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Topical Treatment of Periocular Basal Cell Epithelioma with Solcoderm

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Abstract. 25 patients with 29 histologically confirmed periocular basal cell epitheliomas were treated by topical application of Solcoderm, a solution of organic and inorganic acids and ions. The cure rate of the 29 lesions, which were followed for a mean period of 32 months, was 80%. The overall cure rate following second Solcoderm treatment of the 6 recurrent lesions was 96.7%. The cosmetic and functional results were excellent and there were no serious complications and side effects.

Basal cell epithelioma (BCE) is the most common cancer of the eyelids, causing considerable morbidity and even occasional mortality [1, 2]. Naturally, therapy of tumors located on such a delicate and essential structure should ensure not only the complete eradication of the tumors, but also the anatomical and functional preservation of the eyelid as well as acceptable cosmetic result. Excellent cure rates can be achieved using major surgical and radiational modalities. There are, however, disadvantages pertinent to both treatment modalities, especially in the periocular area [2–7].

We therefore decided to try topical chemotherapy of eyelid and other periocular BCE using Solcoderm, which is a drug used in the Eastern USSR for the treatment of cutaneous tumors. Solcoderm is a clear solution of organic and inorganic acids and ions containing 15 μg/ml copper ions, 40 mg/ml oxalate, 3 mg/ml lactate, 410 mg/ml nitrate and 40 mg/ml acetate. This complex solution causes cellular lysis, but its precise antitumoral mode of action is not understood. A significant cure rate and excellent cosmetic results were obtained by the topical use of this agent in the treatment of BCE on sun-exposed skin areas [8]. The purpose of the present study was to evaluate the effect of Solcoderm on BCE of the eyelids and surrounding skin. This report summarizes the therapeutic results of 29 histologically confirmed BCE lesions with a posttreatment fol-

low-up period of 18–55 months (mean 32 months). 8 of the periocular lesions were reported previously [8].

Material and Methods

Initially we conducted an animal study to evaluate the effect of Solcoderm on the eye itself, since there is some danger of inadvertent application or contact of the solution with the globe during treatment. Solcoderm was applied several times on the lower fornices of 8 normal rabbits' eyes according to the method described below for human lesions.

25 patients aged 33–90 years (mean 61 years) took part in the clinical trial after having signed an informed consent form. These patients had 29 histologically confirmed BCE lesions, 25 of them primary and 4 recurrent tumors. Tumor duration, as far as could be evaluated, ranged from 8 months to 7 years (mean 22 months). The lesions ranged in size from 4 to 12 mm (mean 6 mm). 11 lesions were on the lower lid, 5 on the medial canthus, 1 on the temporal canthus and the other 12 lesions were periocular, all within 20 mm of the orbital margins. 1 female patient with 3 separate BCE lesions was shown to have the basal cell nevoid syndrome. Diagnosis in this case was based on characteristic clinical and radiological findings associated with a positive family history.

The study was conducted in a special dermatological-ophthalmological outpatient clinic attended by physicians assigned from both departments. On their first visit all patients had a complete ophthalmological examination including visual acuity and intraocular pressure measurement, biomicroscopy of the anterior segment and lens, and ophthalmoscopy. The examination was regularly repeated between the therapeutic sessions and during the follow-up period.

Prior to each treatment 0.4% benoxinate HCl ophthalmic solution was administered for topical anesthesia. To minimize the chance of contact of the preparation with the conjuctiva and cornea, the patients were placed in the supine position and the involved eyelid was retracted away from the eye and fixed to the adjacent skin by an adhesive tape. Solcoderm was then applied topically to the surface of each lesion by repeated contact with a sharpened wooden stick previously dipped into the Solcoderm solution, without pricking or mechanically injuring the tumor. Each application lasted 15–60 s, until blanching of the tumor surface was observed. This procedure was repeated weekly until complete objective regression of the tumor was clinically evident. Thereafter each patient was periodically followed in the same clinic, and the therapeutic, cosmetic and functional results were carefully assessed. Repeated deep biopsies were taken from 11 clinically cured lesions at various intervals during the follow-up period for histological confirmation of the therapeutic results.

Results

The animal studies showed that Solcoderm is irritative on contact with the eye. Irritation of the conjunctiva, corneal erosion and slight anterior chamber glare developed within 2 h following the application. These effects spontaneously subsided with complete resolution, and no residual damage was observed after 2–3 days in all cases. Repeated ophthalmological examination of the rabbits revealed no further pathological findings.

In the patients there was a complete regression of all 29 lesions following 3–7 therapeutic sessions (average 4 sessions). The cosmetic results, characterized by a flat or slightly depressed skin-colored scar, were good to excellent (fig. 1–4). Repeated skin biopsies taken from the scar of 9 BCE lesions confirmed the eradication of the tumors. Cells reminiscent of tumor cells were, however, found in skin biopsies taken from the scar area of 2 additional BCE lesions 3 and 5 weeks, respectively, following termination of therapy. Solcoderm was readministered to these 2 cases to ensure complete cure.

The cure rate for the 29 lesions followed for 18–55 months was 79.3%. There were 6 recurrences all occurring during the first

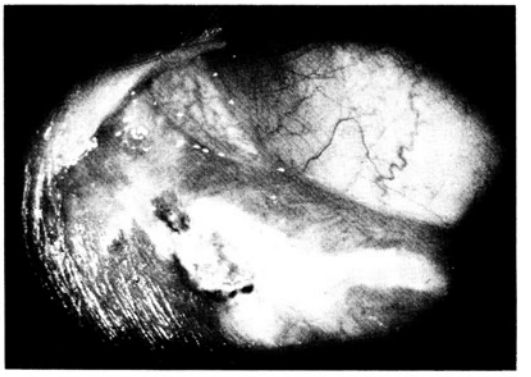

Fig. 1. BCE on lower eyelid prior to treatment.

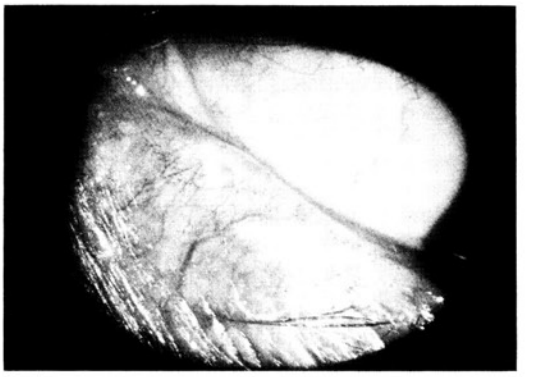

Fig. 2. Same patient, 30 months after treatment.

Fig. 3. Cystic BCE prior to treatment.

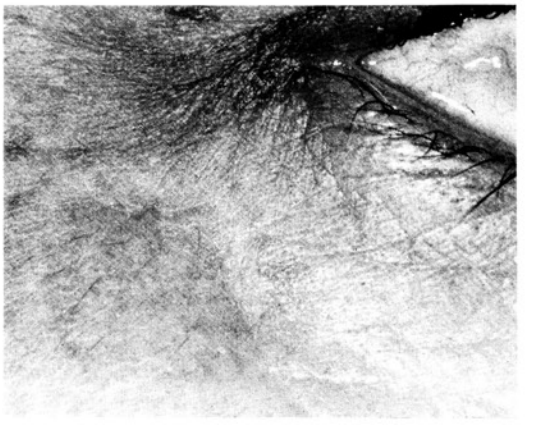

Fig. 4. Same patient, 43 months after treatment.

year of the follow-up. 5 were retreated successfully by Solcoderm and were followed up for further 10–16 months. Only 1 recurrent lesion required radiotherapy. The overall cure rate after the second procedure was thus 96.6%.

Solcoderm was very well tolerated by most patients, with mild local burning sensation at the time of application only, which was well controlled by the topical administration of anesthetic solution.

The clinical response was confined to the site of application. Within a 3–5-day period the tumor tissue gradually developed into an adherent, necrotic, grayish crust, which eventually sloughed spontaneously 2–3 weeks later. In 8 patients with lid lesions mild conjunctivitis developed immediately following some of the application procedures. Superficial punctate erosions of the cornea developed up to 2 h following some of the sessions in 7 patients of this group.

The involved eyes were dressed with 5% ophthalmic chloramphenicol ointment until complete healing was evident 2–3 days later. The late side effects included 2 cases with mild ectropion, 1 case with entropion, and 1 with partial loss of local eyelashes. None of these complications caused any functional defects, thus no secondary reconstructive surgery was necessary. There was no cicatricial obstruction of the lacrimal duct in any of the 5 cases with the lesions on the medial canthi. In none of the patients was there any change in the vision, intraocular pressure, or any other intraocular structure or function during the therapeutic sessions or the follow-up period.

Discussion

The results of this study clearly demonstrate the efficacy of Solcoderm in the eradication of BCE on the eyelids and periocular skin with very good cosmetic and functional results. While the tumors in our study were relatively small, yet they were all within the average diameter reported in larger series of lid BCE [4, 9–10]. Solcoderm treatment of BCE has several distinct advantages: the therapy consists of a very simple ambulatory procedure which does not require the use of local or general anesthesia except for topical anesthetic drops. Thus it is particularly suitable for old and debilitated patients who are poor surgical risks. Multiple lesions of patients can easily be treated simultaneously. In spite of the drug being somewhat toxic on contact with the conjunctiva or cornea and the necessity of prolonged intimate contact with the lesion, the procedure adopted for its application ensures minimization of side effects. The procedure is very easily controlled and there is very little risk of accidental run off of the solution and damage to surrounding normal structures.

When present, the inflammatory response of the conjunctiva following Solcoderm application is mild and relatively short. The corneal erosions which were seen in a few patients were superficial and healed completely without any residual corneal damage. The far less frequent complications of ectropion, entropion and partial loss of eyelashes are mild and acceptable.

Regular inspection following Solcoderm therapy is important to detect early recurrence of tumors, in which case the topical readministration of Solcoderm provides an effective cure. Surgical modalities or radiotherapy are optional routes for refractory lesions.

The preliminary results of our work warrant more extensive studies with larger series and longer follow-up periods for further evaluation of the role of Solcoderm as an alternative mode of therapy for periocular BCE.

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