

SEPARATION (DETACHMENT) OF THE RETINA—A LOCAL STUDY OF THE NATURE AND DISPLACEMENT OF THE TEARS AND THEIR RELATIONSHIP TO SURGICAL MANAGEMENT AND PROGNOSIS

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A previous study on the incidence and surgical results of separation of the retina (D.R.) was presented by the author at the 4th Singapore-Malaysian Congress of Medicine in 1969 and this article is a report on the further development of that study.

MATERIAL AND METHODS

This study includes all cases of retinal detachment seen and operated on in Outram Road General Hospital covering the period 1959 to 1968. Two hundred and forty-two cases are involved and these came under the care of several doctors and the majority (a little over 200) were operated on by the author, although almost all of them came under his supervision. Ten cases were considered inoperable and at least 5 cases refused initial surgery and these have not been included. Excluded also from this survey were all detachments due to exudation, traction or tumours.

RESULTS OF STUDY AND DISCUSSIONS

TABLE I
FREQUENCY OF SINGLE AND
MULTIPLE TEARS

Type of Detachment of Retina with	Number	Percentage
Single Tear	107	49.4%
More than one tear	98	45.4%
Macular holes	11	5.2%
TOTAL	216	100%

Table I shows at least one important finding and that is detachments with more than one tear are seen almost as frequently as those with single tears (45.4% to 49.4%). Another important observation that can be made is that those with multiple tears are seen just as frequently as those with only double tears.

Macular holes are seen in 5.2% of cases and this is a fairly high figure in comparing with other reports (Staz 1%, Smolin 1%, Cattaneo 4%). However, Tulloh in his studies found that macular holes formed 28% of the round tears he saw.

No holes were found in 26 cases of which 15 were in aphakic eyes and only 11 in phakic eyes. Forty-three aphakic detachments were seen in all, and 199 phakic detachments were observed. Therefore no holes were found more frequently in aphakic detachments (35%) than in phakic ones (5%). This was reported in an earlier paper.

Tears that are seen are essentially of four types:—

1. Arrow shaped
2. Round
3. Irregular
4. Dialyses

Table II(a) shows the displacement of tears and as can be seen, the upper temporal area (quadrant) is the most frequently involved area be it in cases with single, double or multiple holes (See Fig. 1 also).

- (i) Arrow shaped tears are consistently found most frequently in the upper temporal area whilst the lower temporal and upper nasal quadrants are involved next and equally so.
- (ii) Round holes are seen again most frequently in the upper temporal areas whilst there is no doubt the lower temporal quadrant is next in frequency. Another observation that can be made is that where double or multiple tears are found, round holes increase in frequency whilst arrow-shaped tears decrease.
- (iii) With regard to irregular holes the temporal areas are most frequently associated with these tears.

TABLE II(a)
DISPLACEMENT OF TEARS

	Single (107)				Double (49)				Multiple (49)			
	UT	LT	UN	LN	UT	LT	UN	LN	UT	LT	UN	LN
Arrow	29	16	16	4	23	3	4	1	16	7	6	2
Round	9	5	0	1	20	18	4	0	62	43	3	10
Irregular	6	2	2	2	12	5	2	0	5	10	2	0
Dialysis*	7	5	0	0	4	2	0	0	3	1	2	1

*Including 3 tears spreading into UT & LT areas.

TABLE II(b)
DISPLACEMENT OF TEARS

	Arrow			Round			Irregular			Dialysis		
	S	D	M	S	D	M	S	D	M	S	D	M
Equatorial	48	28	31	9	27	54	8	10	10	—	—	—
Peripheral	11	3	0	5	10	57	2	6	7	12	6	7
Central	5	0	0	1	5	7	2	3	0	—	—	—

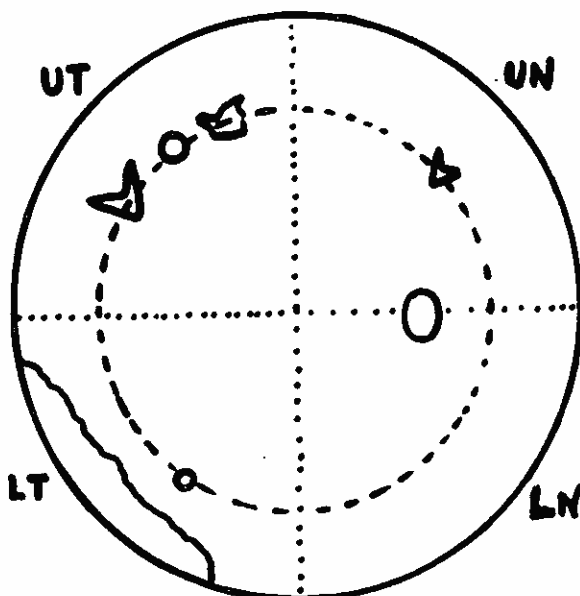


Fig. 1.

dialyses, some are seen in the nasal areas. One observation I'd like to make here is that the dialyses we've seen were really huge ones, with rolled over edges making prognosis poor in most cases.

Table II(b) shows the location of the tears in their radial distribution in relation to the macula. These are exclusive of macular holes. The equatorial region is the most predominantly involved area for the arrow-shaped, round and irregular holes. Tears in the peripheral region came next in frequency especially for the multiple round tears. Tears central to the equator are much fewer. These findings support Duke Elder's contention that retinal detachments occur more frequently in the decades when senile and arterio-sclerotic changes usually become evident and degenerative changes leading to tears are most frequently seen in the equatorial region.

(iv) Dialyses are seen in the periphery of the temporal areas predominantly although in those seen with multiple

TABLE III(a)
MULTIPLICITY OF TEARS AND
SURGICAL RESULTS (SINGLE TEARS)
(114 eyes in 107 patients)

Result, Operation	Good	Fair	Poor
Single	55-15 (bilat) -70	3	26 (12 refuse re-op.)
Re-operation	15	—	—
Percentage	74.6%	2.6%	22.8%

TABLE III(b)
MULTIPLICITY OF TEARS AND
SURGICAL RESULTS (DOUBLE TEARS)
(49 eyes in 49 patients)

Result, Operation	Good	Fair	Poor
Single	30	5 (3 refused re-op.)	4 (1 refuse re-op.)
Re-operation	10	—	—
Percentage	81.6%	10.2%	8.2%

TABLE III(c)
MULTIPLICITY OF TEARS AND
SURGICAL RESULTS (MORE THAN
2 TEARS)
(53 eyes in 49 patients)

Result, Operation	Good	Fair	Poor
Single	38	5 (2 refused re-op.)	7 (2 refused re-op.)
Re-operation	3	—	—
Percentage	77.3%	9.5%	13.2%

TABLE III(d)
MACULAR HOLES

Total No.	No. Operated on	Good Result	%
11	5	2	40%

Tables III(a-d) indicate the surgical results in cases with single, double, multiple and macular holes. As demonstrable, the results (successful) are from 74.6%, 81.6%, 77.3% and 40% respectively. These figures include all those who were subjected to re-operation, and all those who either refused to be re-operated on or were not considered worthwhile re-operating on. There is no significant variation between the results seen with single, double or multiple holes. However those with macular holes certainly didn't do as well, as can be expected.

If those with a fair result are added on, the figures improve to 76.8%, 91.8%, and 86.8% respectively. Those considered to be demonstrating a fair result were ones in which the Detachment appeared contained, with little or no change in vision and the follow-up was of insufficient duration due to failure of patient showing up.

TABLE IV
MULTIPLICITY OF OPERATION
AND SURGICAL RESULTS
(Out of 216 eyes operated)

Result, Operation	Good	Percentage
Single operation	138	63.8%
Re-operation	28	13.0%
TOTAL	166	76.8%

(These include those with macular holes and those who refused second surgery)

This table shows that of 33 cases that were reoperated on 28 cases achieved reattachment (84.8%) and this gives a considerable fillip to the numbers that were successfully operated on. A total increase of 13% is seen giving an overall percentage result of 76.8% and this includes those with macular holes and those who refused re-operation.

One case was operated on 5 times. Two cases had 3 operations done in each. Of the surgical procedures attempted at re-operation which resulted in success, 3 were diathermy on previous diathermy, 12 were Arruga's encircage on previous Scleral Resection with diathermy or diathermy alone, and 13 were Lamellar scleral resections on previous diathermy. Of the five that failed, 3 cases were Lamellar Scleral Resection on previous dia-

thermy, and 2 were Arruga's encercelage on previous diathermy. The causes which necessitated re-operation were found to be:

- (i) excessive initial diathermy causing new tears;
- (ii) failure to seal off original tears due to insufficient diathermy, lack of a buckling procedure, or a wrongly placed buckle;
- (iii) failure to detect other tears till later.

It may be worthwhile mentioning here the several basic procedures employed with slight variations: -

1. Retinopexy mainly by diathermy and latterly supplemented by photocoagulation and cryosurgery.
2. Localised plomb technique, either with Silicone Rod or Sponge (Lincoff) over intact sclera.
3. Lamellar scleral resection with or without silicone rod inlay.
4. Arruga's encercelage with Supramid.
5. Schepen's technique (rarely employed).

TABLE V
AGE AND MULTIPLICITY OF TEARS

Tears, Age Group	Single	Double	Multiple
0-10 years	0	0	1
11-20 years	6	9	7
21-30 years	4	4	5
31-40 years	14	4	6
41-50 years	29	13	13
51-60 years	31	13	12
61 years and above	13	6	5

As can be seen from the above table, the older the age group, the higher the incidence of tears especially after the age of 41, in all 3 groups (single, double, or multiple tears). It would appear, however, that aging has no special influence on the incidence of the numbers of tears (i.e. there is no combined increase in the numbers of those with 2 or more tears compared to those with single tears). There is one interesting point that should be noted and that is in the 2nd and 3rd decade more Detached Retina's

occur with 2 or more tears than with single tears, which may suggest that where degenerative processes have started early or are inherited, multiple tears are more likely to occur.

TABLE VI
AGE AND RESULTS

Results in Age Groups	Single Tears	Double Tears	Multiple Tears
0-10 years	--	--	100%
11-20 years	83.3%	77.7%	85.7%
21-30 years	64.3%	100%	80.0%
31-40 years	64.3%	75.0%	100%
41-50 years	68.9%	69.2%	61.5%
51-60 years	80.6%	100%	83.3%
61 years and above	76.9%	66.6%	40.0%

Table VI indicates no specified pattern in the relationship between surgical results and aging with one exception and that is, the over 61 group with more than 2 tears. Here there is a considerable drop in successful result. It may be contended that the extreme degenerative processes seen in this group causing multiple tears does influence the surgical outcome. However, as indicated in a previous paper, the prognosis of surgery in detachment is more related to the grade of detachment, duration of detachment and degree of myopia.

TABLE VII
DETACHED RETINA'S WITHOUT HOLES

Results	No. of Cases	%	Type of Operations
Good	10	38.4%	{ 9 Arruga's Encercelage 1 Schepens
Fair	3	11.6%	{ 2 Arruga's Encercelage 1 Schepens
Poor	13	50.0%	{ 10 Diathermy + Scleral Buckle (3 Schepens) 3 Arruga's Encercelage

Out of 26 detachments which were seen without holes. (11 phakic, 15 aphakic), good results were achieved in 38.4% and fair in 11.6% only. Results are certainly much worse when compared to those detachments where holes were found. This is to be expected. It appears that the Arruga's procedure would provide greater benefit than other procedures for this special group of cases.

SUMMARY

An analysis on the incidence and type of tears seen with 242 cases of detachment of retina is presented. Surgical results in relation to the multiplicity of tears, age and those

in which no holes were found are presented. The indications and value of reoperation is briefly discussed.

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