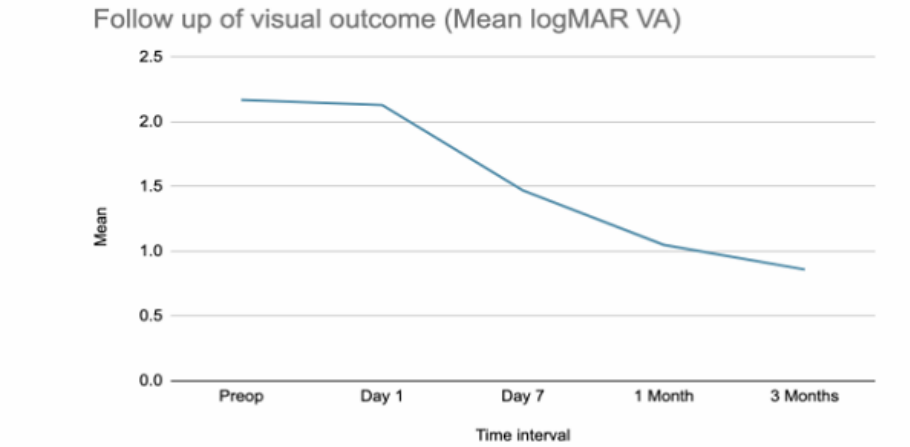
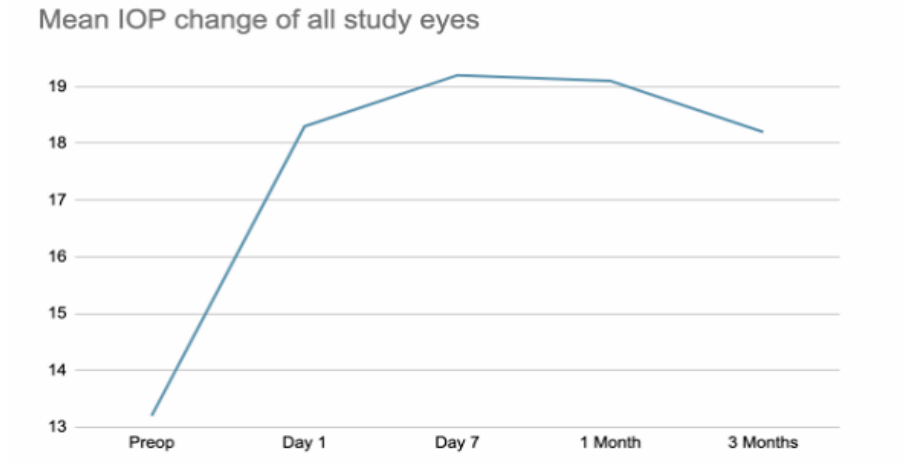


Figure is a graphical representation of the follow up of visual outcomes recorded as mean logMAR visual acuities.

IOP fluctuations with time

Time interval	Mean	SD	95% CI	Diff from preop	P-value
Preop	13.2	2.89	12.67-13.85	-	-
Day 1	18.3	5.41	17.19-19.39	5.1	<0.001*
Day 7	19.2	4.98	18.19-20.23	6.0	<0.001*
1 Month	19.1	6.14	17.92-20.43	5.9	<0.001*
3 Months	18.2	4.67	17.21-19.12	5.0	<0.001*

***Statistically Significant Difference (P-value<0.05); P-value by Repeated measures ANOVA**



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Complications

		Number	Percentage
Intraoperative complicaions	Choroidal detachment	1	1.05
	Inadvertent retinal breaks	3	3.15
Postoperative complicaions	Transient hyptony	1	1.05
	Transient ocular hypertension	31	32.6
	Recurrent retinal detachment	4	4.2
	Emmulsificution of oil	15	15.7

Anatomical success

Outcome	Number	Percentage
Primary anatomical success	91	95.8
Final Anatomical success	95	100

REFERENCES

[1]. Robertson DM, Norton EW. Long-term follow-up of treated retinal breaks. Am J Ophthalmol. 1973;75: 395-404.
[2]. Benson SE, Schlottman PG, BrunceC, et al. Optical coherence tomography analysis of the macula after vitrectomy surgery for retinal detachment. Ophthalmology 2006; 113: 1179-83.
[3]. Kloti R. Amotio-ChirurgieohneSkleraeindellung. PrimareVitrektomie. Klin Monatsbl Augenheikd1983; 182: 474-8.
[4]. Sodhi A, Leung L-S, Do DV , et al. Recent trends in the management of rhegmatogenous retinal detachment. SurvOphthalmol2008; 53: 50-67.
[5]. Heimann H, Zou X, JandeckC, et al. Primary vitrectomy for rhegmatogenous retinal detachment: an analysis of 512 cases. Graefes Arch Clin Exp Ophthalmol2006; 244:69-78.
[6]. Pastor JC, Fernandez I, Rodriguez de la RE, et al. Surgical outcomes for primary rhegmatogenous retinal detachments in phakic and pseudophakic patients: the Retina 1 Project - report 2. Br J Ophthalmol2008; 92: 378-82.
[7]. Otsuka K, Imai H, Fujii A, Miki A, Tagami M, Azumi A, Nakamura M. Comparison of 25- and 27- gauge pars plana vitrectomy in repairing primary rhegmatogenous retinal detachment.

Journal of Ophthalmology, 2018.ersus 25-gauge vitrectomy for the treatment of primary rhegmatogenous retinal detachment. Journal of Ophthalmology 2017:6384985.

[8]. Sborgia G, Niro A, Sborgia L, Oliva M, Gigliola S, Romano R, Boscia F, Sborgia A, Alessio G. One-year outcomes of 27-gauge versus 25-gauge pars plana vitrectomy for uncomplicated rhegmatogenous retinal detachment repair. International Journal of Retina and Vitreous 2019;5(13).

[9]. Rizzo S, Polizzi S, Barca F, Caporossi T, Virgili G. Comparative study of 27-gauge vitrectomy for vitreoretinal diseases. Int J Ophthalmol 2018; 11(3).

[10]. Khan MA, Shahlaee A, Toussaint B, Hsu J, Sivalingam A, Dugel P.U et al. Outcomes of 27 gauge microincision vitrectomy surgery for posterior segment disease. American Journal of Ophthalmology 2016;161(1):36–43.

[11]. Li J, Liu SM, Dong WT, Li F, Zhou CH, Xu XD, Zhong J. Outcomes of transconjunctival sutureless 27-gauge.

[12]. J. Li, B. Zhao, S. Liu, F. Li, W. Dong, and J. Zhong, "Retrospective comparison of 27-gauge and 25-gauge microincision vitrectomy surgery with silicone oil for the treatment of primary rhegmatogenous retinal detachment," Journal of Ophthalmology, vol. 2018, Article ID 7535043, 7 pages, 2018

[13]. D. Veritti, V. Sarao, and P. Lanzetta, "A propensity-score matching comparison between 27-gauge and 25-gauge vitrectomy systems for the repair of primary rhegmatogenous retinal detachment," Journal of Ophthalmology, vol. 2019,Article ID 3120960, 6 pages, 2019.

[14]. Yoichiro Shinkai, Yusuke Oshima, Kazuhito Yoneda, iro Kogo Multicenter survey of sutureless 27-gauge vitrectomy for primary rhegmatogenous retinal detachment: a consecutive series of 410 cases. Graefes Archive for Clinical and Experimental Ophthalmology 2019;12,257(12).

[15]. Otsuka K, Imai H, Fujii A, Miki A, Tagami M, Azumi A, Nakamura M. Comparison of 25- and 27- gauge pars plana vitrectomy in repairing primary rhegmatogenous retinal detachment. Journal of Ophthalmology, 2018.

[16]. Chunu Shrestha, Sabina Shrestha, Aparajita Manoranjan and Reeta Rajbhandari. A 27 - Gauge Microincision Vitrectomy Surgery for Posterior Segment Diseases in a Tertiary Centre, Nepal. MJSBH Vol 20 Issue 2 Jul-Dec 2021.

[17]. Romano MR, Cennamo G, Ferrara M, Cennamo M, Cennamo G. Twenty- seven gauge versus twenty five gauge Vitrectomy for primary rhegmatogenous retinal detachment. Retina. 2017; 37(4):637-642.

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