Retinal cysts following cryotherapy

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Cryotherapy, a technique extensively used in retinal surgery during the past few years, is claimed to be a safer procedure than diathermy and photocoagulation (Kirkconnell and Rubin, 1965; Curtin, Fujino, and Norton, 1966; Lincoff and McLean, 1966; McDonald and Tasman, 1967), but occasional complications have been described (Burch and Morse, 1968; Shea, 1968).

The present report records the occurrence of retinal cysts which developed in two patients adjacent to the treated areas shortly after cryotherapy.

Case reports

Case 1, a 27-year-old man, with a recent retinal detachment in the upper temporal quadrant of the right eye, was admitted to the ophthalmology department. The visual acuity of the right eye was 6/7.5, with -4.75 D sph., -0.5 D cyl., axis 30° , and of the left eye 6/6, with -4.5 D sph., -1 D cyl., axis 150° . The right fundus showed a high bullous detachment in the upper temporal quadrant. Two small round peripheral holes and a small horseshoe mid-peripheral hole were seen between 10 and 11 o'clock. All the holes were inside an area of snail tracks and cystoid degeneration. The detached retina flattened after 3 days of rest in bed with a double eye bandage. Thereafter cryotherapy was applied at -50°C in the region of the holes.

After this procedure a marked pale oedematous reaction was noted in the treated areas. Chorioretinal pigmentation, which subsequently increased, was observed 6 days after cryotherapy. On the eleventh postoperative day a flat cyst developed between the 9 and 11 o'clock meridian central to the treated areas, and extended approximately to two disc diameters from the macula (Fig. 1).

Case 2, a 41-year-old woman, underwent a routine fundus examination in the ophthalmology out-patient clinic after refraction. The visual acuity of the right eye was 6/6, with -5 D sph., -0.75 D cyl., axis 180° , and that of the left eye was 6/6 with -5.5 D sph.

The fundus of the right eye showed moderate to severe degenerative cystoid changes and snail tracks in most of the periphery. These changes were particularly marked in the upper temporal quadrant. Small round retinal holes were also present between 10 and 12 o'clock. The left fundus showed similar changes in the periphery of the retina and small round holes were observed between the 1 and 3 o'clock meridians. Transconjunctival cryotherapy was applied in the upper temporal area of both eyes, in the region of the retinal holes. During the application, which was controlled by indirect ophthalmoscopy, a marked reaction was noted, and 7 days later the oedematous treated area showed pigmentation. After a further 7 days a retinal cyst appeared in the upper temporal quadrant of the left eye, between the edges of two previously-treated pigmented areas, extending towards the equatorial zone between the 1 and 2 o'clock meridians (Fig. 2).

FIG. 1 Case 1. Fundus of right eye 11 days after cryotherapy. A flat cyst is present, extending from the edges of the treated area towards the macula

FIG. 2 Case 2. Fundus of left eye 15 days after cryotherapy, showing a retinal cyst between the edges of the treated areas and extending towards the equator of the eye

Discussion

In previous studies occasional complications after cryotherapy have been reported, including uveitis, intrachoroidal haemorrhage, vitreous damage, and haemorrhage and infections following buckling procedures (Kirkconnell and Rubin, 1965; Lincoff and McLean, 1966). It has also been claimed that cryotherapy may produce an extension of a retinal tear and be the cause of retinal split (Shea, 1968). Rhegmatogenous retinal detachment after cyclo-cryotherapy has also been described (Burch and Morse, 1968).

To the best of our knowledge, retinal cysts occurring after cryotherapy have not as yet been recorded. Both cases reported here were young myopic patients who had similar retinal changes before surgery. Both showed areas of cystoid degeneration, snail tracks, and hole formation. The appearance of the cyst may be in some way related to the development of cryotherapy-induced oedema extending from the treated zone to pre-existing areas of degenerate retina.

It is of interest to note that, in both cases, the immediate reaction to cryotherapy was intense. Cyst formation did not appear in similar cases treated with a minimal dose of cryotherapy.

Summary

The development of retinal cysts adjacent to areas treated by cryotherapy is reported in two patients. Both were moderately myopic and showed areas of cystoid changes and snail tracks.

It is possible that cyst formation was due to excessive application of cryotherapy resulting in progressively severe, spreading oedema in previously degenerate retinal areas.

References

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