

Natural History of Asymptomatic Clinical Retinal Detachments

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- **PURPOSE:** To determine the natural history of asymptomatic, clinical rhegmatogenous retinal detachment.
- **DESIGN:** Single observer, prospective, consecutive, observational case series.
- **METHODS:** Consecutive patients were included who were referred to the author's clinical practice with rhegmatogenous retinal detachment extending greater than two disk-diameters posterior to the equator. Patients whose eye had an intraocular procedure within the past year or who had a history of symptomatic retinal detachment in the fellow eye were excluded. Eighteen eyes of 16 patients were followed for an average of 46 months. The main outcome measure was progression of asymptomatic retinal detachment to symptomatic retinal detachment.
- **RESULTS:** None of the 18 asymptomatic, clinical, rhegmatogenous retinal detachments became symptomatic. The posterior margin of one retinal detachment slightly progressed 4 months into the study and then stabilized for 4 years and remained asymptomatic.
- **CONCLUSIONS:** Asymptomatic, clinical, rhegmatogenous retinal detachments can probably be safely observed for many years. (Am J Ophthalmol 2005;139:777-779. © 2005 by Elsevier Inc. All rights reserved.)

THE PRESENCE OR ABSENCE OF SYMPTOMS OFTEN guides medical treatment of diseases.^{1,2} The Hippocratic Oath enjoins physicians to "first do no harm." Because asymptomatic patients cannot be made symptomatically better, benefits of treatment to presumably protect such patients from future symptomatic problems need to be carefully weighed against the risks of therapy. Furthermore, a treatment that helps a symptomatic patient may not help an asymptomatic patient. This problem arises because symptomatic patients usually seek medical care and asymptomatic patients do not. Therefore, in the absence of universal screening, the incidence and natural history of

asymptomatic disease is unknown. In many fields of medicine, two patients with the same problem, one symptomatic and the other asymptomatic, are treated differently.^{1,2} In ophthalmology, this is true of patients with retinal tears and with subclinical retinal detachments.³

Symptomatic rhegmatogenous retinal detachment is cause for urgent surgical intervention.⁴ Management of asymptomatic, clinical rhegmatogenous retinal detachment, however, remains controversial. Some authors advocate observation,^{5,6} whereas others recommend surgical repair.⁷ To better understand the long-term history of asymptomatic, clinical rhegmatogenous retinal detachment, a prospective, observational study was performed.

METHODS

ALL PATIENTS PRESENTING WITH RHEGMATOGENOUS RETINAL detachments extending greater than two disk-diameters posterior to the equator and having no complaints of shadows, floaters, flashes, or vision loss were included in this study. These patients were identified by their referring doctors after presenting with no complaints or nonretinal complaints. Patients were excluded from this consecutive study if the eye with the retinal detachment had undergone an intraocular procedure within the past year or if the fellow eye had a symptomatic retinal detachment or history of retinal detachment repair. Patients underwent a comprehensive ophthalmic evaluation, including specific questioning as to presence of flashes, floaters, or a shadow in the peripheral vision and including a dilated retinal examination every 3 months for 1 year then every 6 to 12 months. Minimum follow-up of 1 year was required. This study was approved by the Institutional Review Board of Morton Plant Hospital, Clearwater, Florida, and patients signed an approved informed consent to participate.

RESULTS

EIGHTEEN EYES OF 16 CONSECUTIVE PATIENTS WERE INCLUDED in the study. The average age of the patients at presentation was 56 years (Table). Only three patients were male. Two eyes had age-related macular degeneration

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TABLE. Characteristics of Patients and Eyes With Retinal Detachments

Patient	Age	Gender	Eye	Initial Visual Acuity	Final Visual Acuity	Spherical Equivalent (phakic)	PVD	Phakic	RD	Clock Hours	Posterior to Equator (mm)	Causative Lesion	Follow-up (month)
1	58	f	Right	20/30	20/40	3.12	Yes	Yes	it	5	8	Hole	72
2	82	f	Right	20/40	20/30	-3.63	Yes	Yes	it	3	8	Retinoschisis	75
2			Left	20/40	20/40	-4.00	Yes	Yes	it	2	8	Retinoschisis	
3	48	f	Right	20/25	20/20	0.75	No	Yes	it	3	8	Hole	34
3			Left	20/25	20/25	0.75	No	Yes	it	3	8	Tear	
4	70	f	Right	20/30	20/30	-7.37	Yes	Yes	it	4	8	None	56
5	69	f	Right	20/25	20/30	-10.00	Yes	Yes	it	2	8	Tear	36
6	36	f	Right	20/25	20/20	-0.25	Yes	Yes	it	4	8	Lattice & holes	30
7	78	f	Left	20/160	20/400	2.87	Yes	Yes	it	3	9	Hole	41
8	45	f	Left	20/20	20/30	1.00	No	Yes	it	4	10	Lattice & holes	59
9	86	m	Right	20/120	20/120	-1.37	Yes	No	it	4	12	Tear	12
10	59	f	Left	20/30	20/30	1.25	No	Yes	t	3	12	Lattice & holes	53
11	58	f	Right	20/16	20/16	-3.87	No	Yes	it	5	12	Lattice & holes	69
12	44	m	Right	20/20	20/20	-1.00	No	Yes	it	4	12	Lattice & holes	33
13	71	f	Right	20/20	20/25	-1.00	Yes	No	l	3	12	None	47
14	39	m	Left	20/25	20/30	-2.50	Yes	Yes	t	3	12	None	14
15	24	f	Right	20/20	20/20	-8.25	No	Yes	it	6	16	Lattice & hole	45
16	44	f	Left	20/25	20/20	-4.75	No	Yes	it	6	20	Lattice & holes	64

PVD = posterior vitreous detachment; RD = retinal detachment; l = inferior; t = temporal.

and visual acuity of 20/200. The other 16 eyes started and finished the study with 20/40 or better visual acuity. Three eyes had greater than 5 diopters of myopia, 5 eyes had between 2 and 5 diopters of myopia, and 10 eyes had less than 2 diopters of myopia. Only 2 eyes started the study pseudophakic. Patient 1 (Table) underwent cataract surgery during the study. Eleven of the 18 eyes had a posterior vitreous separation at presentation. No eyes developed a new posterior vitreous separation during the study.

Several different causative lesions were found in the 18 eyes with rhegmatogenous retinal detachment: 8 had lattice degeneration with holes, 3 had flap tears, 2 had a retinal hole, 2 had combined retinoschisis rhegmatogenous retinal detachment, and 3 had no identifiable causative lesions (Table). Although not a requirement for inclusion in the study, all rhegmatogenous retinal detachments had at least a partial demarcation line on initial presentation, and all rhegmatogenous retinal detachments were predominantly located temporally and inferiorly. Two patients presented with retinal detachments in both eyes and one patient had two retinal detachments in one eye (Patient 6). The average retinal detachment involved 4-clock hours at the ora serrata (range, 2–6 hours) and extended eleven millimeters posterior to the equator (range, 8–20 mm) (Table). The posterior border of the retinal detachment in patient 13 (Table) advanced 4 millimeters after being followed for 4 months and then stayed stable for the remaining 4 years of examinations, and the patient remained asymptomatic.

None of the 18 eyes followed for an average of 46 months (range, 12 months–72 months) in this study became symptomatic.

DISCUSSION

IF THE RATE OF PROGRESSION OF CLINICAL, ASYMPTOMATIC rhegmatogenous retinal detachments is low, then surgical intervention may not be advisable. Retinal detachment surgery can cause cataract formation, glaucoma, bleeding, infection, choroidal effusion, cystoid macular edema, macular pucker, diplopia, refractive shift, and proliferative vitreoretinopathy.⁸ Avoiding surgery in these patients would avert their exposure to these potential complications.

Because this study was prospective with long-term follow-up, it supports other authors who suggest that asymptomatic retinal detachment is benign.^{5,6,9} Brod and associates⁵ retrospectively studied 31 eyes of 28 patients of which only 2 eyes became symptomatic during an average follow-up of 3.4 years.

Rhegmatogenous retinal detachment occurs when the forces contributing to retinal detachment—vitreous traction, subretinal fluid accumulation, and gravity overwhelm the forces contributing to retinal attachment—passive hydrostatic forces, the interdigitation of photoreceptors and retinal pigment epithelial cells, active transport of subretinal fluid, and adhesion of the interphotoreceptor

matrix.¹⁰ In patients with symptomatic rhegmatogenous retinal detachment, these forces are not in balance, leading to a high rate of progression of retinal detachment and vision loss. In patients with asymptomatic rhegmatogenous retinal detachment, these opposing forces are likely in equilibrium, leading to a low rate of progression and vision loss. Hypothetically, the equilibrium between attaching and detaching forces that exists in a patient with an asymptomatic retinal detachment could be disturbed. Events such as intraocular surgery, vitreous separation, excessive jarring of the eye, and space travel could lead to symptomatic retinal detachment.

Several factors in this cohort of 16 patients may have contributed to their asymptomatic status and to the lack of progression of their retinal detachments: no retinal detachments were superior; all retinal detachments had at least partial demarcation lines on presentation; only 3 of 18 retinal detachments had retinal tears (the rest had atrophic holes, retinoschisis, or no discernable lesion); and finally, the patients were relatively young with an average age of 57 on presentation. These factors, although not inclusion criteria for this study, should probably be considered when deciding how to manage patients with asymptomatic, clinical rhegmatogenous retinal detachments.

During this study, only one patient had cataract extraction and no patients developed a new posterior vitreous separation. Therefore, this study does not address the difficult question of management of an asymptomatic rhegmatogenous retinal detachment in the face of impending intraocular surgery, an acute posterior vitreous separation, or situations of unusual external forces on the vitreous body. Further studies are needed to address these questions.

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Biosketch

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