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Retinal Detachment
Review of 50 Consecutive Cases

by *Dr. M. Vijendran*
D.O., F.R.C.S. (Edin.)

and *Dr. Andrew C. H. Fong**
D.O., F.R.C.S. (Eng.)

Department of Ophthalmology
Faculty of Medicine
University of Malaya

RHEGMATOGENOUS RETINAL DETACHMENT is not uncommon in Malaysia. It is seen more commonly in the Chinese; whether this is due to the fact that the Chinese are by far an urban race and so closer to larger hospitals or to the fact that the incidence of myopia greater than −6D sph. is higher in them (Chandran 1972) is difficult to ascertain at this stage. The University Hospital is at the receiving end of most retinal detachments in West Malaysia. This paper is a preliminary report of 50 consecutive cases seen and operated by the authors at this hospital over a period of one year from January 1975 to January 1976. This communication is the first of its kind in the Malaysian medical literature.

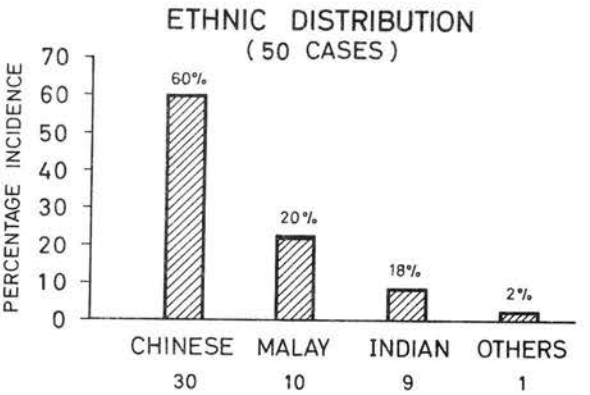
Jules Gonin in the 1920's rationalized the treatment of retinal detachment when he said "to cure a retinal detachment one must seal the break in the retina." He originally drained sub-retinal fluid and used a Paquelin cautery to induce an area of aseptic chorioretinitis (Gonin 1923). Weve substituted diathermy for cautery. Since then retinal detachment surgery has been further developed and modified by Arruga, Schepens, Lincoff and many others. The lifetime contribution by Charles Schepens to retinal disease has "revolutionized the science and art of fundus diagnosis. His development and applications of new techniques in the treatment of retinal disease have cured more patients, trained more disciples and prevented more blindness than any other effort in our time." (H.F. Allen 1972).

In 1951 Custodis introduced the technique of external scleral plombage with a polyviol implant, diathermy and non-drainage of fluid (Custodis 1953). Lincoff learnt this technique from him in 1958 but modified it slightly by using an episcleral silicone sponge, non-drainage and substituting cryotherapy for diathermy (Lincoff et al 1965).

Incidence

The present series shows that Chinese formed 60% (30) of the total, Malays 20% (10) and Indians 18% (9). (Table I).

TABLE I



Age and Sex

Most of the cases fell between the ages of 20 and 59. (Table II). The sex ratio of males to females was 3:1 (Table III).

* Present Address:- Fong Eye Clinic, Tung Shin Hospital Specialists' Centre, Ground Floor, 102 Jalan Pudu, K.L.

Table II

Age Groups

	No.	%
0 – 19	8	16
20 – 39	16	32
40 – 59	14	28
60+	12	24

Table III

Sex

	No.	%
Male	38	76
Female	12	24

Refractive State

34% (17) of the patients were myopes of which 12% (6) were high myopes of refractive error greater than −8D sph. Aphakia formed 28% (14). (Table IV). This is much higher than that seen in other series. (Chignell 1974; Tulloh 1965).

Table IV

Refractive Groups

	No.	%
Hypermetropia	–	–
Myopia < −8D	11	22.0
High Myopia > −8D	6	12.0
Aphakia	14	28.0
Emmetropia	19	38.0

Distribution of Breaks

Analysis of the type and location of the breaks shows that there were 41 horse-shoe tears of which 50% were in the upper temporal quadrant. 60% of all round holes were seen in the upper temporal and 33% in the lower temporal quadrant. In all, 71% of both types of breaks were found in the temporal retina. There were only two cases of retinal dialyses. (Table V).

Extent of Detachment

96% (48) of the patients had a macula detachment when first seen. 20% (10) had total retinal detachment. Only 2 patients came to us without a macula detachment. Both these patients were successfully treated and achieved 6/6 vision post-operatively. 5 patients had a detachment in their only eye. All of them had successful surgery.

Table V

Analysis of Breaks

Type of Break	No.	Distribution %			
		UT	UN	LT	LN
Horse-shoe	41	50	27.8	12.2	10
Round	42	60	4.8	33.0	2.2
Dialyses	2				

UT upper temporal
UN upper nasal
LT lower temporal
LN lower nasal

Method

All patients were examined with the binocular indirect ophthalmoscope with scleral indentation and a detailed retinal diagram was documented. This was always followed by 3-mirror contact lens biomicroscopy to assess in greater detail areas of degeneration of the retina, the mobility of the retinal folds, the state of the vitreous and the angle of the anterior chamber. Both eyes were always examined. We feel that a lot of time should be spent in examining the retina before surgery is planned. If no holes were found by one observer, the patient was looked at by the other author. If repeated examinations did not reveal a hole, a retinal diagram was drawn and the site of probable location of the hole was determined, by the configuration of the detachment, according to the Lincoff series. (Lincoff 1971).

Technique

External scleral plombage, cryoretinopexy and non-drainage of fluid is the basic technique that we used in the majority of our cases. At surgery the holes were localised under direct vision with the indirect ophthalmoscope and cryo-applications were placed over and around the break. We use cryotherapy because of its many advantages; damage to the sclera is minimal making re-operation, if necessary, safe and easy. We buckle the sclera using silastic silicone sponges with deep scleral mattress sutures. Perforation of the sclera may occur if due care is not taken during this procedure. This may be prevented by keeping the point of the needle always in view and by routinely using spatula needles. The position of the indent produced is monitored with the indirect ophthalmoscope. No fluid is drained and this raises the intraocular pressure but as aqueous drains from the eye the sponge sinks in and produces a deep buckle. The pulsation of the central retinal artery at the disc is constantly monitored so as not to raise the intraocular pressure above

that of the systolic blood pressure as this would immediately result in a central retinal artery occlusion.

If an encircling procedure is undertaken we use a silicone strap placed at the equator to reduce the volume of the globe and to relieve vitreous traction. No subretinal fluid is again drained unless specifically indicated. In our experience drainage of subretinal fluid is the single most dangerous procedure in retinal detachment surgery. This single procedure, if not properly controlled and monitored, can ruin your whole operation. It converts your extraocular operation into an intraocular one with all its resultant complications. We attempt to close all holes on the operating table but this may not be possible in patients with high balloons using the non-drainage technique. However, as long as the break is sitting properly over the indent, subretinal fluid will be steadily absorbed over the next few days and the retina will become flat.

Careful indirect ophthalmoscopy with scleral depression is performed on the fellow eye during surgery in all patients. All lattice degeneration, thin areas of retina, snail track degeneration and retinal breaks except round holes at the ora are treated prophylactically with cryotherapy. It is our feeling that all retinal breaks without a detachment should be treated prophylactically with cryo applications, for it is not possible to predict which retinal holes will, or will not lead to a retinal detachment. One of us (A.F.) has recently treated, as a prophylactic measure, a large but flat horse-shoe tear with vitreous traction, using a local implant. In 46% (23) of our patients some predisposing degeneration to retinal detachment was seen in the fellow eye and treated.

On the 1st post-operative day the patient is ambulated. We discourage post-operative complete bed rest for we feel that making the patient lie in bed even when the hole has not been properly mounted by the buckle, achieves nothing.

The non-drainage technique was the procedure of choice in 64% (32) of the patients. 36% (18) were drained; 8% (4) of them inadvertently. One patient had a paracentesis done because of sudden rise of intraocular pressure at the end of surgery (Table VI).

Table VI

	No.	%
Not Drained	32	64
Drained	18	36

58% (29) had a local implant only. All horse-shoe tears were closed with a radial sponge, whenever possible, to prevent fish-mouth leakage post-operatively. 34% (17) had an encirclement together with a scleral sponge (Table VII). 16% (8) patients had this performed as a second procedure when previous surgery had been unsuccessful, and 7 achieved successful anatomical reapposition. The two cases of retinal dialyses were treated successfully with an encirclement only.

Table VII

Type of Indent

	No.	%
Local Sponge	29	58
Radial	18	36
Circumferential	11	22
Encirclement	4	8
Encirclement and Local Sponge	17	34

In 10% (5) of patients no retinal holes could be seen on repeated examination. 3 of them were aphakia's. An encircling procedure was undertaken on 4 of these patients and the fifth had a local implant placed at the site of probable location of the retinal break. Only two cases achieved successful reapposition of the retina by this blind technique.

60% (30) of patients reattached with one operation. In 53.3% (16) of these patients the retina was flat on the 2nd post-operative day. A further 26% (13) attained anatomical reapposition after two or more operations. 4 patients re-detached after initial successful surgery and the 3 who underwent surgery again attained anatomical reapposition. The other patient had a vitreous haemorrhage which has still not cleared. This makes an overall anatomical success rate of 86% (43). There were 14% (7) failures. (Table VIII).

Table VIII

Results of Retinal Surgery

	No.	%
Reattached with 1 operation	30	60
Reattached after 2 or more operations	13	26
Overall success	43	86
Failures	7	14

43% (3) of our failures were due to the inability to identify a retinal break. 2 of these were aphakia's.

It is well known that aphakic patients tend to have smaller breaks and they are difficult to locate. Our other failures were due to a macula hole, massive vitreous retraction and to a defective indent. (Table IX).

Table IX
Analysis of Failures (7 Cases)

	No.	%
No holes	3	43
Phakia	1	14.3
Aphakia	2	28.7
Macula hole with massive vitreous retraction (M.V.R.)	1	
Defective indent	1	
Multiple holes with M.V.R.	2	

Complications

Perforation of the sclera, while placing the mattress sutures, occurred in 12% (6). This resulted in the escape of sub-retinal fluid when intentional drainage had not been planned in 4. A small vitreous haemorrhage occurred in 12% (6) of patients who had sub-retinal fluid drained. One patient had a retrobulbar haemorrhage and another a partial 3rd nerve palsy due to excessive manipulation during surgery. These resolved in time. Pigment fallout, which results from disruption of pigment epithelial cells occurred in 6% (3) of patients who had excessive cryo-applications. (Fig. I). There was 1 case of macula pucker. Extraocular infection occurred in 4% (2) and this was controlled adequately with topical and systemic antibiotics. The silastic silicone plomb was removed in 10% (5) as it was being extruded. There was no recurrence of detachment after removal, as this was done many months after initial surgery. (Table X).

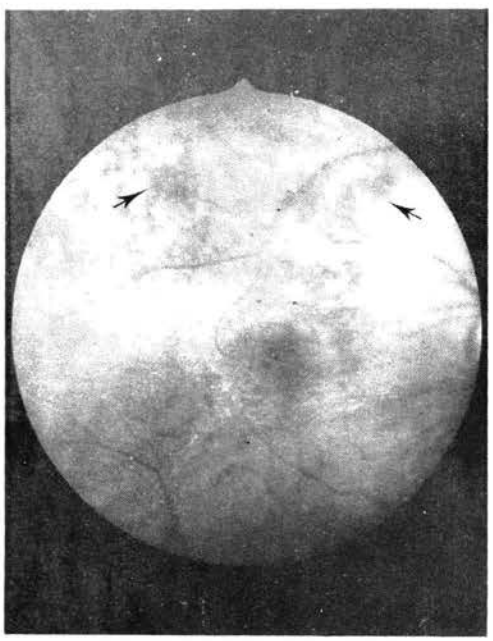


Fig. I

Fundus photograph showing pigment fallout (arrows) around the macula following excessive cryotherapy. Visual acuity was *6/24*.

Table X

Complications

	No.	%
Operative:		
Perforation of sclera	6	12
Vitreous haemorrhage	6	12
Retro-bulbar haemorrhage	1	2
Partial 3rd nerve palsy	1	2
Post-operative:	No.	%
Pigment fallout	3	6
Macula pucker	1	2
Choroidal detachment	1	2
Extra-ocular infection	2	4
Plomb extruded	5	10

Table XI shows pre-operative and post-operative visual acuity in groups from 6/5 to perception of light (PL). 44% (22) had a pre-operative visual acuity of counting fingers (CF). After surgery two had the same vision and two were worse but 36% (18) achieved a visual acuity of 6/60 or better. Pre-operatively 22% (11) patients had vision of hand movements (HM) only but following surgery 18% (9) improved to have a visual acuity of 6/60 or better. Post-operative vision was better than pre-operative visual acuity in 82.2% (35) of patients who achieved anatomical reapposition of the retina. In all, 87.1% (27) had a post-operative visual acuity of 6/60 or better when pre-operative vision had been less.

Summary

50 consecutive cases of retinal detachment is analysed. 86% of them had successful anatomical reapposition of the retina. The majority of cases 64% had a non-drainage procedure. In 10% (5) no retinal holes were seen. 4 of them had a blind encircling procedure and the other had a local implant. Drainage of sub-retinal fluid was the single most dangerous procedure during surgery. Perforation of the sclera occurred in 12% (6). Vision improved in 82.2% (35) of the patients who had successful surgery.

Table XI

Visual Acuity After Surgery (50 Cases)

PRE-OPERATION		POST-OPERATION						
Visual Acuity	No.	6/5–6/6	6/9–6/12	6/18–6/24	6/36–6/60	CF	HM	PL
6/5 – 6/6	2	2	–	–	–	–	–	–
6/9 – 6/12	1	–	1	–	–	–	–	–
6/18 – 6/24	3	–	1	1	1	–	–	–
6/36 – 6/60	7	–	–	2	4	1	–	–
Counting fingers (CF)	22	–	3	5	10	2	2	–
Hand movement (HM)	11	–	–	3	6	–	2	–
Perception of light (PL)	4	–	–	–	1	1	–	2
TOTAL	50	2	5	11	22	4	4	2

(Adapted from S.S. Grupposo, 1975)

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