

POROCEPHALUS ARMILLATUS* LARVAE PRESENTING IN THE EYE†

BY

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Case Reports

Case 1, a young West African from the Gold Coast, aged about 25 years, presented himself at the out-patients' department of St. Paul's Eye Hospital, Liverpool, complaining of defective vision in the right eye of several weeks' duration.

Examination.—There was a large shallow detachment in the upper temporal quadrant of the retina of the right eye extending almost from the disc to the periphery, the detachment deepening as it reached the periphery.

Running parallel to the periphery there was a crescentic ridge-like elevation in the detachment which on close observation was seen to be caused by a segmented worm-like object. The centre of the worm was covered by a thin transparent retina only, but the terminal portions plunged into the choroid so that the ends could not be seen.

There were no exudates or haemorrhages, nor was there any vitreous haze, but the retina, in addition to the crescentic folds of the detachment, was thrown into small radial folds as it mounted the convexities of the centrally-placed segments. Movement or pulsation was not noticed (Fig. 1).

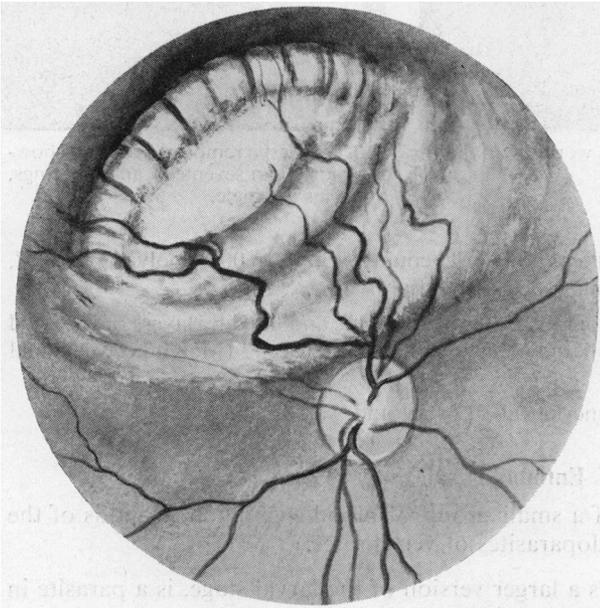


FIG. 1.—Fundus drawing showing retinal detachment in upper temporal quadrant. The crescentic ridge-like elevation shows the striking segmented appearance of the worm.

* Synonym *armillifer*.

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Result.—It was considered desirable to admit the man for further investigation and treatment, but, as he was a seaman and his ship was sailing the next day, he refused admission and he was not seen again.

Case 2, a Buganda child, aged 4 years, was brought to the clinic by her father with a history of a swelling in the eye for 4 months.

Examination.—The visual acuity was 6/6 in each eye. In the left eye in the lower fornix at the lateral angle was a cyst 5 mm. in diameter which contained a small cylindrical worm with prominent opaque transverse rings giving it a segmented appearance (Fig. 2).

The parasite was causing no local tissue irritation; there was no conjunctival injection, and no evidence of lachrimation or photophobia.

Operation.—The overlying conjunctiva was readily separated from the cyst wall, and the cyst was removed complete and placed in physiological saline. The worm lay coiled in the cyst with its ventral surface corresponding to the convexity of the curve. The sac was opened and a live larval form of *Porocephalus armillatus* was subsequently identified (Fig. 3).

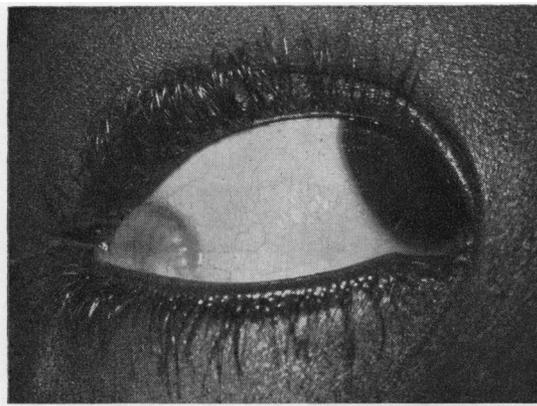


FIG. 2.—Subconjunctival segmented worm exciting no tissue response. $\times 1.5$.

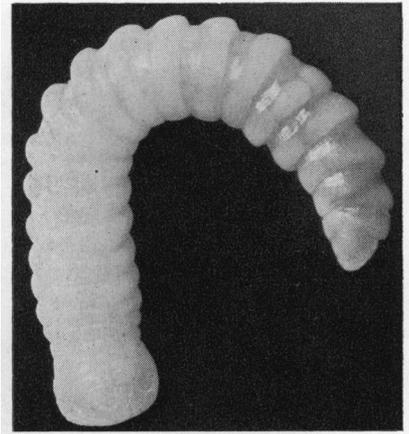


FIG. 3.—Larva removed from sac, showing more than seventeen annular rings, and thus a female. $\times 5$.

Laboratory Examination.—Differential cell count: total 16,000, polymorphs 37, lymphocytes 33, eosinophils 28, monocytes 1, basophils 1.

Histology.—“The cyst wall is composed of fibrous tissue and lined by layers of flattened mesothelial cells. No specific inflammatory reaction can be seen” (McKinney, personal note).

Result.—The child made an uneventful recovery and was discharged.

Entomological Note

Porocephalus is a member of a small group of blood-sucking arthropods of the class *Arachnida*, which are endoparasites of vertebrates.

Habits.—The adult, which is a larger version of the larval stage, is a parasite in the lungs, trachea, and nasal cavity of the West African royal python and three species of puff adder.

Life Cycle.—The elliptical double-shelled eggs $108 \times 80\mu$ contain developed embryos and are enclosed in a transparent shell. They are discharged in the nasal secretion and are viable in water or on the ground for several months. After ingestion by a suitable host, such as rats, cats, monkeys, goats, or chickens, an acariform larva is liberated with an anterior perforating apparatus, four legs with claws, and a terminally-spined tail. This larva pierces the intestinal wall, encysts in the mesentery, lymph glands, or liver, and loses its penetrating apparatus and claws. After a series of moults the encysted nymph resembles the adult. When the secondary host is ingested by a snake the nymphs develop into sexually-differentiated adults (Belding, 1952).

Larval forms have been described in giraffe, antelope, and man. In the Congo, Mouchet found encysted forms in 22.5 per cent. of autopsies; Löhlein found 7 per cent. and in the Eastern Province 5 per cent.; they were abundant on the mesenteric, peritoneal, and pleural surfaces (Brumpt, 1949).

While ingestion of water or food contaminated by respiratory tract secretions of snakes is described as the usual mode of transmission, it is more than possible that the direct eating of undercooked snake "steak" (which is reputed to taste like chicken and is common in certain tribes) may play an important role in human infestation.

Adult Worm.—The female adult worm is 9 to 12 cm. long with 18 to 22 annular rings. The male is 3 to 4 cm. long with 10 to 17 annular rings. The larva shown in Fig. 3 is therefore a female.

Larval Form.—The mouth opening (Fig. 4) is placed on a prominent papillae on the ventral surface lined by a chitinous ring and placed on either side of this papilla are two retractile chitinous rings.

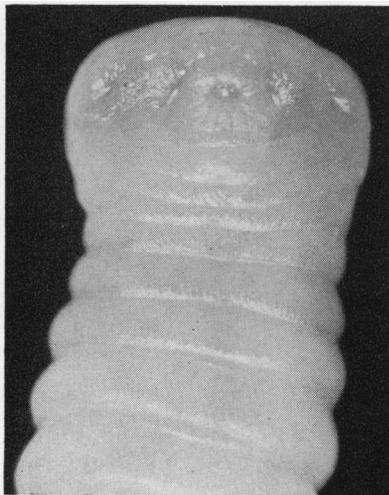


FIG. 4.—Mouth opening on a prominent papilla is easily seen. $\times 15$.

Summary

Two further cases of *Porocephalus armillatus* larva infestation of the eye are described. Two previous cases have been reported (de Coster and Rodhain,

1951; Gratama and van Thiel, 1957), both resembling Case 2 in that they occurred subconjunctivally. No positive diagnosis could be made in Case 1 as the patient refused operation and the condition had not at that time been described. We consider in retrospect that the appearances are so typical as to allow only the diagnosis of *Porocephalus armillatus* infestation.

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