The Retisert fluocinolone acetonide implant 0.59 mg (Bausch & Lomb) was approved by the US Food and Drug Administration in April 2005 for the treatment of chronic noninfectious posterior uveitis. The sustained release of fluocinolone acetonide in this effective device, approximately 0.3 µg to 0.4 µg per day, was designed to last 2.5 to 3 years. Not surprisingly, the mean time to uveitis recurrence after fluocinolone acetonide implant placement has been reported as 32.5 to 38 months. Increasingly retina surgeons will need to perform fluocinolone acetonide implant exchange as their uveitis patients successfully managed with this implant approach postoperative year 3 and experience recurrent uveitis.

A review of the literature shows that fluocinolone acetonide implant exchange is generally safe and effective in treating recurrent uveitis. Mean visual acuity improved after second implantation in several case series. Potential complications included FA implant dissociation, vitreous hemorrhage, rhegmatogenous retinal detachment, tractional retinal detachment, uveitis recurrence, endophthalmitis, and rise in intraocular pressure.

This article presents the surgical steps and strategies for fluocinolone acetonide implant exchange.

**SURGICAL TECHNIQUE**

First, inspect the conjunctiva overlying the previous fluocinolone acetonide implant site. If the conjunctiva is thin, the second implant should be placed at an alternate site. If the conjunctiva and sclera appear healthy, fluocinolone acetonide implant exchange can be planned. Fluocinolone acetonide implant exchange will likely be the first choice in most patients. Subsequent fluocinolone acetonide implants may be required for uveitis management in the future. Creating additional incisions at alternate sites may increase the overall risk of hypotony and further disrupt the conjunctiva. Our glaucoma colleagues appreciate our ability to minimize disruption of the conjunctiva whenever possible.

Before it touches the eye, the new implant should be prepared with a double-armed 8-0 polypropylene suture passed through the hole of the anchoring strut. A single throw should then be placed. Having the fluocinolone acetonide implant already prepared with the double-armed polypropylene will lessen the time that the eye experiences hypotony from the open scleral incision during the exchange. The preplaced single throw at the anchoring strut allows the suture tension to be directed appropriately at the sclera and prevents the anchoring strut from becoming incorporated into the scleral incision during closure.

To start the case, place a small-gauge pars plana infusion line opposite to the site of fluocinolone acetonide implant exchange. A pars plana infusion line may not be necessary when an additional site is used, but it is necessary when exchange at the same site is performed. With the infusion on during the exchange, hypotony is minimized and the likelihood that the fluocinolone acetonide implant will fall posteriorly may be lessened. An infusion line is essential in a previously vitrectomized eye.

Open the conjunctiva overlying the previously placed fluocinolone acetonide implant, carefully dissecting through scar tissue to minimize damage to the conjunctiva. Remove
the previously placed interrupted polypropylene sutures, except for the anchoring suture. The anchoring suture should be in the center, and many surgeons leave the ends of the anchoring suture long, making it easy to identify.

Using calipers, measure 3.5 to 4.0 mm in length. With the infusion running, use a No. 75 blade or microvitreo-retinal (MVR) blade to make a full-thickness scleral incision into the vitreous cavity on either side of the anchoring suture (Figure 1).

With the infusion still running, carefully complete the incision by incising the sclera where the anchoring suture is present. Note that the fluocinolone acetonide implant can potentially fall posteriorly at this time, especially in previously vitrectomized eyes. This risk can be minimized by grasping the fluocinolone acetonide implant strut or leaving the anchoring suture intact while completing the scleral incision.

Using forceps, gape the wound of the scleral incision to visualize and remove the fluocinolone acetonide implant. There is a risk of the medication reservoir dissociating and falling posteriorly during removal.3 This risk can be minimized by grasping both the anchoring strut and medication reservoir simultaneously with one forcep or by using two forceps, one to grasp the anchoring strut and a second to grasp the medication reservoir. This ensures that the reservoir is well secured as it is removed through the scleral incision. We like to use disposable 23-gauge end-grasping forceps, which allow us to enter the sclerotomy to help remove the fluocinolone acetonide implant without blocking visualization (Figure 2).

In a nonvitrectomized eye, any adherent vitreous present at the incision should be excised at the time of fluocinolone acetonide implant removal to minimize traction on the peripheral retina, preferably with a small-gauge vitreous cutter.

The new fluocinolone acetonide implant is then inserted through the same incision into the vitreous cavity with the pellet facing the front of the eye. The fluocinolone acetonide implant has been prepared with the double-armed 8-0 polypropylene suture, as described above (Figure 3). Each needle of the double-armed 8-0 polypropylene is passed full thickness on either side of the scleral incision and tied in a 3-1-1 fashion to anchor the fluocinolone acetonide implant. The ends of the anchoring suture can be left long to aid with correct identification of the anchoring suture in the future.

The scleral incision is then closed with interrupted 9-0 polypropylene sutures on each side of the anchoring suture. The sutures should be rotated to bury the knots. Care should be taken to ensure that the closure is watertight, as uveitic eyes have an increased risk of hypotony. The fluocinolone acetonide implant should be visualized

Figure 1. With the infusion running, a 4-mm scleral incision is made, incising the sclera last at the site of the existing anchoring suture.

Figure 2. 23-gauge end-grasping forceps are used to grasp the anchoring strut (A) and position the FA implant so that 0.12-mm forceps (B) can grasp the medication reservoir for removal (C).
in the correct location and the fundus inspected by indirect ophthalmoscopy to ensure that there are no iatrogenic retinal breaks, retinal detachment, or vitreous hemorrhage. Fundus examination should be repeated on postoperative day 1 and at subsequent visits.

Finally, the infusion cannula is removed and the sclerotomy closed. The conjunctiva is then reapproximated and closed, and subconjunctival antibiotic and steroid are administered.

CONCLUSION

Fluocinolone acetonide implant exchange can be performed smoothly by remembering a few key points. The new fluocinolone acetonide implant should be prepared with double-armed 8-0 polypropylene at the start of the case. A pars plana infusion line should be placed at the beginning of the case. To help prevent the fluocinolone acetonide implant from falling posteriorly, the surgeon should ensure that the infusion is running and grasp the fluocinolone acetonide implant or leave the anchoring suture intact when completing the scleral incision. Lastly, when removing the fluocinolone acetonide implant, one should grasp both the anchoring strut and the medication reservoir as there is a risk of reservoir dissociation.

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