

Some Observations on Brood Capsules of Hydatid Cysts from Local Animals

by

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(With two Plates)

DURING a study of Hydatid cysts from goats, cattle and buffaloes from the Municipal slaughter-houses in Colombo, it was observed that some brood capsules contained several hundreds of scolices. It was also noted that there was a wide variation in the size of the brood capsule and also in the number of scolices within it. A search in the literature revealed that there has been no mention of such variations in the brood capsules of hydatid cysts. In fact Leuckart (1886) states that "Je alter die Brutkapsel wird, desto mehr wachst auch die Zahl der Insassen, so dass ich deren gelegentlich bis 12 und 15—Eschricht bis 22—haben zahlen können" and Thomas (1884) mentions that "the number of echinococci produced by the individual brood capsule may range from one to a dozen or more." Subsequent workers merely indicate that the brood capsule is as big as a pin's head and contains 10 to 30 or even more scolices. Cameron (1927) observes that "it is only when crowding occurs that scolices up to forty in number may be visible in a single capsule."

A detailed examination was undertaken to study this problem statistically and to find the actual range of scolices in the brood capsules and this is a preliminary report of the results thus obtained.

Material and Methods

The size of each cyst was noted before it was cut open into a petri dish. The brood capsules were collected and fixed in 5 % formalin in order to prevent them from rupture and collapse. Several brood capsules from each animal were examined under a binocular dissecting microscope. The variation in size of the brood capsules was noted (Figs. 1—5). About 8—10 brood capsules were picked up at a time, placed on a slide, cleared in lactophenol (Fig. 6) and the number of scolices in each was counted. Some brood capsules were fixed in formalin and sectioned (Fig. 7). A small number of brood capsules from imported goats and a few brood capsules in the daughter cysts from a human cyst in the departmental collection were also examined. Among local animals, hydatid cysts from 9 goats, 2 neat cattle and 3 buffaloes were examined.

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Results

The results are summarized in the table below.

<i>Animals</i>	<i>No. of Animals</i>	<i>No. of Cysts</i>	<i>No. of Brood Capsules Counted</i>	<i>Range of Scolices in a Brood Capsule</i>	<i>Avg. No. of Scolices in a Brood Capsule</i>	<i>Maximum No. of Scolices in a Brood Capsule</i>	<i>Avg. size of Brood Capsule.</i>
Local Goats	9	9	241	3—562	91.4	562	1.46mm. x1.43mm.
Local Cattle	2	9	266	2—170	54.3	170	} 0.61mm. x0.59mm.
Local Buffaloes	3	18	292	1—175	33.4	175	
Imported Goats	*	*	111	2—47	14.7	47	—
Man	1	1	116	1—30	7.07	30	0.19mm. x0.15mm.

(* From a bottle labelled 'Hydatid Cysts from Imported Goats' in the Departmental Collection containing more than one cyst from a number of animals.)

The larger brood capsule in local goats measured on an average 1.46 mm. by 1.43 mm. The maximum number of scolices noticed in local goats was 562. In local cattle and buffaloes the highest numbers counted were 170 and 175 respectively. The brood capsules measured on an average 0.61 mm. by 0.59 mm. The greatest numbers in the human case and in cysts from imported goats were 30 and 47 respectively. The brood capsule of the human cyst measured on an average 0.19 mm. by 0.15 mm.

Discussion

The section of the brood capsule (Fig. 7) shows a number of scolices lying free in the cavity together with scolices attached by means of pedicles to the wall of the brood capsule. These free scolices must have been originally connected to the wall by means of pedicles which were severed as more and more scolices made their appearance. This may have been the method by which these scolices have come to lie free in the cavity of the brood capsule.

A significant feature observed in our study was that there was a wide range in the number of scolices in the brood capsules of local animals. In other countries hydatid cysts obtained from cattle are reported to be normally not fertile; but almost all the cysts obtained from local cattle and buffaloes were fertile both in the present study as well as in the observations of Dissanaiké (1957). The seventh column in the table shows the maximum number of scolices counted in a brood capsule. The number of scolices per brood capsule for the local animals was far in excess of that mentioned by earlier workers. On the contrary the brood capsules in the human cyst and in the cysts from imported goats appear to show the usual number of scolices mentioned in the literature namely 1—30 or 40. One is tempted to suggest that there must be some physiological or ecological explanation for the high degree of fertility and for the large number of scolices in the brood capsules of the hydatid cysts in local animals. It will be interesting to find out whether such variations have been noticed in the hydatid cysts of man or animals in other countries.

Summary

1. The brood capsules of hydatid cysts in local animals have been shown to vary greatly in size and in the number of scolices within them.
2. As many as 562 scolices have been found in the brood capsule of local goats and 170 and 175 respectively in neat cattle and buffaloes. The brood capsules containing such large numbers of scolices range from 0.59 mm. to 1.46 mm. in diameter.
3. The unusually high degree of fertility of hydatid cysts from local cattle is confirmed.

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EXPLANATION OF FIGURES

PLATE I

- Figure 1.—Brood capsules from the daughter cysts of man. (X3.25).
- Figure 2.—Brood capsules from the cysts of local cattle and buffaloes. (X3.25).
- Figure 3.—Brood capsules from the cysts of local goats. (X3.25).

PLATE II

- Figure 4.—Brood capsules from local cattle and buffaloes. (X1).
- Figure 5.—Brood capsules from local goats. (X1).
- Figure 6.—A brood capsule, cleared in lactophenol, from a local goat showing over 300 scolices. (X4.8).
- Figure 7.—T. S. of a brood capsule from a local goat showing about 58 scolices. (X4.8).



