

LETTER TO THE EDITOR

TRANSPORTATION AND CLEAVAGE OF OVA IN FALLOPIAN  
TUBE OF RABBITS

Sir,

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The rate of transport of eggs (fertilized and unfertilized) from the fallopian tube to the uterus and the cleavage pattern of the fertilized eggs is species dependent (6). It is also possible that these parameters differ in the different strains of animals in the same species and also that they may be influenced by the environment. This prompted us to study the above mentioned parameters in indigenous albino rabbits adapted to tropical environmental conditions.

Fiftysix adult female indigenous rabbits (does) maintained at natural ambient temperature were utilized. Thirtysix of them were mated with intact bucks and laparotomized at different periods post-coitum (Table I).

The other twenty rabbits were mated with vasectomized bucks to study the rate of transport of unfertilized eggs in the fallopian tube. The method used for collection of ova is described earlier (3).

An account of the size and rate of cleavage of fertilized eggs collected at various intervals postcoitum is summarized in Table I and Fig. 1 (A-G).

An account of the fate of unfertilized eggs from pseudopregnant rabbits is summarized in Table II and Fig. 2.

*Fertilized eggs :*

The embryo in early blastocyst stage reaches the uterus between 72-96 hr. This coincided with the findings of others (4, 5). Besides it was noted that the embryonic mass was distinguished at 120 hr post-coitum at which time also the size of the eggs started increasing. The mucin layer which was initially thin, showed a remarkable

TABLE I : The rate of cleavage and time of entry of fertilized eggs in the rabbit uterus.

<i>Time between mating and egg recovery (hr)</i>	<i>No. of animals used</i>	<i>Cell stage</i>	<i>Diameter of egg (<math>\mu</math>) including zona pellucida</i>	<i>Thickness of mucin layer (<math>\mu</math>)</i>	<i>Location</i>
12	3	1-celled with numerous heads of sperm in perivitelline space.	162.13	No mucin layer	Fallopian tube
24	4	2-4 celled	174.8	22.40	-do-
36	3	4-8 celled	162.0	35.46	-do-
48	6	8-16 celled	172.2	62.06	-do-
60	3	16-32 celled	172.2	96.26	-do-
72	4	Late morula-early blastocyst.	174.8	157.70	-do-
96	6	Early blastocyst	382.26	No mucin layer	Uterus
120	3	Late blastocyst embryonic mass distinguished.	936.00	-do-	-do-
144	2	A well distinguished embryonic mass.	1900.00	Zona pellucida broken	-do-
168	2	Embryonic mass much enlarged	>2000.00	No zona pellucida	-do-

\*In one animal eggs were found in uterus.

TABLE II : Fate of unfertilized eggs in pseudo-pregnant rabbit.

<i>Time between mating and egg recovery (hr)</i>	<i>No. of animals</i>	<i>Cell stage</i>	<i>Diameter of egg (<math>\mu</math>)</i>	<i>Thickness of mucin (<math>\mu</math>) layer</i>	<i>Location</i>
24	4	1-celled	167.2	15.2	Fallopian tube
48	4	-do-	167.2	68.4	-do-
72	4	-do-	167.2	159.6	-do-
96	4	-do-	182.0	98.8	-do-
120	4	Unequal segmentation	174.4	98.8	Uterus

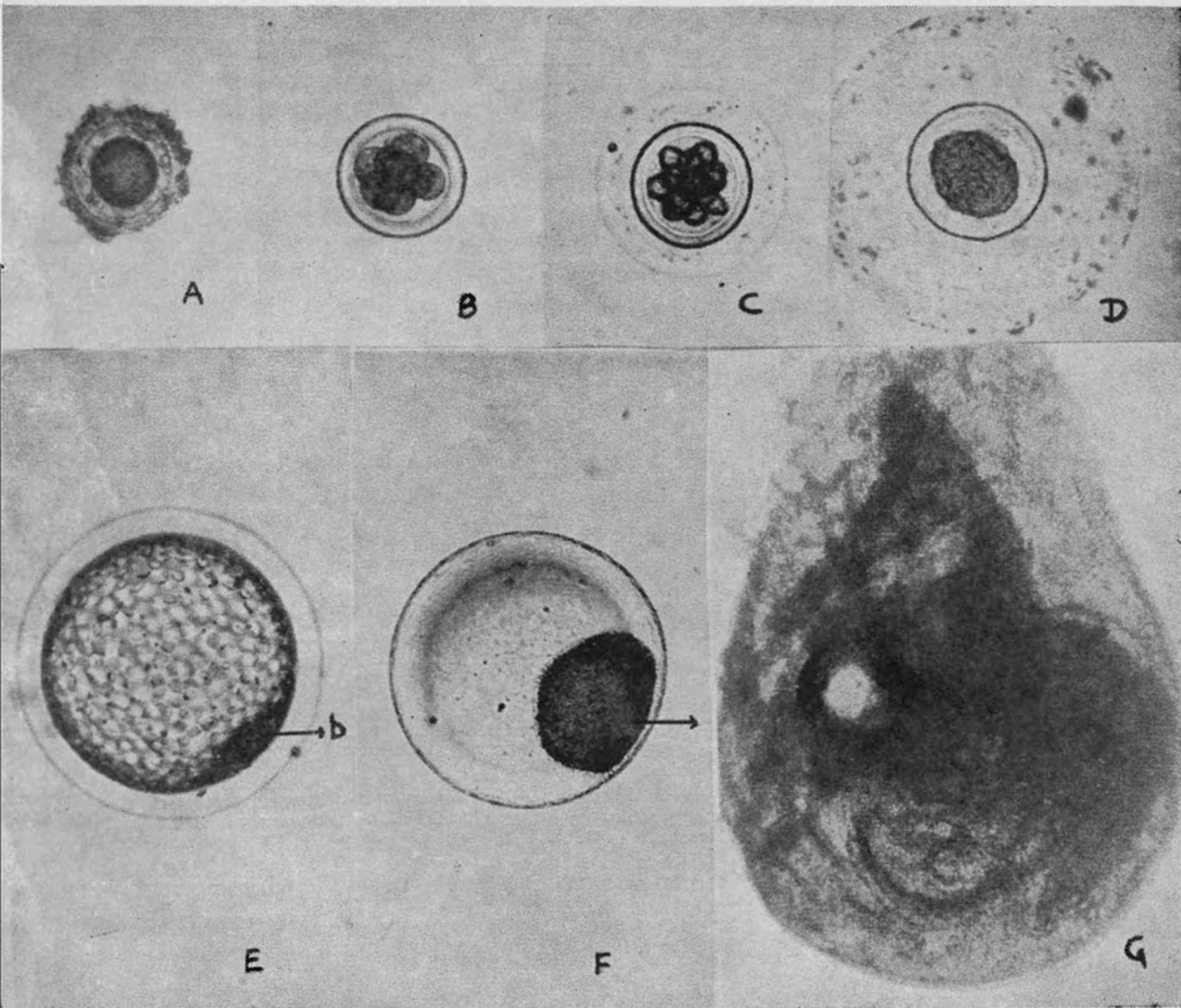


Fig. 1 : Showing the size and cleavage pattern of fertilized egg of doe 12, 36, 48, 72, 96, 120 and 168 hours post-coitum.  
A. Presence of sperms around zona pellucida and in perivitelline space (x 109).  
B. Blastomeres seen, with appearance of thin mucin layer around zona pellucida (x 109).  
C. Thick mucin coat seen (x 109). D. Increase in perivitelline space and of thickness of mucin coat (x 109). E. Late morula seen, with the formation of blastocoel. The mucin coat has disappeared (x 109). F. Blastocyst with the presence of an embryonic disc. (x 35). G. Large blastocyst with elongated embryonic mass (x 35).

increase in thickness and reached a peak of  $157.7 \mu$  in 72 hours after which no mucin layer was seen. Adams (1) has also reported a similar observation.

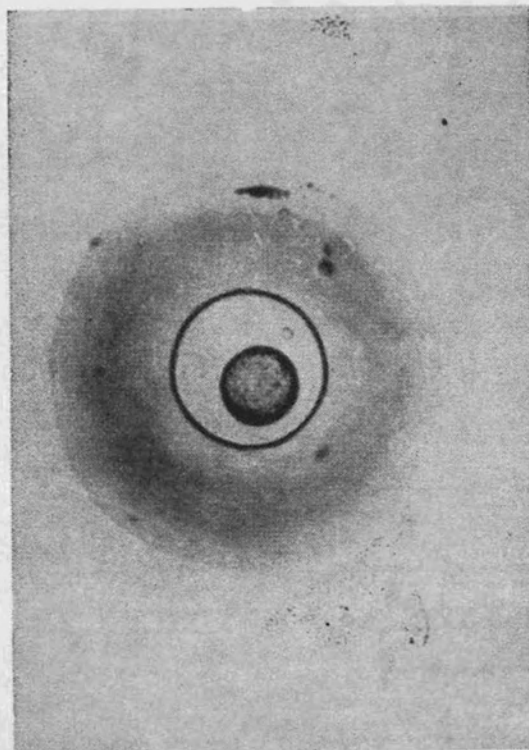


Fig. 2 : Showing an unfertilized ovum recovered from a doe 72 hours post-coitum by a vasectomized buck. There is a thick mucin coat around zona pellucida. The vitelline mass is shrunken, with a greater perivitelline space (x 109).

It is to be noted that, of the total number of eggs recovered from does mated with intact bucks, 94.2% were normal, undergoing cleavage. This is in agreement with the report of earlier workers (7). The remaining 5.8% of eggs exhibited abnormality in size, shape and segmentation.

*Unfertilized eggs:* The fate of unfertilized eggs recovered from 20 pseudopregnant rabbits has been presented in Table II. The first sign of degeneration in the vitellus was noticed at 120 hrs, p.c. The eggs recovered at this stage presented a shrunken appearance. Adams (2) reported similar observations. The unfertilized eggs seem to take more time to reach the uterus indicating slower rate of transport in the tube.

The above findings indicate that the rate of cleavage of fertilized eggs and the time of entry of fertilized/unfertilized eggs into the uterus do not apparently differ in the indigenous stock of rabbits adapted to a tropical environment.

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