Pseudophakic Retinal Detachment

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Objective: Study the outcome of pseudophakic retinal detachment surgery.

Setting: Retina service, Ophthalmology department, Salmaniya Medical Centre, Bahrain.

Subjects and Design: Review of medical records of all patients who presented to our unit between July 1987 and June 1995.

Results: A total of 14 cases of pseudophakic retinal detachments were analysed. Simple technique of episcleral buckling was found to be adequate to repair the detachment in 85.7 % of cases. Single procedure was successful in 78.6 % of patients. 64.3 % of the cases regained 6/18 or better vision after surgery.

Conclusions: Overall outcome of this small series of patients was comparable to the reports in the literature. Patients should be made aware of the risk of postoperative retinal detachment and its warning signals. The number of patients of this disease is likely to increase in the future and upgrading of existing facilities is suggested.

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Implantation of an artificial lens inside the eye has been a great advance in the history of cataract surgery. Newer microsurgical techniques have contributed considerably to reducing the incidence of serious complications after cataract extraction. Retinal detachment is rather infrequent but severe complication of cataract surgery[1]. Although its occurrence has diminished with the introduction of modern extracapsular cataract extraction, it still remains one of the serious postoperative complications. Management of retinal detachment in the presence of an artificial intraocular lens poses a challenging task. Since its first description by Tasman and Annesley in 1966, pseudophakic retinal detachment has often presented with unique problems to the retinal surgeon[2]. In view of this uncommon occurrence, outcome of pseudophakic retinal detachment has not been reported from this part of the world. In this paper we report the outcome of pseudophakic retinal detachments seen in the Department of Ophthalmology, Salmaniya Medical Centre, Bahrain during the period between 1987-1995.

METHODS

All case files of all patients with rhegmatogenous pseudophakic retinal detachments presented to the Ophthalmology Department, Salmaniya Medical Centre, Bahrain between July 1987 and June 1995 were reviewed. Cases of tractional retinal detachments in pseudophakic eyes were excluded. A minimum follow up of six months was obtained in all of them.

All the patients were thoroughly evaluated preoperatively. Best corrected visual acuity using a standard Snellen acuity chart was recorded. Complete biomicroscopic examination including applanation tonometry was obtained. A thorough retinal evaluation was performed with binocular indirect ophthalmoscope using scleral depression and Goldman three mirror contact lens. Retinal drawings were prepared. Retinal periphery was further evaluated in the operating room under general anaesthesia.

Presence of uveitis, type of intraocular lens, type and time of cataract surgery, duration and extent of retinal separation, characteristics of retinal breaks as well as presence of proliferative vitreoretinopathy were all noted. Type of surgical procedure used to repair the retinal detachment was recorded. Anatomic status of the retina and visual acuity at most recent follow up were used to assess the results. The reasons for anatomical failure and reduction of vision were analysed. Patients with incomplete data were excluded from the study.

RESULTS

A total of 14 cases of primary pseudophakic retinal detachments were analysed for this study. Their clinical

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TABLE 1: CLINICAL FEATURES

No	Age/Sex	Eye	Symptoms	Duration	Type of IOL	Cataract surgery	Type of Break	Extent of RD	Type of RD Surgery	Visual acuity Initial	Visual acuity Final	Results	Complications	Follow up	Remarks
1	48/Female	Right	Decreased vision	7 Days	PCL	2 Years	Flap tear	Hemiretinal	Radial buckle SRF drainage	6/60	6/12	Attached	Nil	1& 1/2 years	
2	57/Male	Right	Decreased vision	2 days	PCL	5 Years	Giant tear	Hemiretinal	Vitrectomy silicon oil	3/60	6/24	Attached	Nil	2 years	
3	42/Male	Right	Decreased vision	1 Day	PCL	1&1/2 Years	Flap tear	Hemiretinal	Radial buckle SRF drainage	HM	6/12	Attached	Nil	1 year	
4	36/Male	Left	Floaters& decreased vision	1 Day	PCL	5 Years	No hole	Hemiretinal	Vitrectomy encerclage silicon oil	6/36	NPL	Detached	Glaucoma Corneal oedema	3 years	YAG Capsulotomy 2 years
5	45/male	Left	Field defect	1Day	PCL	1&1/2 Years	Flap tear	Quadrantic	Radial buckle SRF drainage	6/6	6/6	Attached	Sponge exposure	7 years	
6	21/Male	Left	Decreased vision	2 Months	PCL	4 Years	Flap tear	Total	Radial buckle SRF drainage	HM	6/24	Attached	Nil	6 months	
7	68/male	Left	Decreased vision floaters	3 Days	PCL	2 Years	Flap tear	Total	Radial buckle SRF drainage	6/24	6/18	Attached	Macular pucker	2 years	2 procedures
8	44/Male	Right	Decreased vision	7 Days	PCL	2 Years	Flap tear	Hemiretinal	Radial buckle encerclage SRF drainage	HM	6/18	Attached	Cystoid macular oedema	3 years	2 procedures
9	63/Male	Left	Decreased vision	2 Days	PCL	1&1/2 Years	Flap tear	Quadrantic	Radial buckle SRF drainage	6/18	6/6	Attached	Nil	1 year	
10	62/Male	Right	Decreased vision	3 Weeks	PCL	1 Year	Flap tear	Total	Radial buckle encerclage SRF drainage	HM	6/36	Attached	Nil	2 years	Posterior capsule rupture YAG capsulotomy 1 year
11	29/Male	Left	Decreased vision	2 Weeks	PCL	7 Years	Flap tear	Total	Radial buckle SRF drainage	2/60	6/18	Attached	Nil	3 years	
12	53/Male	Left	Decreased vision	3 Weeks	PCL	6 Months	Flap tear	Total	Radial buckle SRF drainage	HM	6/24	Attached	Nil	5 years	
13	57/Male	Left	Decreased vision	8 Days	PCL	2 Years	Flap tear	Hemiretinal	Radial buckle	6/60	6/9	Attached	Nil	4 years	
14	49/Female	Right	Decreased vision Flashes	5 Days	PCL	1& 1/2 Years	Multiple round holes	Hemiretinal	Solid tyre encerclage SRF drainage	FC	6/12	Attached	Nil	3 years	Myopia

PCL: Posterior chamber lens SRF: Subretinal fluid HM: Hand motion NPL: No perception of light FC: Finger counting

parameters are shown in Table 1. There were 13 males and 1 female. Their ages ranged from 21 to 68 years with a mean age of 48 years. The follow up period varied between 6 months and 7 years with an average of 2.6 years. Retinal detachment occurred in 6 right and 8 left eyes. Decreased central vision was the main presenting complaint in 92.8 % of patients. One male patient came with symptom of a field defect but good central visual acuity.

Majority (64.3 %) of retinal detachments presented for consultation within one week of developing the symptoms. There was only one case where detachment was evaluated after 2 months. The interval from cataract extraction to development of retinal detachment varied between 6 months to 7 years. 71.4 % of the detachments occurred within 2 years of cataract removal. Two patients had undergone YAG laser capsulotomies and in 1 case where the posterior capsule had ruptured intraoperatively, a small amount of vitreous was found incarcerated in the limbal wound causing updrawn pupil.

All patients in this study had undergone planned, extracapsular cataract extraction and insertion of posterior chamber intraocular lens. A flap tear was the most common retinal break and was found in 11 (78.5 %) of our cases. One male patient (7.1 %) had a giant tear with folded retinal flap. The only female patient in this report, had multiple round holes in an area of advanced lattice degeneration. Retinal break could not be detected in one young man who had undergone cataract surgery 5 years previously and YAG laser capsulotomy 2 years prior to retinal detachment.

Extent of retinal separation at the time of first presentation was variable. In 7 (50 %) patients retina had totally detached at the initial examination and all of them had symptoms for more than a week. Hemiretinal separation was seen in 5 (35.7 %) patients and in the remaining 2 (14.2 %) cases only one quadrant had detached and they had presented to the clinic rather quickly.

Surgical procedure to repair the detached retina was selected depending upon the complexity of each case. Simple episcleral radial buckling with or without drainage of the subretinal fluid was performed in 12 (85.7 %) cases. It was combined with an encerclage in 5 (35.7 %) cases where the detachment was of longer duration and more than three quadrants in extent. One patient with undetectable retinal break opted to go overseas and was treated with vitrectomy and silicon oil injection. Another patient was treated overseas with vitrectomy and silicon oil for giant retinal tear with good visual recovery.

Nine (64.3 %) of our patients recovered vision of 6/18 or better. A further 4 (28.6 %) of our patients regained vision of 6/36 or better. One (7.1 %) young patient in this series lost vision completely. In 13 (92.8 %) patients the retina remained attached postoperatively during the follow up period. Exposure of the soft episcleral sponge occurred in one patient which required surgery to cover it with the Tenon's capsule and conjunctiva. Cystoid macular oedema was seen in one case postoperatively and in another patient macular puckering developed after surgery which compromised the visual outcome. One patient who was treated with vitrectomy and silicon oil as a retinal temponade developed secondary glaucoma and corneal decompensation.

DISCUSSION

Retinal detachment is the most common potentially blinding complication of cataract extraction[3]. About 2 % of patients usually develop retinal detachment after cataract surgery and 50 % of them occur within a year[4,5]. Removal of the crystalline lens increases the risk of retinal detachment regardless the method of its removal. Since implantation of an intraocular lens is becoming a popular surgical technique of cataract extraction, pseudophakic retinal detachments will obviously become more common than the aphakic variety in the future.

Vitreous changes following cataract surgery are primarily responsible for the increased incidence of retinal detachment in aphakic and pseudophakic eyes. The most important change is the posterior vitreous detachment and the precise reasons for its increased occurrence after cataract extraction are unknown. Acute posterior vitreous detachment causes traction at sites of vitreoretinal adhesions which results in the production of retinal tears and development of retinal separation. Vitreoretinal adhesions may be visible or invisible and the latter become recognisable only after the development of a retinal break.

Ten percent to 15 % of patients develop retinal tears in the event of acute posterior vitreous detachment after cataract removal[6]. By leaving a barrier to anterior displacement of the vitreous body, extracapsular cataract surgery might be expected to have lower frequency of vitreoretinal complications such as retinal breaks and retinal detachment[7].

Vitreous instability and its detachment is thought to result from loss of hyaluronic acid after cataract surgery[8]. The presence of intact posterior capsule reduces the loss of hyaluronic acid from the vitreous and thus probably diminishes the incidence of posterior vitreous detachment with its attendant risk of developing the retinal breaks and retinal separation[9].

Many studies have highlighted the unique problems associated with reattachment of these retinas[6,10]. Poorly dilating pupil, residual peripheral opaque lens matter, thickened posterior capsule, vitreous haemorrhage and corneal oedema make the retinal examination difficult.

Most of the pseudophakic retinal detachments can be treated by conventional scleral buckling procedures and this view has been supported by our results also[11].

85.7 % of our cases were successfully managed with standard scleral buckling techniques. Advanced vitreous surgery was required only in two of our cases, but its value in the modern management of retinal detachment does not diminish. Pars plana vitrectomy was required only in 8 % to 11 % of cases in recent large series[11,12].

We performed encerclage in 35.7 % (5 cases) as compared to 93 % in a recent report[12]. We think that most of these detachments can be safely treated without the need of an encerclage as already shown by Singh[13].

Visual recovery after successful surgery in this series was 6/18 or better in 64.3 %. Comparable figures in other studies vary between 32 % to 55 %14,12. However, direct comparison with other reports is difficult due to our small number of cases and different detachment characteristics.

Anatomic reattachment of the retina after one procedure was achieved in 78.6 % of our patients. This compare favourably with other studies of 75 % and 77 %[6,12]. The overall success rate of 92.85 % in the present study is also comparable with other reports of 88 %, 90 %, 82 %, 96 %[6,12,15,16]. Longer duration of symptoms prior to presentation, poor presenting vision, more extensive retinal separation, absence of detectable retinal break and the presence of severe proliferative vitreoretinopathy are the factors which influence the successful outcome[12]. In the present study also longer duration of symptoms and nondetectable breaks influenced the results. Our cases requiring more than one procedure to reattach the retina regained comparatively poor vision due to the development of postoperative maculopathy.

All our patients of pseudophakic retinal detachments had posterior chamber intraocular lenses. This may be due to very infrequent insertion of anterior chamber implants in our population. It has been reported that outcome of retinal detachment surgery in the presence of anterior chamber lenses is less satisfactory than in posterior chamber implants[6,15].

The present study from this part of the world, indicate that our approach to the management of pseudophakic detachment has given comparable results. Over 25 % of our patients presented with detachment more than 2 years after the cataract surgery. Patients should be made aware of the risk of postoperative retinal detachment and its initial warning signals in order to detect it early and improve the visual outcome.

With the increase in aging population of Bahrain, the number of intraocular lens implantation is likely to steadily increase and the number of people requiring treatment for pseudophakic retinal detachment will obviously become more. Although conventional extraocular retinal detachment surgery has been found to be adequate for majority of the patients, facilities for advanced vitreous surgery should also be made available in this country so that all cases of this serious and blinding disease are treated timely and effectively.

CONCLUSIONS

Conventional scleral buckling procedures are adequate to manage majority of the pseudophakic retinal detachments. Outcome of the present study is comparable to reports from other centres. Facilities for advanced vitreoretinal surgery should be available in this hospital to deal with complicated detachments in eyes containing an intraocular lens.

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