

Trophic herpetic ulcer (metaherpes)

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In spite of recent advances in virus chemotherapy, trophic herpetic ulcers or metaherpetic ulcers, as they are sometimes called, complicate dendritic ulcers sometimes. These superficial lesions must be differentiated from some forms of herpetic lesions such as amoeboid or geographic ulcers. Although these lesions resemble each other, trophic herpetic ulcers can be differentiated as they are associated with a profoundly hypaesthetic cornea. The importance of this differentiation is given by the fact that trophic herpetic ulcers are in a way comparable with neuroparalitic keratitis as vigorous treatment can increase the corneal damage considerably.

Not only is vigorous mechanical or chemical trauma detrimental to the evolution of the trophic ulcers, but there is also considerable evidence that the iodine scrub which is sometimes used to treat dendritic keratitis and which in fact combines these traumata, causes damage to the basal membrane of the epithelial cells, which in turn is claimed to be an important factor in the aetiology of trophic ulcers (1,2). Therefore, we have compared the effect of various types of treatment for dendritis keratitis on the incidence and the evolution of trophic ulcers.

METHODS

Only those trophic ulcers were studied that complicated a first attack of dendritic keratitis. Patients with trophic ulcers were referred from clinicians that had favoured one of four types of treatment for the preceding dendritic keratitis. In one group, consisting of ten patients, no treatment other than scopolamine eye drops, antibiotic treatment and padding of the eye was given, alone or in any one combination (treatment type I). This treatment was also used occasionally in other patients in addition to the other treatment types. In type II treatment, which was given to eight patients, the sodden and diseased epithelium was carefully mechanically removed, however, never exceeding the area of the epitheliolysis as in-

dicated by the fluoresceine stain. In another group, consisting of eleven patients, the dendritic lesions were treated with a thorough and extensive iodine scrub. This treatment is referred to as type III. Finally in type IV treatment, which was given to 12 patients, I.D.U. drops were used.

The interval between the cure of the preceding dendritic lesion as indicated by complete closure of the epithellium and absence of staining of the epithelial cells with rose bengal and the establishment of the trophic ulcers, the size of these ulcers, measured with a calibrated measuring eye piece on the slitlamp, and the duration of the trophic ulcers were compared in the four groups. The data were analyzed with appropriate statistical techniques such as variance analysis, the X^2 technique and correlation studies.

RESULTS

In table 1, the arithmetic means of the age of the patients, the incidence, the time interval between the first attack of dendritic keratitis and the occurrence of the trophic ulcers, the size of the trophic ulcers and the duration of the lesions for each of the treatment types for the preceding dendritic keratitis is given. There are wide fluctuations in the incidence of trophic ulcers in the various groups. Group IV has the lowest incidence, while the rather conservative curettage of the preceding dendritic keratitis which was the treatment in group II, shows a higher incidence than that of the group in which iodine scrub treatment was given. These differences in incidence, however, are statistically not significant.

At first sight there also seem to be marked differences with regard to the interval, suggesting that a vigorous iodine scrub of the preceding dendritic keratitis delayed the onset of the trophic ulcers. Statistical analysis, however, showed that these differences are not significant.

With regard to the size of the trophic ulcers it would appear that palliative treatment and the iodine scrub were responsible

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Table 1 — The arithmetic means of the studied variables of trophic herpetic ulcers in patients after different treatments of the preceding dendritic keratitis.

Treatment type	Number of patients	Age (years)	Incidence (percent)	Interval (days)	Size ulcers (square mm)	duration (days)
I	10	40,5	15,4	21,4	18,1	31,6
II	8	27,4	25,8	23,8	10,7	19,6
III	11	29,5	16,4	27,4	18,2	54,3
IV	12	35,8	12,8	14,8	17,8	39,7
Total average		33,6	16,1	21,6	16,6	37,7

Type I — palliative treatment; type II — curettage; type III — iodine scrub; type IV — 5. iodo 2 deoxyuridine treatment.

for the larger size trophic ulcers, but statistically there was no difference in size of trophic ulcers between the various types of treatment.

From the values for the duration of the trophic ulcers it would appear that the iodine scrub, that can be considered as both mechanical and chemical trauma to the cornea, is responsible for a delayed healing of the ulcer, but rather surprisingly it appeared that these differences were statistically not significant. In Figure 1 the arithmetic means and the 95 and 99% confidence intervals for the variables of interval, the size

studied variables is given. The product moment correlation coefficients, which is a measure of the degree of correlation shows that there is virtually no degree of association between any of the sets, with the exception of the combination of the size and duration of the trophic ulcers, which shows a mere suggestion of statistical significance.

Table 2 — The degree of correlation between any combination of a set of the studied variables of trophic herpetic ulcers.

Set of variables of trophic herpetic ulcers	Product moment correlation coefficient
age (interval	— 0,20
(size	— 0,02
(duration	— 0,21
interval (size	+ 0,01
(duration	— 0,06
size duration	+ 0,24

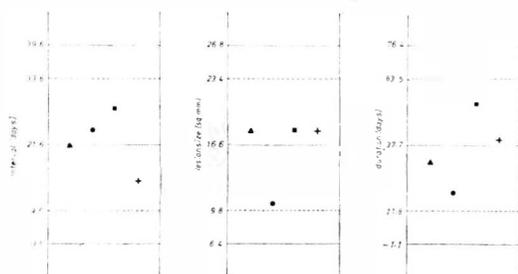


Fig. 1 — The arithmetic means (x-x) of the studied variables of trophic herpetic ulcers with the 95 (.....) and 99 (—) percent confidence intervals. The scales of the variables on the chart are standardized with ratios for interval, size of ulcer and duration of respectively 4.01; 2.27; 8.60. ▲ = palliative treatment, ● = curettage, ■ = iodine scrub, + = 5.iodo 2 deoxyuridine treatment.

and the duration of the lesions for each type of treatment of the preceding attack of dendritic keratitis is given. The scales of the chart are standardized. From this figure it is very easy to see that no effect in the evolution of the trophic ulcers by the various treatments could be demonstrated. From these data it appears that trophic ulcers begin and develop independantly from the treatment that was given for the preceding attack of dendritic keratitis.

In table 2 the results of correlation studies for all combinations of any set of the

Figure 2 shows the scatter diagram of the relationship between the size and the duration of the trophic ulcers.

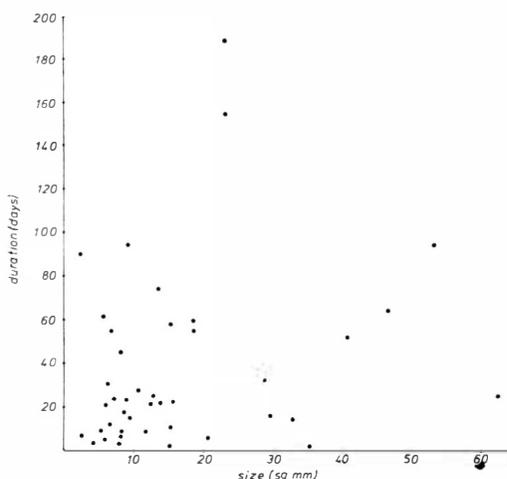


Fig. 2 — Scatter diagram of the relationship between duration and size of the trophic ulcers.

DISCUSSION

Factors influencing the evolution of trophic herpetic ulcers have been studied in the past. Kaufman (2) examined a large number of trophic herpetic ulcers and found them similar to recurrent erosions. He postulated that the primary factor in the genesis of both lesions was damage to the epithelial basement membrane. In the case of recurrent erosions this trauma was of mechanical origin and in the case of trophic ulcers, the herpes virus was responsible for the damage. Kaufman cited the study of Gunderson that seems to support this hypothesis. Gunderson (1) found in his series the incidence of trophic herpetic ulcers after a vigorous and extensive iodine scrub almost double that of a more conservative approach. We found the incidence of trophic ulcers after iodine scrub to be rather low while after careful curettage of the diseased and sodden epithelium in dendritic keratitis the incidence seems to be the highest. These contradictory findings are the result of statistical fluctuations. And this is also true for the other variables. The marked fluctuation of values, — **within** as well as **between** the various groups —, is responsible for the rather large differences in average values, while they are still not different in a statistical sense. Trauma to the basement membrane of the epithelial cells, be it mechanical, chemical or both, could of course still be a factor in the genesis of trophic ulcers, but it is doubtful that it is an important factor.

RESUMO

Úlceras herpéticas tróficas — ou úlceras metaherpéticas, como são às vezes chamadas — são

definidas clinicamente como lesões superficiais ovóides em córnea com hipoestesia profunda. No presente estudo essas lesões surgiram como complicação de primeira crise de ceratite dendrítica em cerca de 16% dos casos. A idade média dos pacientes foi de 34 anos. Como média, as úlceras apareceram 22 dias após a úlcera dendrítica ter sido aparentemente curada. O tamanho médio foi 17 mm² e a permanência média da lesão foi de 38 dias.

O tipo de tratamento da precedente ceratite dendrítica pareceu não ter qualquer efeito na incidência, intervalo, tamanho ou duração das lesões. Portanto, a lesão à membrana basal epitelial parece não ser um fator primário na gênese das lesões. Houve uma indicação de significado estatístico na correlação entre tamanho e duração da lesão. Idade e intervalo não se correlacionaram com o tamanho e a duração.

SUMMARY

Trophic herpetic ulcers, — or metaherpetic ulcers as they are sometimes called —, are clinically defined as ovoid superficial lesions in a profoundly hypaesthetic cornea. In our study these lesions complicated the first attack of dendritic keratitis in about 16 percent of the cases. The average age in which they occurred was 34 years. As an average the ulcers appeared 22 days after the dendritic ulcer had apparently healed. The average size was 17 square millimeters and the average duration of the lesion was 38 days.

As the type of treatment of the preceding dendritic keratitis did not seem to have any effect on the incidence, the interval, the size, or the duration of the lesions, damage to the epithelial basement membrane does not seem a primary factor in the genesis of these lesions. There was a suggestion of statistical significance in the correlation between size and duration of the lesion. Age and interval did not correlate in any way with size and duration.

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