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Treatment of epidermal cysts with Solcoderm (a copper ion and acid solution)

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Summary

The treatment of epidermal cysts has often posed a problem for dermatologists. Although surgical excision has been adopted as the method of choice for the removal of these lesions, complications of surgery and recurrences have warranted the search for alternate therapeutic modalities. Use of a recently introduced compound, Solcoderm, is reported in the treatment of 116 epidermal cysts in 85 patients over a 2-year period. The satisfactory cosmetic results observed, low incidence of recurrence, low cost and ease of administration, make this drug a viable alternative in the management of epidermal cysts, particularly in those cases where surgery should be avoided.

Epidermal cysts are benign skin growths characterized by a central cavity filled with horny material and lined by keratinized, stratified squamous epithelium akin to normal epidermis. These lesions are usually distributed over the face, scalp, neck and trunk.[1] Their treatment, in most instances, entails adequate surgical excision on account of their tendency to rupture, causing a granulomatous inflammatory response in the surrounding tissues, as well as frequent recurrences.[2,3] Non-surgical treatment has rarely been attempted, except for phenol injection of infected epidermal cysts.

We have applied a recently developed compound, Solcoderm, to 116 epidermal cysts in 85 patients, by an intralesional technique. Solcoderm is a relatively new compound which has been introduced recently for the treatment of a variety of cutaneous neoplasms.[4–7] The chemical composition of Solcoderm is based on a complex of organic and inorganic acids with copper ions 15 p.p.m., oxalic acid 40 mg/ml, lactic acid 3 mg/ml, nitrate 410 mg/ml and acetic acid 40 mg/ml. Its mechanism of action is related to rapid fixation of tissues, with preservation of fine cellular structures. This process has been likened to tissue mummification.[8]

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Materials and methods

A total of 85 patients were seen at the Dermatological Clinic of the Chaim Sheba Medical Center at Tel Hashomer, during 1982–84, for the treatment of solitary or multiple epidermal cysts. The diagnosis of the lesions was based on established clinical features.[9] A total of 116 lesions were treated: distributed between the face (46), trunk (32), neck (14), upper extremities (12) and other sites (12); their size ranged from 0·5 to 4 cm at the widest diameter.

The application of Solcoderm was performed by first piercing the lesion at its centre with a sharp object, and then manually expressing the keratinous contents. The medication was next introduced into the empty cyst cavity by means of a sharp thin wooden applicator, which had been dipped previously into the Solcoderm solution (Fig. 1). The procedure was not followed by any discomfort. In the first few hours following this intralesional application, a ring of whitish discoloration formed around the application site (Fig. 2). Under optimal conditions by the end of the first week, a thick and slightly depressed crust surrounded by a thin rim of erythema, appeared over the lesion (Fig. 3). The presence of this crust was generally an indication that the treatment had been successful. Each individual lesion was examined weekly following application of the drug, and the treatment repeated if there was any evidence of a poor response to the initial dose. In eight cases selected at random, punch biopsies were obtained (with the patient's consent) in order to evaluate histologically the results of treatment.

Results

The results of the treatment for the patients in our study are summarized in Table 1. The lesions were arbitrarily divided for evaluation into three groups by size. Of 56 lesions measuring under 1·5 cm, 37 completely disap-

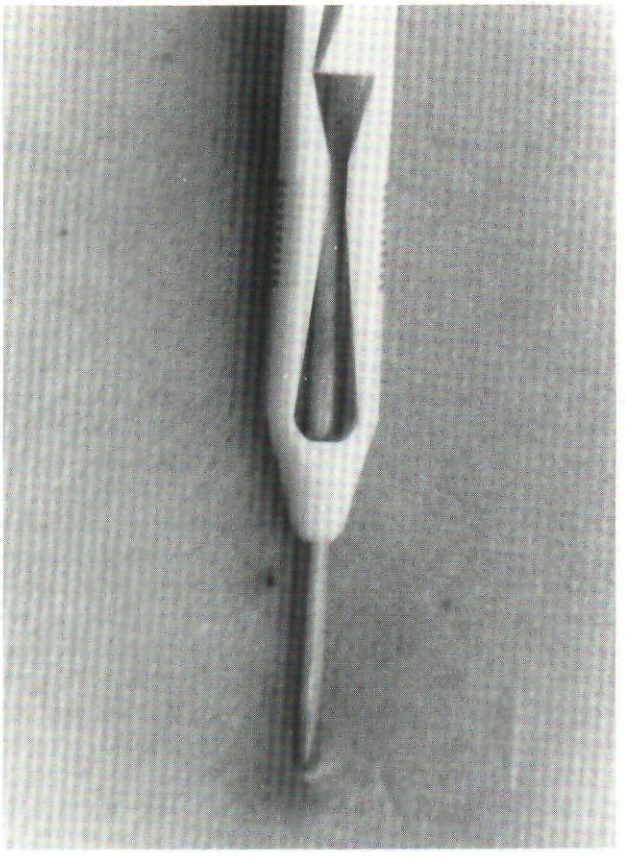

Figure 1. A plastic handle containing a sharp wooden applicator is introduced into the lesion through a small central incision. The Solcoderm solution is then applied to the inner walls of the cyst.

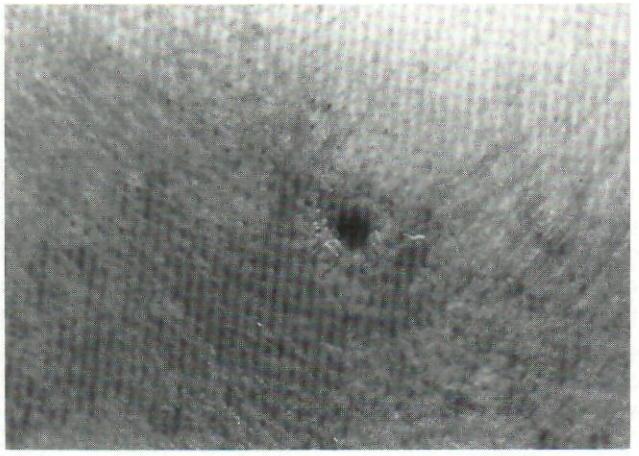

Figure 2. Appearance of a lesion shortly after application of Solcoderm. Notice the whitish rim of skin surrounding the puncture orifice, indicative of the rapid fixation of the tissues.

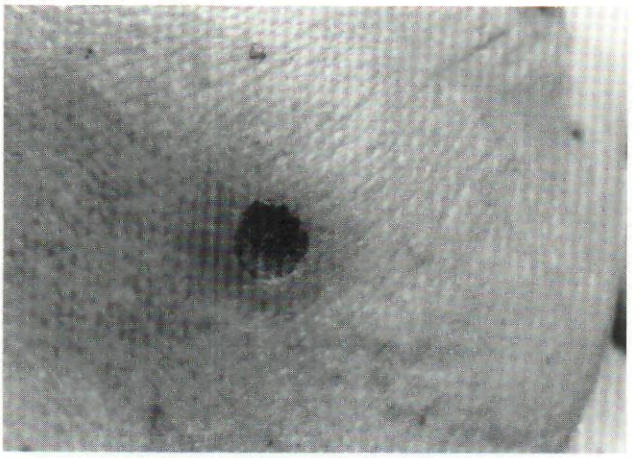

Figure 3. Appearance of a lesion 1 week after the first application, when the treatment was initiated.

peared and were replaced by scar tissue, following a single application of Solcoderm; 16 responded to treatment following a second application of the drug, and three required a third application in order to achieve a satisfactory result. Of the 43 lesions measuring between 1·5 and 2·5 cm, only five responded completely to the initial dose of the drug, 31 responded to a second round of treatment, and seven required a third application. Of the 17 lesions over 2·5 cm, none responded to a single dose, only one responded adequately to a second treatment, and the rest required three applications of the solution in order to achieve satisfactory results. Punch biopsies were taken from the area of scarring in treated lesions, from five patients in whom the initial lesion measured under 1·5 cm and responded well to the first treatment, and from three patients in whom the initial lesion measured between 1·5 and 2·5 cm and responded well only to the second application. The effects of the drug in all these cases were similar to those previously described in the literature,[6] mainly the formation of densely collagenized scar tissue and disappearance of the tumour and normal adnexal structures. Eight recurrences were observed over a 3-year follow-up period, six in cases where the original tumour had been larger than 2·5 cm and two in the 1·5–2·5 cm range. The recurrences responded satisfactorily to another treatment with Solcoderm.

Following the first week after treatment, the crust induced by the application of Solcoderm disappeared and a round, 'cigarette-like' burn scar developed at the site of treatment (Fig. 4). The degree of scarring was proportional to the size of the original lesion, and the amount of Solcoderm solution applied. Twelve of the patients in this study underwent elective plastic surgery for the removal of the 'cigarette-like' burn scars, especially the ones located on the face. The procedure was simple to perform and did not require a deep or wide excision. It resulted in

Table 1. Results of Solcoderm treatment in 116 cases of epidermal cysts

No. cases	Size of lesion (cm)	Successful result (%)		
		First application	Second application	Third application
56	0·5–1·5	66	29	5
43	1·5–2·5	12	72	16
17	over 2·5	0	6	94

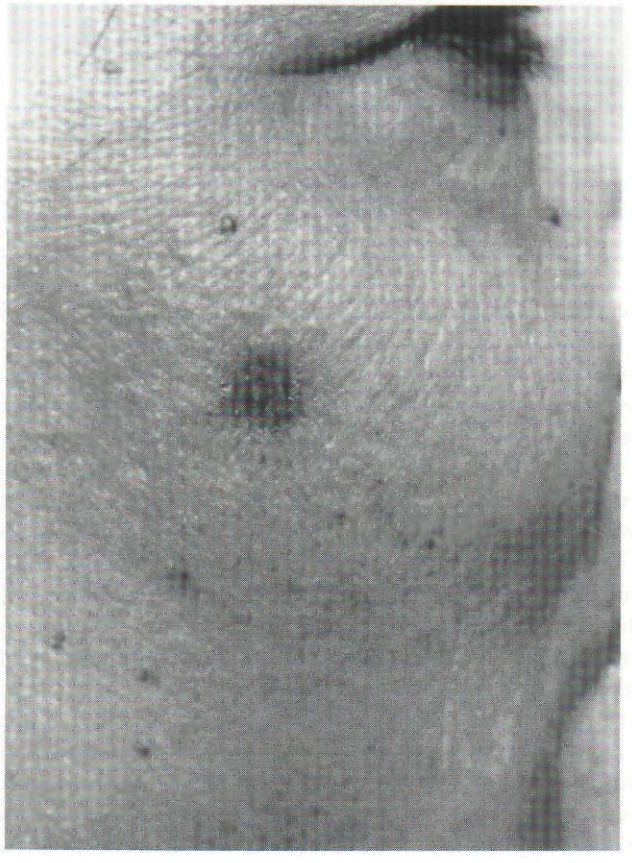

Figure 4. Appearance of a lesion 2 weeks following the initial treatment. Notice the 'cigarette-like' burn appearance of the resultant scar.

a relatively smaller scar, and was not followed by recurrences or other complications.

Discussion

The excellent results obtained in recent clinical trials have increased the use of Solcoderm in many European countries and it has gained acceptance as a treatment of choice for certain skin tumours.[10–12] Its use is especially recommended under circumstances in which the location of the tumour makes a surgical approach undesirable.[13–15] The disadvantages of its use relate mainly to failure following treatment of certain solid dermal tumours, in which histological examination after treatment revealed residual tumour in the depths of the lesions.[16] When dealing with cystic tumours, the size of the lesion may not be as critical as the actual thickness of the cyst wall. Since the majority of the epidermal cysts usually do not have a wall that exceeds 0·5 cm in thickness, these lesions will generally lend themselves well to treatment with Solcoderm. In the present study, the lesions which responded best were thin-walled cysts under 1·5 cm in diameter. The site of the lesions did not appear to influence their response to treatment. A good correlation was observed between successful therapy and the ability to express the contents of the cyst adequately, prior to the application of Solcoderm. Rupture of the cysts with ensuing granulomatous inflammation was not seen in our study, although eight recurrences did occur (mainly in the larger cysts) and were probably related to inadequate emptying of their contents prior to the application of the solution.

The cosmetic results of the treatment of epidermal cysts with Solcoderm did not represent a dramatic improvement over the results obtained by surgery, particularly for lesions located on the face and other exposed areas of the skin. The main advantages of the Solcoderm treatment appear to lie in avoidance of surgery (with its possible complications), ease of application in out-patient clinics and lower cost.

The treatment of other cysts such as pilar cysts with Solcoderm solution was reported by Brenner in 1986, with satisfactory results.[17] However, recent reports of malignancy in proliferating trichilemmal (pilar) tumours, make surgical excision a preferred therapeutic option.[18,19] The differentiation between epidermal and trichilemmal cysts is very important. Although clinically very difficult, there are some differences that can help. Trichilemmal cysts are located primarily over the scalp, face, neck and trunk. They are usually slow-growing lesions, and become inflamed infrequently (15% compared with 50% of epidermal cysts). Calcification may occur (15–25% of cases). Spontaneous marsupialization and proliferation seem to be peculiar to those cysts. The accepted treatment is surgical excision.

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