

SCLERAL RESECTION—LAMELLAR OR PENETRATING?*†

BY

C. DEE SHAPLAND

London

It affords me much pleasure to dedicate this short paper to Professor Dr. Karl Lindner as he has always been much interested in the subject of detachment of the retina in all its aspects. It was he who re-introduced Müller's operation for the treatment of cases of retinal detachment with unfavourable prognosis (Lindner, 1933) and his operation was taken up by Pischel (1945), Borley (1949), and Vail (1948) in the United States, and later by Lister (1951a) Philips (1951) and myself (Shapland, 1951a) in Great Britain. In the summer of 1949, I, in my turn, modified Lindner's operation in three ways :

- (1) by making the excision of the scleral strip "lamellar", i.e. leaving in situ a very thin film of the deepest scleral lamellae to protect the choroid,
- (2) by combining the lamellar sclerectomy with, most usually, chemical (caustic potash), but occasionally with diathermy coagulation over the retinal tears,
- (3) by the use of silk sutures for approximating the two edges of the excised scleral strip.

Lamellar scleral resection has also been performed since September, 1950, in the department of ophthalmology of l'Hôpital de l'Antiquaille by Dr. Paufigue and his assistants, and for the purpose of this paper I thought it would be of interest to compare published results of full-thickness sclerectomies with those obtained by the lamellar operation by Paufigue and myself.

In the title I have used the term "penetrating" to denote the full-thickness scleral resection ; the results obtained by the pioneers of this operation—Müller himself, Blaskovics, Leitner, Elschmig, Török and Koch were reviewed by Borley (1949), who collected a total of 82 operations performed on all types of detachments with myopia the preponderant underlying condition, and stated that cures were claimed for eighteen cases (approximately 22 per cent.) and improvements in 30 per cent. Leopold (1945), also reporting on these and other pioneers of Müller's operation, collected 121 cases from the literature, 25 (21 per cent.) successfully re-attached and 31 (26 per cent.) with partial or temporary re-attachment. It is indeed surprising that with such apparently satisfactory results for an otherwise almost hopeless condition Müller's operation was not more extensively performed in the pre-Gonin

* Received for publication December 2, 1952.

† Dedicated to Professor Lindner on the occasion of his 70th birthday.

days, yet it seems to have been almost abandoned with the advent of Gonin's work on the fundamental importance of retinal holes in the aetiology of simple detachment of the retina and the successes obtained first by his operation of cautery puncture, and later by the various forms of diathermy operation all of which were directed towards the seclusion of these retinal defects. As we have seen, however, the full-thickness scleral resection operation was revived by Lindner (1933) with modifications for cases of retinal detachment with unfavourable prognosis, and his published results together with those of Pischel, Borley, and Vail in the United States, and Lister, Philps, and myself in the United Kingdom as shown in Table I.

TABLE I
PENETRATING SCLERAL RESECTIONS

| Author and Date | Number | Results | | | |
|--|---------------|---------|----------|----------|----------|
| | | Cured | | Improved | |
| | | No. | Percent. | No. | Percent. |
| Pioneers (quoted by Leopold, 1945) | 121 cases | 25 | 21 | 31 | 26 |
| Pioneers (quoted by Borley, 1949) | 82 operations | 18 | 22 | — | 30 |
| Lindner (1933) | 12 eyes | 3 | | 7 | |
| Lindner (1949) | 36 eyes | 6 | 17 | 10 | 28 |
| Pischel (1945) | 15 operations | 2 | | 4 | |
| *Vail (1948) | 8 cases | 3½ | | — | |
| Borley (1949) | 28 operations | 9 | | 8 | |
| Lister (1951a) | 34 cases | 11 | 33 | 3 | 9 |
| Philps (1951) | 19 cases | 11½ | | — | |
| Shapland (1951b) | 6 cases | 0 | | 2 | |
| Totals | 158 | 46 | 29 | 34 | 22 |

* Resections performed for cases of retinal detachment associated with scleral staphyloma. (Percentages recorded only if numbers exceed 30.)

The pioneers, therefore, could claim some 21 to 22 per cent. of cures using in the main Müller's technique whilst with the later operators employing Lindner's method the successes have risen to about 29 per cent. On the other hand Lister (1951b), at the Oxford Congress 1951 gave a summary of the results of scleral resections performed for retinal detachment at the City Road branch of Moorfields from July, 1947, to May, 1951, and of 102 penetrating resections only 22.5 per cent. were cured. It seems, therefore, that only about one quarter of detachments operated upon by the full-thickness method are likely to become replaced.

To turn now to my operation of lamellar sclerectomy ; an analysis of my first fifty cases taken in chronological order since July, 1949, and omitting all full-thickness operations, is shown in Table II (opposite).

Barut (1952) has reported on the results from the Service d'Ophtalmologie

TABLE II
LAMELLAR SCLERAL RESECTIONS

| Cases Operated | | Total | Cured | | Improved | |
|-------------------------------|---|--|-------|-----------|----------|-----------|
| | | | No. | Per cent. | No. | Per cent. |
| | | 50 | 19 | 38 | 14 | 28 |
| Previous Diathermy | | 30 | 11 | 37 | 8 | 27 |
| No Previous Diathermy | | 20 | 8 | 40 | 6 | 30 |
| AETIOLOGY | Aphakia : | Congenital Cataract Discission | 5 | 1 | — | — |
| | | Extracapsular Extraction | 3 | 1 | — | — |
| | | Intracapsular Extraction | 1 | 1 | — | — |
| | | Others | 2 | — | 1 | — |
| | | Total | 11 | 3 | 27 | 1 |
| | Myopia : | High (over 10D) | 11 | 2 | — | 3 |
| | | Moderate (5-10D) | 6 | 6 | — | — |
| | | Low (under 5D) | 10 | 4 | — | 4 |
| | | Total | 27 | 12 | 44 | 7 |
| | Emmetropia and Hypermetropia (senile 4; cystic 5; traumatic dialysis 1; inflammatory 1; doubtful 1) | | 12 | 4 | 33 | 6 |

de l'Hôpital de l'Antiquaille, where lamellar scleral resection combined with diathermy coagulation has been employed since September, 1950. In 116 eyes operated upon, he claims successful repositions dating for at least 3 months in sixty (51.8 per cent.), part success in nine (7.7 per cent.), and failures in forty-seven (40.5 per cent.). My figures for fifty eyes are 38 per cent. cured, 28 per cent. improved, and 34 per cent. failures. It would seem, therefore, that in about 60 per cent. of cases in which the lamellar scleral resection has been employed a success or a substantial improvement has been obtained. It is true that my figure for improvements is considerably higher than that of Paufigue but I have had to include patients up to August of this year to obtain my first fifty lamellar operations, and it may well be that when this year's patients are reviewed again early next year (as is my custom) some of those now classed as "improved" will have to be relegated to the column of "failures". It is a curious fact, however, that with this operation the retina is often quite slow in becoming replaced, in one of the senile detachments the retina took a whole year to go back and in one of the low myopes a good 5 months, so I hope also that a few of the "improved" may be transferred to the column of "cures".

There is, I think, general agreement that the operation of lamellar scleral resection is considerably safer than the full-thickness procedure, also easier to perform and probably somewhat less time-consuming. As the results shown in this paper are so much superior to those of the full-thickness procedure, despite the fact that I have been operating on the most unpromising and desperate cases sent to my clinic at Moorfields from all over Great Britain, it would appear that lamellar sclerectomy should now supplant the full-thickness procedure and should be employed in the following types of case:

- (1) As a primary procedure in senile detachments, these often show multiple peripheral tears in an atrophic retina and are a very definite indication.

(2) As a primary procedure in detachments occurring in myopia, especially those with multiple and widely-spaced rents in front of the equator of the globe ; these have done very well in my series especially those in the more moderate grades.

(3) As a primary procedure in old-standing detachments, especially inferior detachments with multiple "striae retinae".

(4) As a primary procedure in detachments occurring in aphakia especially in those in which no hole can be found. In this respect it must be noted that Schepens (1951) has stated that degenerative changes near the ora serrata are more than twice as frequent in aphakic as in phakic subjects and he found that the average number of "breaks" for 79 eyes was 4.45 per eye in this situation. My operation is, therefore, especially indicated here as a mild, but widespread, choroidal reaction is engendered directly behind the ora serrata.

(5) As a primary procedure in cases showing retraction of the vitreous such as occurs after vitreous haemorrhage, however produced, in old-standing detachments and again in aphakia. It should be noted, however, that with massive vitreous retraction and a total detachment of the retina no surgical procedure so far devised is likely to be of any avail.

(6) Detachments which have been operated upon unsuccessfully by diathermy ; these usually exhibit secondary tears but occasionally a mal-reposition with retinal tension folds results and in both these groups of cases a sclerectomy rather than a further diathermy is indicated.

(7) Traumatic detachments, especially those consequent upon intra-ocular foreign bodies (which in general have a very poor prognosis), and also those associated with large peripheral dialyses.

(8) In general retinal detachments which do not respond well to rest and double padding. For Paufigue this is a most important indication, and his adage is, "*la rétine n'a pas obéi au repos, elle n'obéira pas à l'intervention*", but according to Barut (1952), with whom I surely agree, "*elle obéira peut-être à l'intervention, à condition que celle-ci comprenne une résection sclérale*".

REFERENCES

- BARUT, C. (1952). "Traitement du décollement de la rétine par la résection sclérale lamellaire", p. 57. Annequin, Lyon.
- BORLEY, W. E. (1949). *Trans. Amer. ophthal. Soc.*, **47**, 462.
- LEOPOLD, I. H. (1945). *Trans. Amer. Acad. Ophthal. Otolaryng.*, **49**, 166.
- LINDNER, K. (1933). *Z. Augenheilk.*, **81**, 277.
- (1949). *Arch. Ophthal., Chicago*, **42**, 634.
- LISTER, A. (1951a). *Proc. roy. Soc. Med.*, **44**, 413.
- (1951b). *Trans. ophthal. Soc. U.K.*, **71**, 657.
- PHILPS, A. S. (1951). *Proc. roy. Soc. Med.*, **44**, 417.
- PISCHEL, D. K. (1945). *Trans. Amer. Acad. Ophthal. Otolaryng.*, **49**, 155.
- SCHEPENS, C. L. (1951). *Arch. ophthal., Chicago*, **45**, 1.
- SHAPLAND, C. DEE (1951a). *Proc. roy. Soc. Med.*, **44**, 420.
- (1951b). *Trans. ophthal. Soc. U.K.*, **71**, 29.
- VAIL, D. (1948). *Trans. Amer. ophthal. Soc.*, **46**, 58.