RETINOPATHY OF RETINAL DETACHMENT AFTER MAJOR VASCULAR OCCLUSIONS*†

BY

HANAN ZAUBERMAN

From the Department of Ophthalmology, Hadassah University Hospital, Jerusalem, Israel

Retinal detachment or the appearance of retinal cysts after the occlusion of large retinal vessels has rarely been described in the literature, although Duke-Elder (1940) mentioned cystic degeneration as invariably following obstruction of the central retinal vein.

Norn (1961) described a case of a central retinal cyst which followed a thrombosis of the central retinal vein. Arqués (1960) reported a case of bilateral occlusion of the central retinal artery in which a bilateral retinal detachment subsequently developed.

Four cases are reported here in which a large branch or a central venous thrombosis, associated with marked disturbances of the local artery, gave rise to the retinopathy of detachment. A hole formed in each case, with subsequent detachment in three of them.

Case Reports

Case 1, a 48-year-old woman, was referred to the eye clinic by a physician because of headaches and dizziness. She had suffered from essential hypertension for several years.

Examination.—There was a branch thrombosis of the upper temporal vein in the right eye with scattered haemorrhages in the mid-periphery at 11 o'clock, and there was a hole a third of a disc in diameter at 12 o'clock. Around and peripheral to the hole, areas of snail tracks were seen. The accompanying arteries were narrow and showed calibre variations. Mild hypertensive arteriosclerotic changes were present in the rest of the fundus (Fig. 1, overleaf), and similar changes were present in the left fundus.

Case 2, a 55-year-old man, had suffered from essential hypertension since 1954, and in 1957 he developed a branch thrombosis of the upper temporal vein of the right eye.

In 1960 the superior temporal vein showed pipe-stem sheathing, intramural vascularization, and collateral circulation from venous anastomotic channels. A superior branch from the main venous branch, in the area of the equator at 11 o'clock, showed parallel sheathing, and a circular hole was present near its bifurcation. The accompanying arteries in the area of the hole were completely occluded. In the area of the hole and peripheral to it there was cystoid degeneration of the retina. A shallow detachment of the retina was observed in the area around the hole which extended to the lower temporal part of the fundus in its mid-periphery (Fig. 2, overleaf). The patient was operated upon successfully for a retinal detachment.

Case 3, a 68-year-old woman, was admitted to the eye department in April, 1965, complaining of a veil covering the nasal part of the visual field of the right eye, which had developed gradually and at the time of admission impaired vision. The left eye was amblyopic and divergent.

History.—She had suffered from essential hypertension for the previous 10 years. In 1957 a partial venous thrombosis, which recovered in 2 months, developed in the lower temporal quadrant of the right eye; there was a slight temporary relapse of this in 1959.

* Received for publication September 29, 1966.
† Address for reprints: Hadassah University Hospital, Eye Department, P.O. Box 499, Jerusalem, Israel.
Examination.—The visual acuity of the right eye was 6/21 and of the left 6/90. The right fundus showed pipe-stem sheathing of the lower temporal vein and artery. Haemorrhages were seen in the mid-periphery from 9 to 10 o’clock, and between 7.30 and 10 o’clock a large retinal cyst extended centrally up to the temporal part of the macula. In addition two retinal holes were seen close to the ora serrata at the 10.30 meridian, with a small surrounding shallow detachment.

In the fundus of the left eye there were signs of a moderate hypertensive retinopathy.
RETINOPATHY AFTER VASCULAR OCCLUSION

Fig. 2.—Case 2. Right eye, upper quadrant. The artery shows calibre variations near the disc. The upper temporal vein and artery show pipe-stem sheathing. The upper temporal vein shows intramural vascularization and collateral circulation. A superior branch of the main venous branch, near the equator at 11 o'clock, shows parallel sheathing and a circular hole at its bifurcation (arrow). The accompanying arteries in the area are completely occluded. Cystoid degeneration is observed in the whole area and there is a local shallow retinal detachment.

Operation.—The retinal detachment was operated upon successfully, but there was a severe haemorrhagic reaction to diathermy and increase in sheathing of the arteries and veins occurred.

Case 4, a 60-year-old man, was known to suffer from mild diabetes mellitus for 12 years controlled with diet and tolbutamide tablets.

History.—In March, 1964, he suddenly went blind in the right eye; a central vein thrombosis was diagnosed, and after several weeks of treatment with anticoagulants the visual acuity improved to 6/60. In October, 1964, he complained of a veil covering the same eye, and at this time an extensive retinal detachment was found.
Examination.—In September, 1965, the visual acuity was perception of light in the right eye and 6/6 in the left. In the right eye an incipient cataract was present. The fundus presented a pale disc and a total detachment. The upper temporal arteries showed pipe-stem sheathing, the accompanying veins were partially occluded, and haemorrhagic dots were scattered in the mid-periphery of this quadrant. The superior nasal artery was also sclerosed and there was a large horse-shoe hole about the size of the disc near it at 1.30 o'clock. The lower temporal artery was completely occluded and calcified spots were present in its mid-periphery near a bifurcation. No signs of diabetic retinopathy were present (Fig. 3).

Operation.—After surgery for retinal detachment the retina was replaced and the visual acuity improved to counting fingers at 2 metres.

Discussion

The role of smaller vessels in the development of atrophic changes associated with the retinopathy of detachment has frequently been discussed in the literature (Michaelson, 1955; Okun, 1961; Straatsma and Allen, 1962). While earlier workers failed to find clinical or histopathological vascular changes in cystoid degeneration, subsequent observers (Kuwabara, Carroll, and Cogan, 1961; Rodenhäuser, 1963) associated it with cellular alteration in peripheral retinal capillaries in the aged, and others (Wolter and Wilson, 1959) with peripheral vascular obliteration. Furthermore, various authors recorded changes in the peripheral vessels in association with large retinal cysts (Zimmerman and Spencer, 1960; Curtin, Norton, and Smith, 1960).

Cystoid degeneration may lead to cyst formation, while both cystoid degeneration and atrophic degeneration of the retina may lead to the development of retinal holes and eventually to a detachment.

It would appear that, for the development of the clinical picture in each of the four cases described above, occlusion of a large retinal vessel probably gave rise to events culminating in hole or detachment formation. This is in keeping with the observations quoted above.
indicating a similar sequence of events after occlusion of smaller peripheral retinal vessels. Venous occlusion is frequent, yet the complications described above appear to be rare. They may however be more frequently discovered if more carefully looked for.

The association of marked disturbance in the local artery may be an integral part of the development of the retinal changes, or it may be of importance only insofar as it facilitates the venous occlusion. The latter possibility has been emphasized by Ballantyne and Michaelson (1962), Rubinstein (1964), and Hayreh (1966).

It is also interesting that the experimental production of retinal detachment in rabbits can be facilitated by previous diathermy of the central retinal artery (Mutlu and Leopold, 1963).

Summary

(1) Four cases are reported in which a branch or central vein thrombosis, associated with marked disturbances of the local artery, gave rise to:

(a) hole formation in all cases; (b) subsequent retinal detachment in three of them.

(2) The role of major vascular occlusion in the pathogenesis of the retinopathy of detachment is discussed and compared with a similar role attributed to the occlusion of minor vessels in the periphery.

I am indebted to Prof. I. C. Michaelson for his advice and help and to Mr. M. Ivry for the photographs and sketch of the fundi.

REFERENCES


Retinopathy of retinal detachment after major vascular occlusions.

H Zauberman

Br J Ophthalmo1 1968 52: 117-121
doi: 10.1136/bjo.52.2.117

Updated information and services can be found at:
http://bjo.bmj.com/content/52/2/117.citation

These include:

Email alerting service
Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Notes

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/