the choroid, except the mere coincidence of their occurrence in the same patient.

No relative of hers that she knows of has had any kind of growth, or has been operated on for a tumour in the eye or elsewhere.

CIRCUMOCULAR FILARIASIS *

BY

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ON January 10, 1916, a Chinese named Jung, aged 25 years, yamen servant by occupation, came to the Eye Clinic of the Union Medical College Hospital, and stated that since the preceding summer there had seemed to be a "worm" or "worms" in his right eye.

A careful examination failed to disclose anything abnormal and I was prepared to ridicule his statement as on a par with the frequent ascription of trouble in any part of the body to "worms" in that region. However, the patient produced a bottle with a small object like a piece of white thread in it which he said he had removed from his eye two days before.

A very careful examination in the upper fornix revealed a moving body almost invisible against the conjunctiva.

After the eye had been cocainized, four white worms, like thread-worms, 8-13 mm. long, were removed from the fornices. None was discovered in the left eye.

On January 12, 1916, patient returned with the statement that on the previous day he had removed another worm from his right eye. On further investigation no more worms were to be seen.

Unfortunately, the man was allowed to go away without an examination of the fæces for the presence of parasites.

By a coincidence my wife had been at Tungchow a short time prior to this incident, and the Rev. T. Biggin, Professor of Biology in Tungchow Arts College, had told her that worms had been removed from the eyes of his pet dog. Mr. Biggin had preserved specimens of these worms, and kindly lent them for comparison with those from this patient. These parasites have been forwarded for identification to Dr. Henry S. Houghton, of the Harvard Medical School, Shanghai.

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Note upon Filarial Parasites from the Conjunctival Sac

BY

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Description of Specimens.

Specimen from dog.—Body filiform, cylindrical, white, attenuated at both ends, cuticle striated.

Mouth terminal, small, unarmed; œsophagus short (2 mm.) and without a bulb. Anus subterminal.

Male, 6 mm. in length and 0.3 mm. to 0.5 mm. in breadth. Tail curved at right angles to axis of body but not coiled. Four pre-anal papillæ, and a small post-anal projection.

Female, larger and thicker than the male, measuring 10-12 mm. by 0.8 mm. Vulvar opening close to anterior extremity. Uterine tubes crowded with eggs containing embryos.

Specimen from man.—The morphology is much the same as in the worms described above. The specimens from the human eye, however, are distinctly larger, the female measuring 14-15 mm., the male 9-10 mm. in length, and the bodies being correspondingly thicker.

Circumocular filariasis does not appear to be very uncommon in bovines. Worms infecting the eye of the ox were observed and recorded by Bartolomeo Grisoni early in the fifteenth century. Similar organisms were described in 1831 by Gurlt, and the name *Filaria lacrymalis* given to them. Raillet distinguished the filaria affecting the eye of the horse as a separate species, now known as *F. palpebralis*, Wilson.

These filariæ have also been described as having been found in cattle in France, Belgium, and India suffering from verminous conjunctivitis, of which disease they are said to be the cause. Photophobia, epiphora, corneal opacities, etc., are common results of the infection, though occasionally there may be no symptoms. This form of conjunctivitis appears to be rare in China. Dr. S. W. Pratt, M.R.C.V.S., tells me that though intra-ocular filariasis comes to his notice four or five times a year (mostly in imported horses), he has not heard of any cases of circumocular infection, either bovine or equine.

The specimens described above, found in the conjunctival sac of Dr. Stuckey's patient and of a dog, in my opinion, are *F. palpebralis*, Wilson, 1884. To this species is probably to be referred also *Agamofilaria palpebralis*, Pace, 1867, which was removed from a tumor in the upper eyelid of a boy. The clearest description of the worm I have been able to find is given by Lingard (*Jl. of Tropical Veterinary Science*, Vol. 1, No. 2, 1906), as follows:—

“*F. palpebralis* :—Male, length 6.3 mm. Body cylindrical, white

in colour, slightly attenuated at the extremities. The integument is coarsely serrated and finely striated transversely. The transverse markings at the cephalic extremity are 0.0140 mm. apart; at the junction of the anterior third with the middle third they average 0.0153 mm. apart, and on the posterior third, 0.010 mm. The

CIRCUMOCULAR FILARIASIS IN DOG (*Filaria palpebralis*, WILSON, 1884)

Fig. 1.—*F. palpebralis*. Natural size. Fig. 2.—Head of *F. palpebralis*. (×80.)

Fig. 3.—Tail of female *F. palpebralis*. (×80.)

Fig. 4.—Tail of male *F. palpebralis*. (×80.)

mouth is terminal and nude. Œsophagus straight, 0.444 mm. in length. Large intestine tortuous. Anus almost terminal. The tail is slightly curved forwards, small papillary post-anal projections; definite pairs of papillæ not observable. Two unequal spicules, one

CIRCUMOCULAR FILARIASIS.

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CIRCUMOCULAR FILARIASIS IN MAN (*Filaria palpebralis*, WILSON, 1884).

Fig. 2.—*F. palpebralis*, male. ($\times 12$.)

Fig. 3.—Head of *F. palpebralis*. ($\times 80$.)

Fig. 1.—*Filaria palpebralis*. Natural size.

Fig. 4.—Tail of female. *F. palpebralis*. ($\times 80$.)

Fig. 5.—Embryos of *F. palpebralis*. ($\times 320$.)

0.866 mm. in length, the other 0.152 mm, the former protruding 0.0172 mm. beyond the cloaca, the latter retracted.

Previous observers have given the length of the short and long spicules as 130 and 170 μ (*sic*!) respectively. In the above-mentioned specimen it will be observed the long spicule has attained a length five times that noted in the short."

There is considerable variation in the measurements given by different authorities. Neumann describes the male as 8 mm. and the female as 14-16 mm. in length, which corresponds to the measurements given above for the specimen secured from man. Those from the dog are decidedly smaller, though the morphological features are apparently identical. The measurement of the males approximates to the figures given by Lingard. Consequently, until careful comparisons have thrown more light on the matter, the worms may be taken as varieties of *F. palpebralis*.

THELAZIASIS IN MAN: A SUMMARY OF RECENT REPORTS ON "CIRCUMOCULAR FILARIASIS" IN CHINESE LITERATURE, WITH A NOTE ON THE ZOOLOGICAL POSITION OF THE PARASITE

BY

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IN the *China Medical Journal* of January, 1917, Dr. E. J. Stuckey¹ has recently brought under notice a new and interesting affection of the eye in man. A young yamen servant attended the eye clinic of the Union Medical College Hospital in Pekin, complaining that since the preceding summer there seemed to be a "worm" or "worms" in his right eye. He brought a bottle containing a small object, like a piece of white thread, which he said that he had removed from his eye two days before. Dr. Stuckey made a very careful examination, and an almost invisible body was seen moving in the upper fornix. After cocainization, "four white worms like threadworms, 8-13 mm. long, were removed from the fornices." On the following day the patient removed a further specimen himself.

In a succeeding number of the same journal, Dr. C. G. Trimble² gave a more detailed account of a similar case in a Chinese farmer of Fukien. This patient had "what appeared at first sight to be a marked ectropion of the right eye and a slight ectropion of the left." The clinical history of this case is as follows: "Three months previously he had noticed a pain or ache