Histological studies on Mongolian gerbils revealed that lesions not only develop during ischemia, but even after restoration of the circulation[18]. The two variables which determine lesion formation are the intensity of the ischemic episode and the duration of the post-ischemic interval. Once the ischemic threshold is reached, the time necessary for the development of lesions is a function of the initial ischemic interval. In this study, glycogen levels after 3 h of ischemia exceeded control values by 5 h of recirculation. Following 1 h of ischemia the elevation of glycogen was apparent only after 1 week of recirculation. The glycogen response during recovery supports the histological findings that the emergence of lesions occurs more rapidly with longer periods of ischemia.

Notes on the Sperm Morphology of *Ctenomys maulinus* (Rodentia, Octodontidae)[1]

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Summary. A morphometric study of the sperm of *Ctenomys maulinus* Philippi 1872 was carried out. A process of the postacrosomic region that probably corresponds to a permanent structure in the sperms of these rodents, and is characteristic of the genus, was observed.

Several authors[3-7] have stated that the form and diameters of mammalian spermatozoa are characteristic for each species. This has been observed even among strains[8].

There are few studies dealing with neotropical species. Among them, because of peculiar filogenetic and evolutionary traits of the group[9], those concerned with Octodontidae are of particular interest. In the progress of observations on spermatozoa of chilean rodents, it was found that one species, *Ctenomys maulinus* Philippi 1872[10] differed, compared with other known mammalian species, in the morphology of the postacrosomic region.

Fig. 1. Scheme of the sperm head of *Ctenomys maulinus*

In order to define this region, initially observed on slides obtained from macerated testis, the sperms were studied in 'im pronta' specimens from the cauda epididymis. Smears of spermatozoa obtained from 4 animals were airdried, fixed in 10% formaldehyde and stained with basic fuchsin, a technique which gave the best results.

The spermatozoa were screened under the microscope and measured using an ocular micrometer at magnifications of 250× or 2,250×. The following axes were measured: total length, length of the head, length of the acrosome, caudal edge of the anterior segment of the acrosome to the posterior ring, length of the postacrosomic process and maximal width of the head.

The acrosomic tip in the spermatozoal head of *C. maulinus* is rounded and the caudal edge of the postacrosomic region is concave (Figure 1). Thus the head of

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Measures of 50 sperms of *C. maulinus* ± SE

I	HL	AL	CE–PR	PPL	TL	WH	HL:AL
A	11.02 ± 0.07	8.61 ± 0.07[a]	8.39 ± 0.06	12.34 ± 0.16	86.0 ± 0.32	5.66 ± 0.04	1.27 ± 0.0079
B	10.83 ± 0.05	8.34 ± 0.05	8.49 ± 0.04	13.89 ± 0.13		5.82 ± 0.03	1.29 ± 0.0061
C	10.49 ± 0.08	8.15 ± 0.07	7.80 ± 0.05	13.42 ± 0.13[a]		5.34 ± 0.03	1.28 ± 0.0067
D	9.78 ± 0.07	7.64 ± 0.04	7.51 ± 0.04	12.86 ± 0.10		5.49 ± 0.03	1.27 ± 0.0065

I, individuals; HL, head length; AL, acrosome length; CE-PR, caudal edge of the anterior segment of the acrosome – posterior ring; PPL, postacrosomic process length; TL, total length; WH, width of the head; HL:AL, head length:Acrosome length. [a] 49 measures.

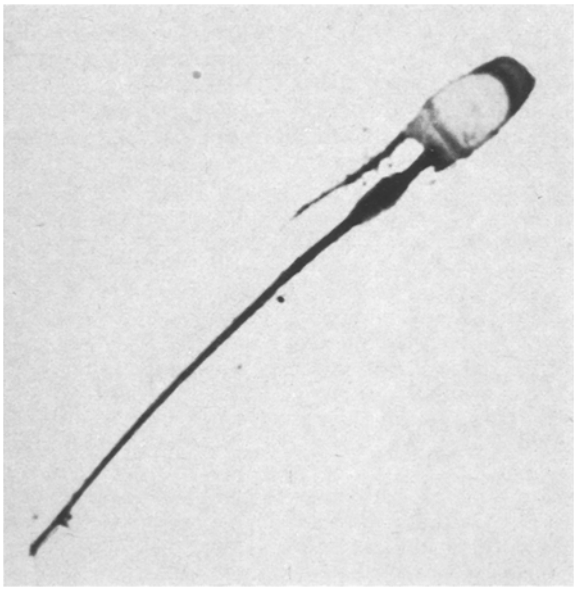

Fig. 2. Sperm of *Ctenomys maulinus* showing a cytoplasmic droplet in the midpiece.

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the sperm appearing paddlelike in shape in the smears. A conspicuous process, caudally oriented, originates from the posterior end of the postacrosomic region and runs parallel to the flagellum, which is seen displaced towards the opposite side of the head.

This postacrosomic process is longer than the anteroposterior diameter of the head (Table). The acrosome forms approximately $^3/_4$ of the head, excluding the postacrosomic process. The width of the head is roughly half its length.

In some spermatozoa, a cytoplasmic droplet is seen at the proximal segment of the tail, i.e. facing the postacrosomic process (Figure 2).

As can be seen in the Table, though head diameters fluctuated from one animal to another, the ratio length of the head/length of the acrosome was quite constant. The length of the postacrosomic process did not change significantly in the animals analyzed. Since it was also observed in unfixed material, it probably corresponds to a distinctive structure of *C. maulinus* spermatozoa.

The postacrosomic process may well be a generic characteristic, since a comparable structure has been found in different species of the same genus[11]. However it has not been observed in testicular sections of *Octodon degus*[12].

Hence it seems advisable to study more species of the genus *Ctenomys* and other Octodontidae, using more refined techniques, in order to gain a better understanding of the morphofunctional and evolutionary meaning of this structure.

Bacterial Endotoxin and Impaired Fetal Development

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Summary. Small doses of *E. coli* endotoxin given to pregnant mice on the 13th day of pregnancy caused only a mild maternal illness but induced resorption of approximately half the number of fetuses in each mouse. The remaining live fetuses developed normally and showed no evidence of retarded growth or malformations. The weights of their placentas and maternal spleens increased significantly. Endotoxin given on the 6th day of pregnancy caused a small reduction in fetal weights.

Fetal growth retardation, manifested by low birthweight, is recognized as an important problem in man and one which has also been identified in animals. From clinical studies in women and experiments in animals it is clear that subclinical or mild maternal infections are frequently associated with fetal wastage and retarded fetal development[2–5]. However, the effects of small amounts of endotoxin from Gram-negative organisms, which are frequently associated with bacteriuria in pregnancy[6,7] and premature delivery[8], have received little attention although the abortifacient activity of relatively large non-lethal doses are well established[9–11].

The present investigation, therefore, was undertaken to study the effects on fetal development in the mouse of relatively small amounts of endotoxin which caused only a very mild and transient disturbance of the mother's health. The endotoxin was administered on the 13th day of gestation after the development of placental circulation and on the 6th day of pregnancy before its development.

Materials and methods. An outbred strain of mice, TO/Crc, weighing 20 to 30 g were used throughout the study. The day on which the vaginal plug was found was taken as the 1st day of pregnancy. At the end of the experiment, on the 19th day of gestation, each animal was anaesthetized with ether then killed by dislocation of the cervical vertebrae. The fetuses and placentas were removed, examined macroscopically and then weighed. The fetuses were not examined for cleft palate.

Endotoxin. Each mouse was injected s.c. either on the 13th day of pregnancy, or on the 6th day, with the required amount of endotoxin (*E. coli* 0127:B8; Difco Laboratories) in 0.1 ml sterile phosphate-buffered saline (PBS). Control mice were each injected with 0.1 ml sterile PBS only. The significance of the effects of endotoxin treatment was assessed using *t*-tests.

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