ON THE OCCURRENCE OF *CÆNURUS GLOMERATUS* IN MAN IN WEST AFRICA.

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In May of this year, Dr. W. B. JOHNSON, of the West African Medical Staff, supplemented previous valuable gifts to the collections of the London School of Tropical Medicine by presenting to the Helminthological Department a cystic tapeworm, found by him in a tumour in a native of Kaduna, Northern Nigeria.

The tumour had been excised from an intercostal muscle. Dr. JOHNSON had duly recognised its parasitic nature, and, after incising the cyst, had cleared and mounted the lining membrane to shew the scolices.

Cystic tapeworms have been recorded on several occasions from the subcutaneous tissues of man. Almost without exception they have proved themselves to be examples of *Cysticercus cellulosæ*. Early this year FONTAN recorded a first case of infection with *Cysticercus bovis*. In these instances the cysts have resulted, most probably, from auto-infection, man being the normal host of the adult parasites, *Tenia solium* or *Tenia saginata*.

Dr. JOHNSON's cyst differs from the preceding, for it contains numerous "buds" or invaginated "heads," *i.e.*, is a *Cœnurus* larva. There are only three references in literature to the occurrence of the *Cœnurus* in man. Mention is made of this form in *Dissertationes anatomicæ metodo synthetica*, published by ROLFINKE in 1656. KLENCKE, in 1844, stated that he had seen a case. No details are given, and these records have always been regarded as of doubtful validity. In 1913 BRUMPT described and figured the first well-authenticated case in the third edition of his *Précis de Parasitologie*. The cyst occupied one of the lateral ventricles of the brain, and presented, according to BRUMPT, the same characters as the *Cœnurus cerebitalis* of sheep.

Our specimen is therefore the first *Cœnurus* found in the subcutaneous tissues of man.

Six different species of *Cœnurus* larvæ have been differentiated up to the present time, *viz.*, *C. cerebitalis* in sheep, *C. gaigeri* in goats, *C. serialis* in rabbits, *C. lemuri* in a lemur, *C. polytuberculosis* in a jerboa, and *C. glomeratus* in a gerbille.

The adults of the first three alone are known to occur in the dog. The other *Cœnurus* larvæ are rare, a single infection with each being recorded.

The various species of *Cœnurus* can be best distinguished by the size and shape of the hooks. By its hooks *C. glomeratus* can be easily differentiated. The handle of the hook is shortened and shows a characteristic notch. The blade is strongly curved. In these respects Dr. JOHNSON's specimen conforms exactly with the type specimen of *C. glomeratus* obtained by RAILLIET and HENRY in 1915, from the gerbille in Tunis.

Description of the parasite.—The tumour from which the cyst was removed measures 2 cms. by 1 cm. The wall of the cyst is very delicate and transparent, containing few calcareous bodies.

Projecting into the cavity of the cyst are about thirty-five buds or invaginated heads, which are so crowded with calcareous bodies as to be almost opaque.

The buds measure from 110μ to 120μ by 35μ to 45μ . Each bud contains an inverted scolex, bearing four suckers and a double crown of hooks. The suckers have a diameter of 130μ , and as a rule the hooks number thirty-two, viz., sixteen large and sixteen small hooks.

There is a certain amount of variation in the size and shape of the hooks in the group *Cœnurus* as in the genus *Tænia*. Usually, however, the hooks have a prolonged and sinuous handle from which the guard projects abruptly. In *C. glomeratus* the handle is short, stout and conical, merging gradually into the guard. From the broad base so formed a strongly developed and well-curved blade springs. RAILLIET and HENRY found that, in their specimens from the gerbille, the number of hooks varied from eighteen to thirty-four, that the large hooks measured from 96μ to 105μ in length, and that the small hooks measured from 58μ to 65μ . The highest figures given by them applied to the best developed hooks. These measurements are less than those obtained by us from Dr. JOHNSON's specimen, in which the large hooks measure from 90μ to 110μ , and the small hooks from 65μ to 70μ .

These differences are within the range of variation found by us to occur in the hooks of various buds taken from a single cyst of *C. cerebralis*.

In RAILLIET and HENRY's specimen the guard of the small hook is slightly bilobed, and the handle of the large hooks is characteristically notched on the dorsal or convex border, at a point one-seventh of the total length of the hook from the end of the handle. In these significant features our specimen tallies exactly.

The occurrence of *C. glomeratus* in man is apparently the result of accidental contamination with fæces from a carnivore harbouring the adult tapeworm, which, so far, has not been described.

Throughout this paper we have used the old descriptive term *Cœnurus* for the polycephalous larvæ, found in the genus *Tænia*, in preference to *Multiceps*, which has recently been revived as a generic name. We are not yet persuaded, on the facts available, that the occurrence of several scolices in a larval cyst is, of itself, a character of generic significance.

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