

ACCIDENTAL LABORATORY INFECTION WITH TRACHOMA*

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THE isolation of stable strains of trachoma virus reported by T'ang, Chang, Huang, and Wang (1957) and confirmed by Collier and Sowa (1958) has made possible the study of the early stages of this infection. Collier, Duke-Elder, and Jones (1958) have reported studies on blind volunteers and the following account of an accidental laboratory infection is reported as confirmatory evidence that the viruses isolated are indeed the cause of trachoma.

Clinical Course

29.5.58.—When the yolk sacs of chick embryos were being inoculated with T'ang's trachoma strain 55, the needle was accidentally blown off the syringe and a spurt of infected yolk-sac emulsion hit the operator in the face—no direct contamination of the conjunctiva was noticed. The infectious material was washed off with an antiseptic and the face was washed with soap and water, but no special toilet of the conjunctiva was attempted.

4.6.58.—The lid of the left eye began to feel heavy and there was some irritation at the inner canthus. In view of the history of the accident 5 days before, a full virological investigation was undertaken; bacterial and viral cultures were taken and smears and scrapings made.

5.6.58.—By the next day a marked conjunctivitis had developed, worse beneath the upper lid; the eye was painful and distinctly sore to touch, the lids were oedematous, and there was a slight ptosis. Further smears were taken and treatment was commenced with 1 per cent. aureomycin ointment.

No enlargement of the pre-auricular gland was observed.

6.6.58.—There was now definite involvement of the right eye with symptoms similar to those observed in the left eye. The conjunctivitis was still of an indefinite clinical type and there was no corneal involvement.

On this date further scrapings and material for virus isolation were taken by Dr. L. H. Collier.

Systemic treatment was begun with Achromycin 0.5 g. three times daily as a supplement to local aureomycin.

11.6.58.—Subjective improvement was noted although the eyes were still red and oedema persisted. Follicles had now developed in both fornices and a single limbal follicle could be seen at the 2 o'clock position in the left eye.

Achromycin was discontinued, procaine penicillin 300,000 units daily was begun, and local aureomycin was continued.

14.6.58.—The eyes were much improved and the follicles were resolving. Penicillin was discontinued.

18.6.58.—Only slight redness remained.

10.7.58.—Slit-lamp examination of the conjunctiva showed a few residual follicles.

Virus Investigations

Bacterial cultures taken on 4.6.58 were sterile.

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Left Eye (scrapings of 4.6.58).—Material from the left eye showed the typical cytological appearance of a trachoma infection with pus cells, lymphocytes, plasma cells, and large phagocytic mononuclear cells. A single inclusion was found in the Giemsa-stained film and an inclusion was also found in a smear stained with iodine.

Material taken on the same day was inoculated into the yolk sac of two 7-day-old chick embryos; 6 days after inoculation one of the two embryos was dead and smears from the yolk sac stained with Giemsa and Castaneda stains showed typical viral inclusion bodies.

Right Eye.—Material from the right eye was investigated by Dr. L. H. Collier, who was able to demonstrate a single inclusion in the Giemsa-stained smear and was also able to isolate the virus by yolk-sac inoculation.

Discussion

Several points of interest arise from this infection. It was unexpected that symptoms would appear so rapidly, as it is usually assumed that the incubation period of trachoma is 10 to 14 days, but this may be due to the dose that infected the conjunctiva. In a case-to-case transmission it is unlikely that the infective dose would be so large. The non-specific nature of the clinical picture is also worth noticing, as it means that in the acute stage when the patient may well be at his most infectious the clinical picture is not that generally recognized as trachoma. This had previously been noted by the author and Gilkes in their investigations in Jordan (Smith and Gilkes, 1956).

The marked clinical improvement that coincided with the start of penicillin treatment is also noteworthy. This might possibly have been the delayed result of tetracycline therapy, but the abrupt subjective improvement makes this unlikely.

Finally it is important that the virus appears to remain fully virulent after many egg passages. This strain had passed through 23 eggs, receiving a dilution of at least 10^{-2} at each inoculation. It had also been freeze-dried and transported from China to England.

Summary

A case of accidental infection with trachoma virus is reported, with subsequent re-isolation of the virus in eggs.

I am indebted to Dr. T'ang Fei-Fan and Dr. L. H. Collier who originally made the virus strain available to me, and to Mr. Evans and Mr. Barrie Jones for their clinical observations.

REFERENCES

- COLLIER, L. H., DUKE-ELDER, S., and JONES, B. R. (1958). *Brit. J. Ophthalm.*, **42**, 705.
— and SOWA, J. (1958). *Lancet*, **1**, 993.
SMITH, C. H., and GILKES, M. J. (1956). Unpublished observations.
T'ANG, F.-F., CHANG, H.-L., HUANG, Y.-T., and WANG, K. C. (1957). *Chinese med. J.*, **75**, 429.