Preseptal Abscess Formation Followed by Ocular Cryotherapy for Behçet’s Uveitis

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Abstract. A 42-year-old man with Behçet’s disease developed a rapidly growing mass under his right lower eyelid a week after transconjunctival cryotherapy. He underwent surgical drainage of the mass following imaging studies. Magnetic resonance imaging scans demonstrated the abscess, which did not violate the orbital septum. Cultures from drained material yielded Staphylococcus aureus. He recovered completely with systemic antibiotics. Preseptal abscess may occur as a complication of intense transconjunctival cryotherapy for intraocular disorders, and patients should be followed closely within the first few weeks postoperatively. [Ophthal Mic Surg Lasers 2000;31:66-68.]

INTRODUCTION

Cryotherapy, alone or in combination with other modalities, has an established role in the management of a wide spectrum of intraocular disorders with its predictable outcomes, proven efficacy, and often transient and manageable complications. Cryosurgery is frequently employed in the treatment of retinal breaks, at certain stages of intermediate uveitis, and in selected retinoblastomas. It is also the treatment of choice to limit ciliary body function in cases of intractable or neovascular glaucoma. In recent years, however, the therapeutic choice in the management of refractory glaucoma has shifted to contact transscleral diode cyclophotocoagulation. This has been shown to effectively lower the intraocular pressure with fewer and transient side effects. We report a case of a preseptal abscess, a highly unusual complication following non-cutting transconjunctival ocular cryotherapy.

CASE REPORT

A 42-year-old man with a 2-year history of Behçet’s disease presented with a recurrent episode of bilateral severe panuveitis and retinal vasculitis. His best corrected visual acuity was 20/200 in both eyes. High-dose systemic corticosteroids and topical prednisolone and cycloplegics were prescribed. After an initial improvement, his visual acuity suddenly fell to hand motion because of vitreous hemorrhage resulting from peripheral neovascularization in his right eye. Following retrobulbar anesthesia with 2% lidocaine hydrochloride, non-cutting transconjunctival cryotherapy to the inferior pre-equatorial quadrant of the right eye was performed.

The rationale of this decision was to destroy the retinal neovascularization. A retinal cryoprobe with a 3.5 mm diameter tip was used. Nine single freeze and thaw applications were done 11 to 13 mm from the limbus, each lasting approximately 15 to 20 seconds. The digital display of the cryo-unit read −60°C at the end of each application. Two weeks later, intravitreal inflammatory reaction was considerably less and the hemorrhage started to clear. However, the patient reported that a painful mass was rapidly growing under his right lower eyelid for almost a week. The mass was soft, partly mobile, with erythematous overlying skin (Figure 1). He did not have any signs of systemic toxicity. Magnetic resonance imaging studies, done to document the extent and the relationships of the mass, demonstrated a well-delineated lesion that...
was entirely anterior to the orbital septum with no transgression into the orbit (Figure 2). The abscess was immediately drained through a skin incision and about 5 cc of pus was collected. Intravenous sulbactam-ampicillin was begun. Cultures yielded coagulase-positive *Staphylococcus aureus* strains. The patient recovered completely a week later.

**DISCUSSION**

At the tissue level, cryotherapy causes disruption of cellular membranes by the mechanical damage inflicted by intracellular ice crystals. In addition to this, pH changes occur during the thawing phase resulting from the separation of water and electrolytes which causes further damage to the cell membranes. In clinical practice, the majority of complications are intraocular. Well-recognized common transient undesired effects of ocular cryotherapy include elevated intraocular pressure, choroidal effusion or hemorrhage, and subretinal fluid (ablatio fugax). More severe complications include subretinal and intravitreal pigment dispersion followed by proliferative vitreoretinopathy and rhegmatogenous retinal detachment, iridocyclitis, hypHEMA, corneal ulcers, and scleral rupture or staphyloma formation which may occur after intense cryotherapy. In animal models, single cryoapplication has been demonstrated to have no deleterious effects on the vitreous, whereas multiple cryoapplications caused retinal neovascularization and membrane formation. Because of all these potentially serious side effects, there is a growing tendency to use peripheral scatter photocoagulation for neovascularization that can be part of intermediate uveitis. This modality has been at least equally effective as cryotherapy in the management of neovascularization of the vitreous base in patients with pars planitis.

The occurrence of this exceedingly rare complication in our patient may be attributed to 2 different mechanisms. In the lower eyelid, the orbital septum, a multi-layered fibrous membrane which forms a barrier to infection or inflammation, extends from the arcus marginalis and fuses with the capsulopalpebral fascia several millimeters below the tarsus. Inadvertent freezing of the lower eyelid during the procedure, and the resulting palpebral conjunctival damage, might have allowed the ocular surface bacteria to gain access into deeper tissue planes and form an abscess. On the other hand, damage to the bulbar or fornical conjunctiva where the cryoprobe is applied is unlikely to cause a preseptal abscess; these areas are anatomically located posterior to the orbital septum. A second important possibility lies within the fact that patients with Behçet's disease are particularly prone to a number of dermatologic abnormalities including erythema nodosum-like lesions, thrombophlebitis, papulopustular eruptions, pyoderma gangrenosum, and necrotizing vasculitis.

Another characteristic feature of Behçet's disease is pathergy (the hyper-reactivity of skin to intradermal saline injection or needle pricks). Pathergy is positive in 57% of patients with Behçet's disease, whereas sterile papules and pustules occur with much less frequency. It has also been shown that cleaning the skin with alcohol, 10% povidone-iodine or 100% chlorhexidine, reduces the prevalence of positive pathergy in Behçet's disease. Given the timing of appearance and the virulent clinical course, the preseptal abscess in our patient cannot be classified as pathergy.

This patient is an example of a highly rare complication of transconjunctival cryotherapy. Every effort should be deployed to freeze just the desired area, to
preserve the integrity of the conjunctiva and to avoid the uninvolved adjacent structures. Patients should be followed closely during the early postoperative period, particularly those with Behçet’s disease that are inherently susceptible to develop cutaneous problems.

REFERENCES