

PARASITES.

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This section covers the literature of the subject from July, 1918, to October, 1919. For previous literature see A. J. O., 1918, November, p. 234.

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DIGEST OF THE LITERATURE

MYIASIS OF THE CONJUNCTIVA. — A case of kerato-conjunctivitis due to the larvae of *Rhinoestrus Nasalis*, (de Geer), was observed by Perez Buñill in a butcher 29 years old, who complained that a foreign body penetrated his eye the day before, and produced great itching and redness. On examination, a marked pericorneal injection in the superior and internal part of the eye and small conjunctival ecchymoses were observed. In the cornea, and on the caruncle appeared two small, thread-like bodies, which proved difficult to remove on account of their adherence to the tissues. The larvae were 1.20 mm. long by 0.20 mm. large. The *Rhinoestrus* is a fly which selects the eyes or the noses of the mammalia, especially the horse, to deposit its larvae, and is so swift in this operation that altho of a size of 8 to 11 mm., is not generally seen by the patient. Of the 700 or 800 larvae that fill its

abdomen from 4 to 8 are laid at once on the mucous membranes of the host. From the nose the larvae, by means of its hooks can progress and infect the frontal sinuses, pharynx and even the larynx.

Ophthalmomyiasis is very common in Siberia (Porthinsky) and has been found also in man, in Austro-Hungary, Italy, Algiers and Spain. Barsoum reports three cases of fly-blown orbits observed in Egypt, which were produced by the larvae from a sarcophagid fly identified as *Wohlfartia magnifica* (Schinner), and which is said never to enter homes. In the first patient, a child 2 years old, the lid of one eye was much swollen and sloughing in places. The condition gave rise to a most offensive odor, and the worms were so abundant that they dropped from the eye when the child walked into the clinic. One hundred larvae were removed from three large

pockets packed with worms, one between the eyeball and the nose, another on the upper aspect, and the third on the outer side of the globe. Treatment consisted in constant bathing with sublimat solution and fomentations with permanganat. On the second day the eye was eviscerated, and large maggots removed from behind the globe. The child died on the third day. No autopsy was made.

In the second case, a child one year old, a notch about 7.5 mm. wide was observed in the upper lid near the inner canthus and from it five worms were picked out. Two others were free in the culdesac. Recovery.

The third case occurred also in a child, 3 years of age, in whom a large ulceration of the orbital region near the outer angle, led to three pockets filled with larvae, one extending toward the lower lid, a second toward the temple, and a third below the inner canthus. Recovery.

The author refers to another three cases of myiasis described in 1915 by Azer Wahba, of Zagazig, but these were produced by the *Cordylobia anthropophaga*. Ticho, also, adds to the literature of ophthalmomyiasis.

EXTRAOCULAR CYSTICERCUS. -- **Gallemaerts**, has observed two cases of subconjunctival cysticercus. In the first, 8 days prior to the examination, a small growth, about 20 mm. diameter, appeared below the conjunctiva, between the superior and internal recti, near the limbus. In the beginning it was brilliant, slightly translucent, soft and not lobulated. The conjunctiva was thickened, and adherent to the mass, with a marked injection around. In opening the growth a white homogeneous and filaceous mass escaped, in which microscopic examination revealed many pus cells and a cysticercus.

The other case was also acute, the growth having been formed in 15 days below the conjunctiva, between the external and inferior recti. Its diameter reached about 12 mm. It had a violaceous color and was covered with highly injected conjunctiva. The pre-

auricular gland was enlarged and an abscess existed on the angle of the mandible. No diagnosis was made in this patient. An exploratory puncture was unsuccessful, but incision gave issue to a cyst, which proved to be a cysticercus.

INTRAOCULAR CYSTICERCUS. -- A rare case of cysticercus in the anterior chamber is reported by **Gomes**, the cyst being removed by a corneal incision. The same author has observed another patient with cysticercus in the vitreous in whom the operation was successful, against the ordinary rule, in such cases. He ascribes this gratifying result to his method, which purports a change in the position of the head. After a small "radial" incision of the sclera, the patient was raised to a sitting position keeping the head bent over one side, and the eyeball turned upward and inward, so as to bring the parasite close to the ground. Using the electric ophthalmoscope an attempt was made to grasp the vesicle with iris forceps; but failed. A second introduction of the forceps, however, seized the larva which was easily drawn out.

Gomes states that in Brazil only one other case of intraocular cysticercus has been reported. **Schieck** reports a case of intraocular cysticercus.

Uhthoff describes extraction of a cysticercus from the vitreous being the third he has made of intraocular cyst during the war, and the fourth case he has seen in that time among 2000 patients. Altho in peace generally one case is observed in 2000 patients, changed conditions and lack of sanitation have increased this proportion to 1:500 in war time. The soldier can get compensation when the cyst occurs after being on duty 5 or 6 months, as it can be safely assumed that from 4 to 5 months are necessary for the larva to fully develop in the eye.

The case of cysticercus in the vitreous reported by **Stock** was that of a soldier, who had noticed impairment of vision for six months. There was complete detachment of the retina, and clouding of the vitreous. The eyeball

was enucleated. Encysted in the vitreous was found the parasite clearly identified as *tenia solium*.

The case of subretinal cysticercus reported by Carsten occurred in an aviator who had been admitted to the service with sound eyes, but now came with vision in the right reduced to 1/50. In the macula was found a rounded area larger than the disc and of lighter color than the adjoining fundus. This area enlarged and became grayish white and within it the head of the parasite was detected. Operation was done about six weeks after the case was first seen. Meridional scleral incision was made with a Graefe knife, and the exposed cyst opened with iris scissors. Recovery was rapid, and at the end of a month vision had risen to 1/15. Carsten gives a general review of the subject with colored plates showing the appearances observed. Sattler also has reported a case of subretinal cysticercus.

FILARIASIS.—Elliot has reported a case of filaria moving freely under the conjunctiva. The patient contracted the disease in Benin City, which district is the principal endemic center in West Africa. The responsible fly, a common pest there, is of a yellow color and has been classified as *Chrysops dimidiata*. In this patient the movements of the worms in various parts of the body produced little inconvenience, but when moving in or near the eye and ear, gave rise to "maddening" pain, irritation and itching. The use of cocain instilled into the conjunctiva was very beneficial, and many times allowed the patient to rest and sleep, the parasite becoming sluggish in its movements, probably from the toxic influence of the drug. A subcutaneous injection of cocain made in the lid once for the purpose of extracting a worm, induced such swelling that the surgeon lost track of the parasite. When the edema subsided, the patient felt a linear immovable mass which was probably the dead filaria, and afterwards a cyst developed in the place which was incised and scraped.

The filaria travels very rapidly in the loose tissue around the orbit, and the patient stated that on two previous occasions, the removal of the worm from the eye, was followed shortly afterwards by the appearance of a second, possibly the male, in search for its mate. Several times two worms were felt at the same time, one around each eye. Two years after infection the first filaria removed was 60 mm. in length; seven years later another specimen had only 36.5 mm., and later even shorter worms were removed. This is against the common view. For attracting the parasite to the eye, Elliot used with complete success, hot fomentations, the larva appearing very soon below the conjunctiva, from where it was extracted after cocain instillation, by seizing it with a forceps, passing a thread around, and after incision with scissors, pulling it out gently.

McMurray after dealing *in extenso* with the description and life history of filaria loa refers to seven cases that he has been able to see or get definite information upon. All of them were missionaries or members of missionaries families located at Kamerun, West Africa. One patient, the wife of a missionary, had the first adult worm removed four years after infection, and the microfilaria in the blood 9 years later. The husband had numerous "Calabar swellings" but no adult worms were removed until 8 years after going to Africa. That shows the very slow development of the parasite in the human body. Their two children born in Africa were both infected. All worms that were removed in these patients, were from the eyelids or chest. In one of them could be seen, in these regions, numerous cicatricial lines, evidently outlined paths frequently traversed by the worms.

In the discussion of this paper, Vail referred to the case described by him in 1905, which he claims is the second observed in America, and emphasized Manson's theory of transmission of the filaria by a diurnal blood sucker.

Tomkins and Thurston have each

observed one case of *filaria loa* moving under the skin of the lids. Both patients came also from West Africa. Tomkins used for removal two forceps, one for catching the worm, and the other for drawing it out, twisting the body around the instrument to avoid rupture. The second author, not being able to see clearly the worm under the skin, painted it with iodine tincture and removed the parasite successfully.

Pacheco Luna confirms his previous views in regard to the classification of the filaria which he considers the cause of some intraocular changes (See O. Y. B. 1918, p. 236) altho waiting for **Ward** to give an expert opinion, he believes however that it is by no means the *Filaria bancrofti*, as Jackson suggested, but an *Onchocerca*, probably the *Onchocerca Volvulus* (Leuckart). **Izquierdo** who has studied comparatively Pacheco Luna's specimens does not give a definite opinion of their identity. **Jackson** points out the uncertainty and confusion that still prevail in science regarding filaria. A large accumulation of incomplete accounts still exists, and it is indispensable in future to secure the services of an expert biologist to obtain accurate reports; carefully preserved specimens being easily sent from any part of the world to larger centers. He considers as settled, that filaria loa enters the human host only in West Africa. Those found in the region of the eye are immature forms, the fully developed forms showing little tendency to migrate. *Filaria bancrofti* is widely distributed in tropical regions. The larval form infecting the blood at night has been called *Microfilaria nocturna* and *Microfilaria diurna* that which comes from filaria loa.

Other forms of filarial disease have

been described, but probably most of them were due to the species which infect the eyes of lower animals and accidentally gain admission to a human host. Within the eye, filaria has been observed in the anterior chamber by Barkan, and in a cataractous lens by Graefe.

Ocular Sparganosis. The *Sparganum Mansoni*, is a rare parasite, a cestode larva, which has been found once in the large serous cavities, four times in the genito-urinary system, twice in the limbs, and seven times in the adnexes of the eye. The adult form is still unknown, but has been tentatively classified in the family of the *Dibothriocephalides*. **Motais** who had observed a case, describes this parasite as a white, flattened, ribbon like worm, about 30 mm. long 1.7 mm. broad, which has been found in the pig in Japan, Africa, English Guiana, Tonkin and Annam.

His patient was a boy 11 years old, born at Hut (Annam), who had a tumor the size of a bean, in the upper and outer part of the upper lid, below the skin. The author mentions another case observed by Gaide and Rongier in a woman on whom swelling and redness of the lids, ptosis and exophthalmus with chemosis of the conjunctiva, were produced by small tumors localized below the lids and in Tenon's capsule. A pterygium was also present, which after incision proved to contain sparganus.

Ashikaga contributes a paper on ocular parasitic disease in Japan. His paper is illustrated, and gives a table covering reported cases in the literature from 1894 to 1910. **Kahn**, in a Heidelberg dissertation, takes up the subject of vegetable parasites in the eye of a dog.