ANTERIOR MIGRATION OF SILICONE BAND*†

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THE complications of encirclement operations using a silicone implant and band are not as yet well documented. Kurz and Ezrow (1965) describe the erosion of a band through the sclera into the choroid, as is well known after encirclement with more rigid materials when the intra-ocular pressure at the end of the operation, before treatment with intravenous urea, is in the upper 60s. Pischel (1965) has described anterior migration of the unburied portion of a rod or band so that it became obvious under the conjunctiva even anterior to the muscle insertions, but does not describe the cases further. An account of the anterior migration of a band, occurring some months after a successful operation, the band apparently remaining buried within scleral tissue, is therefore of interest.

Case Report

A man aged 58 years was admitted on September 19, 1964, with detachment of the lower half of the left retina, extending up to 10 o'clock on the nasal side, and involving the macula. He gave a history of blurred vision and flashes for 6 to 8 weeks; a cataract operation had been performed in this eye 3 months previously and in the fellow eye 10 months previously. Both eyes had originally been myopic, and there was a vague history of head injuries 2 or 3 years previously. A horse-shoe tear was located on the nasal side in the 9.30 meridian just anterior to the equator, and there was considerable peripheral degeneration on the temporal side and below with a second hole in the flat retinal periphery at 2 o'clock.

Operation (29.9.64).—The medial rectus muscle was reflected. An intrascleral silicone implant from 8–10 o'clock, 12 mm. behind limbus, was held in place and indented by a silicone band which was also sutured in all quadrants 12 mm. behind the limbus. Diathermy was applied over the bed of the implant and also anterior to the band on the temporal side. Perforation was in the 10 o'clock meridian just above the site of the hole. The band was pulled and the ends fastened together by a suture when the intra-ocular pressure reached 21 mm. Hg Schiötz, producing a good indentation with the hole adequately covered. No note was made of the meridian in which the join in the band was made.

Progress.—The retina remained flat and he was discharged on October 14, 1964. He was seen from time to time until January 11, 1965, when the retina was still flat and a good but not excessive indentation was still present; the visual acuity with +6.5 D sph. was 3/60.

On March 17, 1965, the eye had become red a few days previously, and his vision had become darker on the previous day. There was an obvious flattening of the sclera in a circle at the region of the muscle insertions, together with marked ciliary congestion (Fig. 1, overleaf). Ophthalmoscopically a marked ridge was seen pushing the ciliary body and anterior choroid inwards; the retina was detached behind this on the nasal side and below; no hole was seen. The intra-ocular pressure was lower than in the right eye.

Operation (19.3.65).—The conjunctiva was reflected on the nasal and temporal sides. The medial rectus muscle was isolated and the sclera cleaned of loose tissue above and below the muscle; a marked depression of the sclera was seen 6.5 mm. behind the limbus in the region of the muscle

* Received for publication July 26, 1965.

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FIG. 1.—External appearance.

FIG. 2.—Marked indentation of sclera anterior to medial rectus muscle insertion. Band not visible but implant still in original position behind insertion.

FIG. 3.—Band isolated after scleral incision.

followed by a squint hook (Fig. 3). It was cut across but traction on the ends was not successful in removing it. A second incision over the groove was made in the opposite quadrant at 2 o'clock and the lower half of the band was pulled through into this incision; the other half was still firmly in position, so the original incision at 8 o'clock was extended upwards to 10 o'clock where the lower end of the join in the band was found (Fig. 4). The whole band was then removed from its buried groove. The external depression on the sclera was still visible (Fig. 5) and there was still a marked ridge visible ophthalmoscopically. The operation was completed by an Arruga encirclement using nylon thread 14–15 mm. behind the limbus, and behind the silicone implant, which was left undisturbed. After release of subretinal fluid and tying the suture, two ridges were visible ophthalmoscopically.

FIG. 4.—Band removed from sclera.

FIG. 5.—External depression still visible.

Result.—The retina remained flat after operation and the patient was discharged on April 5, 1965. The retina was still flat 3 months later, the ridge from the Arruga suture remaining unchanged but the ridge corresponding to the silicone band gradually becoming less obvious and finally disappearing almost completely.

The scleral band migrated forwards through a distance of 5 to 6 mm., being finally located inside scleral tissue. Had it been merely indenting the surface of the sclera it would have been possible to pick it up without incision at some part of its circumference, and the outer flattening and inner ridge would presumably have disappeared when the band was removed. It is unlikely that the inner ridge was entirely due to a reactionary detachment of the ciliary body, as it persisted even after removal of the subretinal fluid, replacement of the retina, and restoration of the intra-ocular pressure by an Arruga suture.

The portion of the band over the scleral implant must certainly have moved laterally through the sclera more or less parallel to the surface, since the implant and the sutures over it were undisturbed; it presumably began by eroding through the root of the anterior scleral flap. The remainder of the band presumably eroded partially into the sclera as well as moving anteriorly; if this is the case this movement would not necessarily be prevented by an increase in the number and firmness of the sutures holding it in place. The normal intra-ocular pressure at the end of the operation excludes gross pressure necrosis in this patient, though obviously the greater the tension in the band the more likely it is that the band will either migrate forwards or erode through into the subretinal space or vitreous cavity.

The cause of the migration is not clear. One factor may be that the band may have been anterior to the equator in this eye which, being originally myopic, may have been larger than average; this would produce a tendency to anterior migration which might have been accentuated by the diathermy reaction anterior to the band. The movement of the band out of its bed in the implant would only be expected if the remainder of the band, originally unburied, had moved forwards so that it was nearer the limbus than the implant, thus exerting a forward pull on the buried portion, pulling it against the base of the anterior scleral flap. This tendency would be accentuated if the unburied portion of the band was originally placed nearer the limbus than was the implant. Thin scleral flaps may also be a factor in permitting the buried portion of the band to move; on the other hand, thick scleral flaps would mean that the implant was separated from the vitreous by only a thin layer of sclera, presumably leading to a greater danger of penetration into the interior of the eye, a much more serious complication.

The time at which the migration began is not known; the earlier stages may have been missed at follow-up examinations. The redness presumably began when the ridge reached the ciliary body or the band pressed on the ciliary vessels, and detachment may have recurred because of a spread from a reactionary ciliary detachment or from a hole just behind the ridge.

Summary

An account is given of the anterior migration of a silicone band used in the treatment of retinal detachment, such that the band, still intrascleral, came to lie over the ciliary body, leaving the scleral implant in its original position.

REFERENCES

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