Chemotherapeutic Activity of Myxin in Experimental Dermatophytosis of Guinea Pigs

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Recently, some in vitro and in vivo chemotherapeutic properties of myxin (6-methoxy-1-phenazinol 5,10 dioxide) (E. Grunberg et al., Chemotherapia 12:272, 1967) have been reported. Concurrent with these studies, we have found myxin active as a topical agent in triamcinolone acetonide-mediated Trichophyton mentagrophytes infection in guinea pigs.

The method of infecting the animals was essentially the same as that reported previously (W. A. Goss et al., J. Invest. Dermatol. 40:299, 1963), with the exception that a multiple puncture device (Sterneedle, Panray Div., Ormont Drug and Chemical Co., Inc., Englewood, N.J.) was substituted for a plain hypodermic needle for implantation of the spore suspension. Five male, Hartley strain guinea pigs were infected on each clipped flank with the aid of the Sterneedle #6 cartridge. A total of 12 needle punctures were obtained by rotating the device a quarter turn before the second firing.

Daily treatment with myxin (1%, w/w, in vanishing cream base) was accomplished by rubbing the cream on the lesion, beginning on the third day after infection. Ten treatments, over a period of 14 days (Saturday and Sunday excluded), were carried out. In addition, an equal number of doses of triamcinolone acetonide (30 mg/kg) were given by the subcutaneous route. A suitable group of infected but untreated animals served as controls.

Seventeen days after infection, the untreated lesions were large (average area about 400 mm²) and presented a clinical picture of matted hair and scale as well as erythema, but with the inflammatory response greatly inhibited by the steroid treatment. In contrast, 7 of the 10 lesions treated with myxin were grossly clear of infection, and the remaining three lesions showed only minimal infection, in the form of a few scales.

It is interesting to speculate about the relationship between the chemical structure of the compounds tested and their ability to penetrate the stratum corneum. Certainly, an excellent therapeutic effect was shown with myxin in this study. Yet, under similar conditions, such closely related substances as phenazine, 5,10-dioxide; 2-phenazinol; and 3-nitrophenazine, 5-oxide were disappointingly inactive in vivo at 3% concentrations.

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