

An Effective Clinical Therapy of Corneal Lesions in Animals Treated with SOLCOSERYL®*)

M. SHOKRY, M.D. Vet., Cairo University, Egypt
P. GRIGORIADIS, M.D. Vet., Düsseldorf University, Germany

Introduction

Corneal lesions in animals are usually accompanied with blepharospasm, lacrimation and varying degree of irritation. Irreversible structural damage of the eye with subsequent blindness may follow untreated or complicated cases. This would also affect the economic value of the animal or may even cause death due to starvation. Therefore, a rapid restitution of the diseased cornea is essential.

Looking for an appropriate remedy for the treatment of the damaged cornea, we decided to try Solcoseryl in the form of eye gel. Solcoseryl is a protein-free dialysate containing low-molecular components of hemolyzed and defibrinated blood of young calves. It enhances the oxygen uptake in isolated mitochondria (22), liver homogenate (9, 19) and isolated and perfused organs (21). The action of Solcoseryl is attributed to the improved energy supply of cells by better utilisation of oxygen and glucose, especially in tissues suffering from hypoxia (13, 20, 24, 25). It is well known as an effective and successful product for the treatment of burns (1, 4, 27), skin transplants (11), trophic skin ulcers (27), torpid wounds (23), and other disorders of the peripheral blood circulation with or without trophic lesions (3, 8, 10, 12, 14).

In ophthalmology, Solcoseryl, in the form of eye-gel (which contains 20 % Solcoseryl in a viscous gel base), has been tried for treatment of corneal and conjunctival lesions in man (2, 7, 16) and in animals (5, 17, 18).

The well-marked tissue regenerating action of Solcoseryl (6, 26) led us to try this compound in cases of various corneal affections in different species of animals, with the aim to evaluate its efficacy and to determine the most favourable mode of application.

Material and Methods

The present study comprises 30 animals (11 donkeys, 4 sheep, 8 horses, 6 cattle, 1 cat) with various corneal affections. They were admitted to the faculty clinic of Cairo University between 1977 and 1978. The animals suffered from acute superficial keratitis (20 eyes), chronic superficial keratitis (5 eyes), acute parenchymal keratitis (8 eyes) and chronic parenchymal keratitis (1 eye). In addition to the cases with keratitis, the following disorders were observed: leukoma (1 eye), central corneal abscess (1 eye), corneal ulcer (1 eye) and severe traumatic laceration of the cornea (1 eye).

No attempt had been made to determine precisely the etiology of the corneal lesions, nor is it the purpose of this study.

*) Solco Basle Ltd., Switzerland

Thus, the attention was given to the physical signs and the symptomatic treatment.

Solcoseryl therapy comprised: boric acid eye lotion 1 %, Solcoseryl eye gel applied twice a day, 50 % diluted Solcoseryl solution injected subconjunctivally every third day. Large animals were injected with 2 ml of diluted Solcoseryl and small animals with 1 ml.

Conventional therapy comprised: boric acid eye lotion 1 %, Cambison® ophthalmologic ointment (Hoechst) applied twice a day, vitamin A injected i.m. once a week 900,000 I.U. or 300,000 I.U. for large or small animals respectively.

In nearly all the cases where both eyes were afflicted by the disease, one eye was treated with Solcoseryl and the other with conventional therapy. In several cases treated with Solcoseryl, a subsequent conventional therapy was applied or, in return, a Solcoseryl therapy followed a conventional treatment. Cessation of lacrimation, absence of blepharospasm and rapid restitution of the natural reflective surface of the cornea were the parameters used to recognize the efficacy of the treatment.

Results and Discussion

The effect of the treatment of superficial and parenchymal keratitis with Solcoseryl and conventional therapy are presented in tables 1 and 2. After the Solcoseryl treatment of 12 cases with acute superficial keratitis, complete healing was obtained in 92 %. The application of the conventional therapy completely healed only 75 % of the cases, although the duration of the treatment averaged 18.6 days, i.e. nearly 7 days longer than the average treatment with Solcoseryl.

The healing of two cases with acute superficial keratitis (H7 and S28) is shown in pictures 1, 1a, 2 and 2a.

The treatment of 5 cases (6 eyes) with acute parenchymal keratitis with Solcoseryl brought complete restitution in 5 eyes and in 1 eye little improvement. Conventional therapy showed no positive results in any similar cases.

The effect of the treatment of four cases with acute superficial and parenchymal keratitis, in which conventional therapy was followed by Solcoseryl application, is illustrated in table 3. The first part of the treatment caused only little improvement in two cases, in the other two there was no effect. The second part, the treatment with Solcoseryl, brought complete healing or marked improvement.

The cases with chronic keratitis were more resistant. The treatment with Solcoseryl resulted in little or no improvement, but it should be pointed out that the subsequent conventional