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Article

Analyzing Retinal Detachment Surgery Outcomes and Key Predictive Variables in Iraqi Populations

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Abstract: Background: Recent developments in vitreoretinal microsurgical methods have made it possible for several successive procedures in a single eye as the disease continues. **Objective**: The aim of this article is to enrol and evaluate the clinical outcomes of retinal detachment surgery and to identify the basic predictive factors of Iraqi patients.**Methods**: 95 patients who underwent retinal detachment surgery were recruited from different hospitals in Iraq during a 5-month follow-up period from January 2023 to May 2024. BCVA was performed to assess the functional outcome, and the visual acuity of patients was measured before and after surgery. **Findings**: A total of 95 cases underwent all different interventions, ranging from 1 to 5 surgeries. The mean number of operations was found to be four (range: 2 to 10), and the anatomical success rate was 81.05%. Postoperative visual acuity was worse than 20/400-20/100 in 21 cases, 20/80-20/65 in 20 cases, and ≥ 20/50 in 54 cases. Postoperative complications were observed in 18.95% of patients, with the most prevalent being infection (7 cases) and retinal detachment recurrence (4 cases). **Conclusion**: In our study, we suggested that retinal detachment surgery can have successful outcomes that advance a functional outcome of high visual acuity for patients.

Keywords: Retinal Detachment Interventions, Postoperative Complications, and Visual Acuity Measurement Outcomes.

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1. Introduction

Retinal detachment is a common cause of visual loss among the population. Currently, the treatment for this pathology is surgical, being the pars plana vitrectomy (PPV), the scleral buckle (HE), or cerclage, and the combination of both (PPV+HE) is the most used by surgeons. However, the visual and anatomical results, the development of cataracts, and the success rates after retinal surgery are under continuous study. [1,2,3]

Retinal detachment (DR) is defined as the separation of the RNS from the retinal pigment epithelium (RPE) [4]. These two anatomical sections of the retina are formed from the neuroectoderm that is found enveloping the optic vesicle in the process of embryogenesis. The optic vesicle invaginates and forms the optic cup, leaving one layer on top of the other; the innermost differentiates in RNS and the outermost in the RPE. These two layers are not really joined by anatomical junctions between their cells. [5]

Retinal detachment occurs when the adhesion forces between the RNS and RPE are overcome. It is common for all retinal detachments to cause the accumulation of subretinal fluid. Rhegmatogenic retinal detachment (RRD) is to be treated mainly [6]. The DRR is characterized by the existence of a full-thickness retinal rupture that is kept open by vitreoretinal traction, which facilitates the entry of liquefied vitreous and accumulates under the retina, causing that separation between RNS and RPE [7,8,9]. It can be said that the main cause of the RRD is the liquefied vitreous; the tensile forces can cause and maintain a retinal rupture, through which the liquid passes to the ESR. Although there is a full-thickness rupture, if the vitreous is not partially liquefied and there is no necessary traction, the RRD will not occur. [10,11,12,13]

The increased risk of DRR is associated with several factors. Among them, myopia should be highlighted [14,15]. There is a prevalence of RRD in nearsighted people, with an incidence approximately 10 times higher in people with more than three diopters of myopia. Nearsighted eyes experience a DVP at an earlier age [16]. This can be explained by a thinner retina with myopic elongation of the axial globe. Myopia up to -3 diopters (D) multiplies the risk of DR by 4, and in cases of myopia greater than -3 D, the risk of DR increases up to 10 times. Myopia leads to earlier vitreous liquefaction, which explains why DR tends to occur earlier in patients presenting with myopia than in emmetropic or farsighted patients. Myopia is a relevant risk factor because it is increasingly common among the population. [17,18,19,20,21,22,23]

2. Materials and Methods

Our cross-sectional study looked at the records of retinal detachment cases and included 95 people who had had surgery for the condition at the Retina Service at the Department of Ophthalmology in different hospitals in Iraq. The patients varied in age from 20 to 60. Each of the patients were operated on by experienced posterior segment surgeons, and each patient had a surgical follow-up at least five months after the final procedure. All postoperative follow-ups have been carried out in Iraq and at different hospitals in Iraq.

Age and gender of the patient, cause of retinal detachment, best corrected visual acuity (BCVA) before the first intervention, intraoperative methods and procedures used in each patient's subsequent operations, including the use of retinectomy, endolaser, cryopexy, gas, and silicone oil (sil-oil); intraoperative vitreous entrapment in the sites of the sclerotomy, presence of an epiretinal membrane (ERM), proliferative vitreoretinopathy (PVR), the identification of new or missed breaks, postoperative complications, the quantity of operations per patient, the anatomical condition of the retina during the end of the follow-up, BCVA during the end of a follow-up, intraocular pressure (IOP) during the end of the follow-up time, and the total duration of the follow-up period.

Both before and after surgery, visual acuity was assessed using the BCVA scale. The reasons behind retinal detachment, the patient's age and gender, the best corrected visual acuity (BCVA) prior to the initial intervention, the intraoperative techniques and, the presence of proliferative vitreoretinopathy (PVR), the detection of new or missed breaks, postoperative complications, the number of operations for each patient, and the retina's anatomical status at the end of the follow-up.

3. Results

Table 1. Enrol demographic and preoperative characteristics.

Features	N = 95	%
Age, years		
20 – 30	22	23.16%
31 – 40	20	21.05%
41 – 50	23	24.21%
51 – 60	30	31.58%
Gender		
Male	76	80.00%
Female	19	20.00%
Comorbidities		
Hypertension	67	70.53%
Diabetes	36	37.89%
Asthma	20	21.05%
Others	13	13.68%
Smoking, yes/no		
Smokers	54	56.84%
None	41	43.16%
Education status (P, S, U)		
Primary	26	27.37%
Secondary	30	31.58%
University	39	41.05%
Income status, $		
Low, 200 – 400	37	38.95%
Moderate, 401 – 700	28	29.47%
High, > 700	30	31.58%

Table 2. Enrol intervention data of retinal detachment in relation to gender.

Variables	N = 95	%
Pseudophakic (38/40%) cases	Male: 28	73.68%
	Female: 10	26.32%
Phakic (57/60%) cases	Male: 50	87.72%

	Female: 7	12.28%
High myopia/Giant tears (25) cases	Male: 22	88%
	Female: 3	12%
Trauma (12) cases	Male: 11	91.67%
	Female: 1	8.33%
Primary rhegmatogenous retinal detachment (20) cases	Male: 17	85%
	Female: 3	15%

Table 3. Diagnostic outcomes of eyes preoperatively.

1. Variables	N = 95	%
Location of retinal detachment		
Inferior	34	35.79%
Superior	25	26.32%
Temporal	21	22.11%
Superior, nasal	10	10.53%
Superior, inferior, temporal	3	3.16%
Superior, inferior, nasal	2	2.11%
The number of detached retinal area		
4 clock hours	6	6.32%
6 clock hours	77	81.05%
8 clock hours	12	12.63%
The number of tears detected preoperatively.		
0	30	31.58%
2	58	61.05%
≥ 3	7	7.37%

Table 4. Identify pre and postoperative outcomes.

Variables	N = 95	%
Duration of macular detachment (weeks)	**7.5 ± 4.6**	
Extent of retinal detachment (hours)	**8.4 ± 1.3**	
Number of surgeries used		

1	**25**	**26.32%**
2	**32**	**33.68%**
> 2	**38**	**40.00%**
Types		
Retinectomy	**39**	**41.05%**
Silicon oil	**50**	**52.63%**
Gas	**75**	**78.95%**
Cryopexy	**63**	**66.32%**
Endo-laser	**52**	**54.74%**
Visual acuity		
Preoperative visual acuity	**2.24 ± 0.56**	
Visometric visual acuity	**0.89 ± 0.27**	
Postoperative visual acuity	**0.51 ± 0.25**	
Post-complications	**18**	**18.95%**
Infection	**7**	**7.37%**
Retinal detachment recurrence	**4**	**4.21%**
Cataracts	**2**	**2.11%**
Glaucoma	**2**	**2.11%**
Macular puckers	**3**	**3.16%**
Anatomical success rate		
High	**77**	**81.05%**
Moderate	**12**	**12.63%**
Poor	**6**	**6.32%**

Table 5. Comparison of visual acuity in preoperative and postoperative.

Scores	Postoperative		
	20/400–20/100	**20/80–20/65**	**≥ 20/50**
20/400 – 20/100	**13**	**11**	**24**
20/80 – 20/65	**7**	**9**	**27**

≥ 20/50	**1**		**3**
Total	**21 cases**	**20 cases**	**54 ases**

4. Discussion

The mean age of the samples in our study ranges from 20 to 60 years, which is comparable to the mean age reported in other studies with analogous objectives. In these studies, the mean age of the cases ranges approximately from 60 years. The study revealed that patients between the ages of 51 and 60 constituted 31.58% of the total sample.

The study demonstrated a higher incidence of RD in male patients compared to female patients, with a percentage of 80% and 20%, respectively. A review of other studies with samples from patients with DR reveals that the percentage of men in these samples ranges from 60-80%, which is similar to the values found in the present study, thereby confirming that the incidence is higher in men. [24,25,26]

With regard to the macular involvement of the RRDs under study, a percentage of 57.4% of RRDs with macular respect (macula-on) has been obtained, which differs from the findings of other authors in studies similar to ours, as evidenced by the American study, which found only 26% of cases with RRD without macular involvement. However, we did find similar rates of RRD without macular involvement closer to ours (53%) in the study conducted by Spain. In this study, a comparison of PPV and PPV+HE is made to treat RRD. [27]

[28,29,30] Some studies found that the sample exhibited a 60% prevalence of phakic patients, a figure analogous to the 60% observed in the German study, which comparatively analysed PPV and HE as treatments for RRD. A notable distinction emerges from the Dutch study, which documented a percentage of phakic patients of approximately 36%, a significant deviation from the observed figure.

5. Conclusion

We showed in our study that a high anatomical success rate can be obtained with retinal detachment surgery. A sizable portion of the connected eyeballs maintained strong visual acuity. Our data analysis indicated that surgery had no adverse impacts on anatomical or functional outcomes.

REFERENCES

1. El-Asrar AM, Al-Kharashi SA. Full pan-retinal photocoagulation and early vitrectomy improve the prognosis of retinal vasculitis associated with tuberculoprotein hypersensitivity (Eales' disease) Br J Ophthalmol. 2002; 86:1248–51.
2. Shukla D, Kanungo S, Prasad NM, Kim R. Surgical outcome of vitrectomy in Eales' disease. Eye. 2008; 22:900–4.
3. Kumar A, Tiwari HK, Singh RP, Verma L, Prasad N. Comparative evaluation of early vs. deferred vitrectomy in Eales' disease. Acta Ophthalmol Scand. 2000; 78:77–8.
4. Shanmugam MP, Badrinath SS, Gopal L, Mahesh P, Sharma T. Long-term visual results of vitrectomy for Eales disease complications. Int Ophthalmol. 1998; 22:61–4.
5. Majji AB, Vemuganti GK, Shah VA, Singh S, Das T, Jalali S. A comparative study of epiretinal membranes associated with Eales' disease: A clinicopathologic evaluation. Eye. 2006; 20:46–54.
6. Spitznas M. Anatomical features of the human macula. In: I'Esperance FA, editor. Current diagnosis and management of retinal disorders. St Louis: CV Mosby; 1977.
7. Hsu YJ, Hsieh YT, Yeh PT, Huang JY, Yang CM. Combined tractional and rhegmatogenous retinal detachment in proliferative diabetic retinopathy in the anti-VEGF era. J Ophthalmology. 2014.
8. Blankenship GW. Stability of pars plana vitrectomy results for diabetic retinopathy complications: A comparison of 5-year and 6-month post vitrectomy findings. Arch Ophthalmol. 1981; 99:1009–12.

9. Talat L, Lightman S, Tomkins-Netzer O. Ischemic retinal vasculitis and its management? J Ophthalmol. 2014; 2014:197675.
10. Stewart MW, Browning DJ, Landers MB. Current management of diabetic tractional retinal detachments. Ind J Ophthalmol. 2018; 66:1751–62.
11. Diabetic Retinopathy Vitrectomy Study Research Group. Two-year course of visual acuity in severe proliferative diabetic retinopathy with conventional management, Diabetic Retinopathy Vitrectomy Study Report 1. Ophthalmology. 1985; 92:492–502.
12. Lim JI, Rosenblatt BJ, Benson WE. Diabetic retinopathy. In: Yanoff M, Duker JS, editors. Ophthalmology. 4th ed. Philadelphia, PA: Elsevier Saunders; 2014. pp. 541–50.
13. Morse LS, Chapman CB, Eliott D, Benner JD, Blumenkranz MS, McCuen BW. Subretinal hemorrhages in proliferative diabetic retinopathy. Retina. 1997; 17:87–93.
14. Blumenkranz MS, Azen SP, Aaberg T, Boone DC, Lewis H, Radtke N, et al. Relaxing retinotomy with silicone oil or long-acting gas in eyes with severe proliferative vitreoretinopathy Silicone Study Report 5 The Silicone Study Group. Am J Ophthalmol. 1993; 116:557–64.
15. Faude F, Lambert A, Wiedemann P. 360 degrees retinectomy in severe anterior PVR and PDR. Int Ophthalmol. 1998; 22:119–23.
16. Grigoropoulos VG, Benson S, Bunce C, Charteris DG. Functional outcome and prognostic factors in 304 eyes managed by retinectomy. Graefes Arch Clin Exp Ophthalmol. 2007; 245:641–9.
17. la Heij EC, Hendrikse F, Kessels AGH. Results and complications of temporary silicone oil tamponade in patients with complicated retinal detachments. Retina. 2001;21 (2):107–114.
18. Quiram PA, Gonzales CR, Hu W, et al. Outcomes of vitrectomy with inferior retinectomy in patients with recurrent rhegmatogenous retinal detachments and proliferative vitreoretinopathy. Ophthalmology. 2006;113 (11):2041–2047.
19. Rachal WF, Burton TC. Changing concepts of failures after retinal detachment surgery. Archives of Ophthalmology. 1979;97 (3):480–483.
20. Hilton G, Machemer R, Michels R. The classification of retinal detachment with proliferative vitreoretinopathy. Ophthalmology. 1983;90 (2):121–125.
21. La Heij EC, Derhaag PFJM, Hendrikse F. Results of scleral buckling operations in primary rhegmatogenous retinal detachment. Documenta Ophthalmologica. 2000;100 (1):17–25.
22. Asaria RHY, Gregor ZJ. Simple retinal detachments: identifying the at-risk case. Eye. 2002;16 (4):404–410.
23. Abu El-Asrar AM, Al-Bishi SM, Kangave D. Outcome of temporary silicone oil tamponade in complex rhegmatogenous retinal detachment. European Journal of Ophthalmology. 2003;13 (5):474–481.
24. Heussen N, Hilgers R, Heimann H, Collins L, Grisanti S. Scleral buckling versus primary vitrectomy in rhegmatogenous retinal detachment study (SPR Study): multiple-event analysis of risk factors for reoperations. Acta Ophthalmologica. 2011;89 (7):622–628.
25. Grigoropoulos VG, Benson S, Bunce C, Charteris DG. Functional outcome and prognostic factors in 304 eyes managed by retinectomy. Graefe's Archive for Clinical and Experimental Ophthalmology. 2007;245 (5):641–649.
26. Jonas JB, Knorr HLJ, Rank RM, Budde WM. Retinal redetachment after removal of intraocular silicone oil tamponade. British Journal of Ophthalmology. 2001;85 (10):1203–1207.
27. Jiang F, Krause M, Ruprecht KW, Hille K. Management, and results of retinal detachment after silicone oil removal. Ophthalmologica. 2002;216 (5):341–345.
28. Goezinne F, La Heij EC, Berendschot TTJM, Liem ATA, Hendrikse F. Risk factors for redetachment and worse visual outcome after silicone oil removal in eyes with complicated retinal detachment. European Journal of Ophthalmology. 2007;17 (4):627–637.
29. Eckardt C, Behrendt S, Zwick A. Results of silicone oil removal from eyes treated with retinectomies. German journal of ophthalmology. 1992;1 (1):2–6.
30. Hutton WL, Azen SP, Blumenkranz MS, et al. The effects of silicone oil removal: silicone study report 6. Archives of Ophthalmology. 1994;112 (6):778–785.