Fibrinous iritis due to oxybuprocaine

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SUMMARY Following minor surgery performed under topical application of oxybuprocaine (Dorsacaine, Novesin) two patients suffered from fibrinous iritis and moderate corneal swelling. We believe that this represents a toxic reaction caused by an inadvertent entry of this drug into the anterior chamber during the procedure.

Oxybuprocaine or benoxinate (Dorsacaine, Novesin) is a topical local anaesthetic which is widely used in diagnostic and surgical procedures in the eye. It is considered to be well tolerated, with only minimal side effects, mainly ocular discomfort (stinging) and punctate corneal epithelial damage.¹⁻³ We report on two patients who developed fibrinous iritis and moderate corneal swelling which we attribute to the instillation of oxybuprocaine during surgery. This side effect of the drug has not been reported elsewhere.

CASE 1

A 61-year-old man underwent an uneventful intracapsular cataract extraction with implantation of an anterior chamber lens (Kelman-Multiflex) in his right eye. On the fourth postoperative day a slight dehiscence of the limbal wound accompanied by hypotony was noted. The anterior chamber was deep, with a minimal cellular flare. Firm patching of the eye over two days was ineffectual and the wound was resutured. Under topical 0.4% oxybuprocaine (Novesin) the fornix-based conjunctival flap was lifted and three loose corneoscleral 10-0 nylon sutures were replaced. Oxybuprocaine had to be instilled several times during the operation, so that direct contact of the drug with the iris was unavoidable. No other drug was administered during the procedure, and the anterior chamber was allowed to reform spontaneously. The conjunctival flap was then fixed with one 8-0 Vicryl suture, an antibiotic-corticosteroid ointment was applied, and the eye was patched. Some hours later the patient complained of pain in his eye and forehead, which could be relieved by analgesics.

Next morning examination of the eye disclosed

ciliary injection and slight corneal swelling. There was a fibrinous exudate in the anterior chamber, and focal iridovitreous adhesions had formed. The intraocular pressure was 19 mmHg, and vision was reduced to 0.08. The eye was treated with mydriatics and local corticosteroids, 8 to 10 times daily. Within five days the fibrinous exudate resolved and vision improved to 0.65.

CASE 2

A 64-year-old woman underwent an uneventful extracapsular cataract extraction in her right eye, with implantation of a C-loop posterior-chamber lens. On the day of her discharge (fourth postoperative day) she was found to have zero pressure in her operated eye owing to a wound leak. The anterior chamber was deep, with minimal cellular flare. A firm pressure dressing was tried for two days, but without any effect, and resuturing of the dehiscence was performed. Under topical anaesthesia with 1.0% oxybuprocaine (Novesin) the fornix-based conjunctival flap was lifted and loose sutures were replaced. As in the first case the oxybuprocaine had to be instilled during the operation, and contact with the iris could not be avoided. The anterior chamber was reformed with balanced salt solution. No other drug was used during the entire procedure. After suturing of the conjunctival flap a steroid-antibiotic ointment was applied and the eye was patched.

Some hours later severe eye pain developed which radiated into the entire side of the head. Analgesics were given but gave only minimal relief. When the eye was examined 10 hours after the procedure, it was severely injected and photophobic. The corneal epithelium was oedematous, and the anterior chamber contained a massive fibrinous exudate. There were focal adhesions of the iris to the intraocular lens. The intraocular pressure was 21 mmHg.

Fig. 1A

Fig. 1B

Fig. 1 Fibrinous exudate on first day (A) and second day (B) after treatment. Note residual posterior synechia at 6 o'clock.

and vision was reduced to hand movements. Therapy consisted of acetylprednisolone (1% solution applied topically every hour) and maximal mydriasis. The fibrinous exudate resolved gradually within one week (Figs. 1A, B), and vision was ultimately restored.

Discussion

Oxybuprocaine is an effective, well tolerated surface anaesthetic which has been widely used in ophthalmology for about 30 years. Whereas an initial stinging sensation and corneal epithelial changes are probably the only side effects known to be caused by a 0.4% solution,¹² nothing is known about probable toxic effects of this drug if it inadvertently enters the anterior chamber. Injections of local anaesthetics into the anterior chambers of animals are usually damaging, particularly to the corneal endothelium.⁴⁵ In one patient an accidental injection of amethocaine into the anterior chamber caused severe injury, ending with bullous keratopathy, permanently dilated pupil, and focal iris atrophy. In the present two cases 0.4% and 1.0% solutions of oxybuprocaine were applied to repair minor corneoscleral wound leaks, and no other drug was administered. However, this drug appears to have inadvertently entered the anterior chamber while being instilled during the operation. Shortly after the procedure, both patients presented with similar changes, mainly corneal clouding and fibrinous iritis.

For several reasons we attribute this inflammatory

condition to the local anaesthetic: (1) During the entire procedure, no other drug was used which might have elicited such a reaction. (2) Generally, preoperative application of 0.4% oxybuprocaine is adequate to allow the repair of slight wound leaks without further complications. In these two cases, however, additional oxybuprocaine had to be given during the procedure, so that some entered the anterior chamber. (3) The severity of the inflammatory response correlated well with the concentration of the drug instilled—that is, the 1.0% concentration caused a much severer reaction than did a lower concentration.

We therefore conclude that oxybuprocaine, if inadvertently allowed to enter the anterior chamber, may cause fibrinous iritis and corneal swelling.

References

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