

Infection following retinal detachment surgery

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SUMMARY Since the introduction of gentamicin (given both as a soaked sponge and as an injection below Tenon's capsule at the end of surgery) no case of early infection either with or without intraocular signs after operation for retinal detachment has occurred in a series of 206 cases comprising 243 operations. However, late infection many months after operation has appeared in 3 cases (1.5%), though this rate appears to have been favourably influenced by the administration of gentamicin. Local or systemic side effects from the administration of gentamicin have not been seen, and therefore the sub-Tenon injection in the quadrant where the sponge has been placed is strongly advocated in all cases of surgery for retinal detachment when such sponges are used.

Silastic sponge implants used in retinal detachment surgery may become infected. While the infection tends to present with late extraocular granuloma (Lincoff *et al.*, 1970) at a varying length of time after surgery, early infection may occur and be accompanied by intraocular signs (Hitchings *et al.*, 1974). In the latter study the incidence of early infection was 2.4%. In the same series the incidence of extraocular infection was 6% (Chignell, 1974). These early intraocular infections may present considerable difficulty in diagnosis and management (Chignell, 1975). Although extraocular infection may take place many months after surgery has been performed, it is probably the result of organisms introduced at the time of operation. Other factors such as poor suturing technique or the presence of thin sclera will result in scleral sutures cutting out and loss of a snug fit of the sponge to the globe. This may help stimulate granuloma formation or result in local haemorrhage and contribute to the infected buckle syndrome. However, the effect of these factors is hard to assess. It also seems possible for early infection to be caused by retrograde spread of organisms in the immediate postoperative period via the conjunctival wound.

In an attempt to reduce the incidence of both early and late infection we have modified our standard practice by injecting gentamicin below Tenon's capsule at the end of operation. Gentamicin is a bactericidal antibiotic active against a broad spectrum of Gram-positive and Gram-negative pathogens.

Methods

206 consecutive cases of retinal detachment treated at St. Thomas's Hospital were studied over a 3-year period. The follow-up has varied from 1 to 3 years. A total of 243 retinal detachment operations were performed on these cases, and the operations involved a total of 322 separate pieces of Silastic sponges (149 radial and 173 circumferential sponges). In 42 cases a silicone rubber encircling band was used in addition to a sponge. Before being sutured on to the sclera the sponge (removed from its closed sterile packet at the last possible moment and held in plain non-tooth forceps) was dipped into a bath of gentamicin. At the end of the operation the wound was closed by drawing the conjunctiva and Tenon's layer forward together to be sutured at the limbal incision (King and Schepens, 1974). A sub-Tenon injection of gentamicin 20 mg was given in the quadrant surrounding the sponges.

Results and discussion

No obvious side effects, either local or systemic, followed the administration of the single gentamicin injection at operation. In no cases has there been an early postoperative infection as previously described (Hitchings *et al.*, 1974). Three cases (1.5%) became infected at a varying length of time from the operation. Two of these presented at 6 and 9 months respectively with granuloma formation and mucopurulent discharge. The third case presented with an extruding sponge and recurrent subconjunctival haemorrhage 20 months after surgery. Two infected cases occurred after primary retinal detachment

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surgery and 1 following a reoperation. In all 3 cases the sponge was removed without redetachment.

It is possible that this infection rate of 1.5% will be higher when the follow-up period becomes even longer, but it seems that the sub-Tenon injection of gentamicin appears to have had a beneficial influence on our own extraocular infection rate, though similar low rates have been reported by other authors using a somewhat different antibiotic regimen—although with a much shorter follow-up (Flindall *et al.*, 1971).

The other point of changed technique in this series was the use of the limbal incision. In addition to saving time and being neat this method appears to provide the implant with a very satisfactory covering, avoiding the necessity of suturing Tenon's layer separately over the sponge. It also ensures that the conjunctival incision does not directly overlie an anterior implant, as was the case with the

traditional conjunctival incision. It is not possible to know whether the use of the limbal incision has any beneficial effect on infection, although it may help to reduce the risk of direct spread of organisms from the conjunctiva.

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