A New Method for the Treatment of Ligneous Conjunctivitis

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Ligneous conjunctivitis is a rare form of membraneous conjunctivitis, the treatment of which has been unsuccessful until recent times.

It was Lijo-Pavia who first described the condition in 1924. He tried to treat the disease with *huile de genèvrier*, but the patient unfortunately lost both eyes. [1] [2] Kalt and Autier in 1925 tried auto-vaccine and ultraviolet light treatment, but again without success.[2]

Various antibiotics, sulfamides, anti-diphtheric serum, streptoccinase-streptodornase, steroids, cauterization with chemical compounds, radiotherapy, beta radiation and surgical procedures have been tried without success and most cases reviewed in the literature have resulted in loss of the eyes due to corneal involvement.[2] [3] [4] The local application of alpha chymotrypsin has been recorded in recent literature, [3] [5] but again without favorable results.

The first sensational achievement in the treatment of this disease must be attributed to François and his co-workers.[6] These authors treated a girl with local application of hyaluronidase, in combination with alpha chymotrypsine, in the light of specific anatomopathologic and histochemical investigations, which showed the mucopolysaccharide constitution of the ligneous membrane.

Duke-Elder[3] recorded only about 50 cases of ligneous conjunctivitis in the literature, which shows that the disease can be considered very rare. Two cases of this type of conjunctivitis were seen in the Department

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of Ophthalmology, Hacettepe University in the years 1966 and 1968. The latter patient was treated by the method discovered by François and his co-workers.

Case Reports

Case 1

H. K., a 20-day-old female, was first seen in the outpatient department. She had thick white membranes on the upper and lower lids of her right eye, and bleeding from the conjunctiva occurring at any attempt to move them (Figure 1). No treatment was effective, and nothing positive was revealed by laboratory investigations. The patient was not seen again for four months by which time it was observed that the membranes had thickened and that her general condition had deteriorated. The child's temperature had risen, and she had an enlarged liver and pharyngitis; she was again hospitalized.

Figure 1. Right eye, showing thick ligneous membranes on both lids, Case 1.

Group agglutinations for brucella, melitensis and salmonella, V. D. R. L. and Schick test were negative, but hypochrome anemia was present. No microorganisms were found in the conjunctival cultures. Streptococcus, neisseria and pneumococcus were identified from the throat culture.

Local and general antibiotics combined with steroids and local antidiptheric serum were ineffective. The left eye at this time was normal, but three months later exactly the same type of membranes formed as those of the affected eye (Figure 2). The condition was diagnosed as lig-

neous conjunctivitis and in 1966, as therapy was still unknown, the patient was discharged and never seen again. We were later informed that she died of pneumonia with the membraneous condition unchanged.

Figure 2. Left eye showing membrane formation. Bleeding is seen on attempt at removal of the membranes / Case 1.

Case 2

H. A., a four-year-old boy, was seen in April, 1968, and his condition was immediately diagnosed as a typical case of ligneous conjunctivitis.

Examination revealed thick membranes on both the upper and lower lids, more severe in the right eye and complicated by a corneal ulcer and iridocyclitis of the same eye (Figure 3 and 4). Bleeding occurred at

Figures 3. Tarsal conjunctiva of both lids of the right eye covered by ligneous membranes / Case 2.

Figure 4. The left eye of the same patient also showing the typical ligneous membranes / Case 2.

any attempt to remove the membranes (Figure 5). Laboratory results were all negative, except for mucopolysaccharide dosage in the urine against glucose by the Anthrone method, which revealed a high level (1152/165 ml compared to the normal 293.76/165 ml).

Figure 5. Bleeding from the tarsal conjunctivas of both eyes after removal of the membranes / Case 2.

By this time, the sensational results obtained by François and his co-workers had been published, [7] [8] and the histochemical constitution of ligneous conjunctivitis had been shown.[6] We started treatment immedi-

ately and carried out histochemical analysis of the membranes by special staining methods. The details of these studies are the subject of another paper.[9]

We used 1/10,000 dilution of alpha chymotrypsine and kinaden (hyaluronidase) solutions of 350 U per cc, diluted with 10 cc of distilled water. Two drops of these drugs were instilled in each eye every hour, and this was continued for two months. Energetic keratitis therapy of the right eye was also carried out.

After two weeks, the hardness of the membranes diminished and they were easier to remove without causing bleeding. Seventy days after the commencement of the treatment, the membranes of the left eye, and later those of the right eye, disappeared and the keratitis healed, leaving only a paracentral nebula on the cornea of the right eye (Figure 6 and 7).

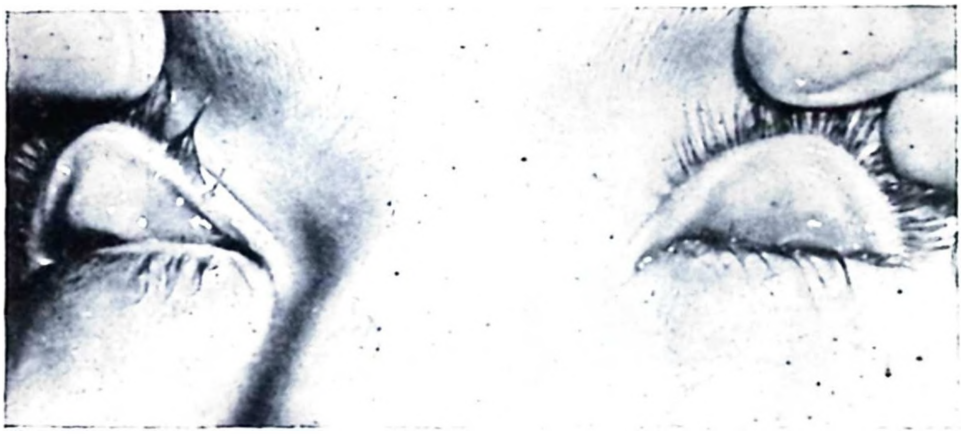

Figure 6. Both upper tarsal conjunctivas after treatment looking perfectly normal. Case 2.

Figure 7. The appearance of both lower tarsal conjunctivas after treatment with none of the membranes left / Case 2.

The drug dosage was gradually decreased to six times a day and then three times a day over a period of three and a half months. The patient was seen again after five months, and seemed to be completely cured.

Figure 8. Five months after cessation of the treatment. The boy is in perfect condition with no membranes. Keratoiridocyclitis healed leaving a simple leucoma covering 1/3 of the right lower cornea / Case 2.

Conclusion

Alpha chymotrypsine and hyaluronidase were applied locally in a case of ligneous conjunctivitis. The treatment was successful and gave identical results to those obtained by François and his co-workers. [6 7 8] This method of treatment, based on histochemical findings, seems to be the most effective in this rare disease, the etiology and treatment of which were unknown until recently.

Summary

Two cases of ligneous conjunctivitis observed at the Department of Ophthalmology, Hacettepe University, are reported, the second of which was treated by local application of hyaluronidase combined with

alpha chymotrypsine. This case was, presumably, the third one in the world to be treated by this method, and is a typical example of the satisfactory treatment of the disease for which all previous attempts were unsuccessful.

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