

# Trypan Blue in the Treatment of Leprous Eye Lesions.

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**I**NFECTION of the eye-ball, especially when complicated by lepra reaction, is perhaps the most painful and distressing condition caused by leprosy. Sometimes the leprosy condition will heal up, but leave the patient blind. It is therefore very important that in every case of cutaneous leprosy the eye should be carefully and repeatedly examined under atropine to find out if there is any involvement or not. The early signs of ocular involvement are:—(1) Failure of the pupil to dilate fully and symmetrically on the application of atropine ; (2) Thickening or congestion of the bulbar conjunctiva ; (3) Involvement of the cornea, in the form of a pterygium-like growth, nodule or interstitial keratitis ; (4) Redness or photophobia. If there are signs

of active disease, atropine should be given at least once a week, after excluding the presence of high intra-ocular pressure.

Many remedies have been tried in the treatment of eye lesions. Dizon (1930) recommends subconjunctival injections of adrenalin and atropine to break down early adhesions of the iris. Wood (1925) mentions benefit, such as he had not seen before, in one case which he treated by injecting 1 per cent. sodium taurocholate with 1 in 2,500 bichyanide of mercury dissolved in 2 per cent. saline. Other workers (Hoffmann, 1927) obtained good results with krysolgan and other gold preparations.

Kirwan (1927) recommends for corneal infiltration due to leprosy granuloma and associated with the growth of new blood vessels, a complete peridectomy, resecting a piece of conjunctiva down to the sclera. He states that this operation produces excellent results and often prevents extension of the disease. In cases in which the pupil is prevented from dilating by posterior synechiæ, Kirwan recommends a broad optical iridectomy. He has performed this operation in many cases, all of whom got a temporary improvement in sight, but in the majority of cases the results have been disappointing. In many of the cases the ciliary infection lit up afresh with the formation of plastic exudation in the new pupil. On the other hand, vision was considerably improved in a number of cases.

But in our experience, while many of these remedies give a certain degree of temporary relief, none of them can be relied upon to control the inflammation.

Recently we have been using trypan blue injections at the Gobra Leprosy Hospital with excellent results. Two methods have been used in its administration, viz. (a) 0.1 per cent. solution in normal saline injected subconjunctivally, sufficient being given to balloon the conjunctiva; (b) 1 per cent. solution in normal saline intravenously, 3 to 20 c.c. being given once or twice a week according to the tolerance of the patient. It is well to use Grüber's preparation, and the solution should be fresh.

The intravenous method can only be used for a limited time, as trypan blue has a selective action for leprosy granuloma; and when a certain concentration is reached, the cutaneous lesions begin to ulcerate and gastro-intestinal disturbances appear in many cases. Trypan blue is not eliminated by the kidneys, and it takes a considerable time to be eliminated from the body. When, therefore, there is a concentration in the skin lesions sufficient to begin to cause

ulceration, intravenous injection of this drug should cease and only small doses (3 or 5 c.c. of the 1 per cent. solution) be given once a week. Some patients are rather sensitive about the colour of the skin produced by trypan blue, but are reassured when they find that the blue colour is not permanent. Intravenous injections of trypan blue are valuable in leprosy for other reasons, but we shall not refer to these in this paper.

The other method of giving trypan blue, viz., subconjunctivally, seems to be simpler and, as far as our limited experience goes, equally effective. Such injections may be repeated if necessary at intervals varying from one to two weeks according to the condition of the patient's eye.

The following is a complete list of the cases treated and the results obtained :—

(1) L. R. Type C.3 ; pain and inflammation in both eyes. He was given one injection subconjunctivally in the right eye and five in the left eye. Pain and inflammation subsided immediately after the first injection and never came back again.

(2) Godadhar. Type C.3 ; right pupil fixed and pain does not react to light ; the left eye shows irregular dilation of pupil. Ten injections of T. blue 2—5 c.c. were given intravenously. He was given one injection into the right eye subconjunctivally and two in the left eye. The patient was in constant pain due to his eye inflammation. After T. blue the pain has gone and the vision is slightly improved.

(3) Gorai. Type C.3 ; right pupil occluded, left pupil showed a small aperture in the lower and outer sector ; there was pain and inflammation and very hazy vision. Three subconjunctivally injections of T. blue were given into the right eye and two into the left. The vision of the left eye has much improved and the inflammation has subsided. There was no marked improvement of vision in the right eye, but the pain is less than before.

(4) Surendra Das. Type C.3 ; right pupil slightly irregular in shape, both pupils react to light. There was pain, redness and irritation. Two subconjunctival injections of T. blue were given in the left eye, after which pain and inflammation subsided.

(5) Jamiruddin. Type G.3 ; there were pain, redness, and irritation ; right pupil irregular with slight reaction to light, left pupil quite fixed to light and irregular in shape. Three injections were given subconjunctivally into the left eye. Pain and inflammation is very much less.

(6) Bhaskar. Type G.3 ; with the right eye he can just count figures ; left pupil is fully dilated and oval in shape. There was acute pain and inflammation which became less during 14 intravenous injections of T. blue and two subconjunctival injections.

(7) Mohapatra. Type G.3 ; leprous nodule in the right cornea and constantly suffering from painful eyes. Since giving two injections of T. blue into the right eye he is almost free from acute pain and inflammation and vision has improved.

(8) Upendra Mondal. Type G.2 N.3 ; this patient cannot close his right eye and had in consequence constant pain and irritation. After one injection of T. blue subconjunctivally into the right eye the pain and redness have gone, and he says that his vision has improved.

(9) Rajendra Chatterji. Type C.3. The patient had cataract in both eyes. After operation iritis set in. He had constant pain and inflammation, especially in the right eye for some years. After five injections of T. blue into the right eye and one into the left, pain and watering have ceased and redness is less. There is also disease of the lids, which has so far prevented complete recovery.

(10) A. Bhasker. Type C.2; there was acute inflammation of the right eye. All pain and inflammation have subsided after one injection of T. blue subconjunctivally.

(11) Gokul Saha. Type C.2; this patient was admitted with acute inflammation of the right eye and severe pain in the head. Atropine, etc. failed to give relief. One injection of T. blue subconjunctivally removed all pain and irritation.

While trypan blue is not an infallible remedy in the treatment of all leprosy eye conditions, it is certainly superior in our opinion to the many other remedies we have tried. Even in Case No. 8, with the other type of eye lesion caused by paresis of the lids and anæsthesia of the cornea, it was of great value. In the series of eleven cases, without a single exception, there was partial or complete relief from pain, and improvement of vision.

## REFERENCES.

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