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PRELIMINARY STUDY IN AFRICAN HEDGEHOG (*ATELERIX ALBIVENTRIS*) REPRODUCTION

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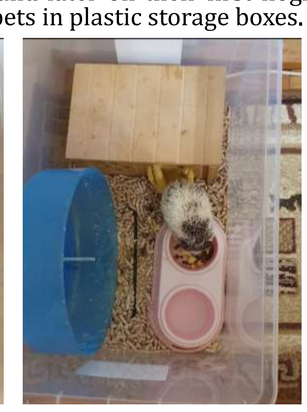
Abstract: Hedgehog domestication became popular in the 1980's. Despite some limitations in a few states of America, they are very famous there as pets. African hedgehog's popularity as an exotic pet increased in Romania in the last years . The objective of the study was to describe the reproductive behaviour and some reproductive parameters involving African hedgehog (*Atelerix albiventris*).The study was conducted for a period of six months on two mature African hedgehogs, male and female, aged ten, respectively six months and later on their first hoglet. The animals were kept in captivity as indoor pets in plastic storage boxes with wood shavings, natural paper bedding or cotton blankets as a substrate.
In the precopulatory, copulatory and postcopulatory stages, reproductive behaviour was observed. During this period, the female was monitored by vaginal cytology, performed twice a day vaginal smears and for the male the morphometric analysis of the spermatozoa was carried out. The gestation was monitored through inspection and weighing of the female. It was confirmed using the ultrasonographic examination. The parturition was observed by monitoring with a surveillance system inside the wood house where the female was sleeping. The female gained one hundred ten grams at the first pregnancy and ninety-four grams at the second one. The gestation lasted thirty-five days for the first mating and thirty-four days for the second one.

• Introduction

The African pygmy hedgehog (*Atelerix albiventris*) is the most commonly encountered species together with the European hedgehog (*Erinaceus europaeus*). They are native to a wide swathe of central Africa, from Gambia and Senegal in the west, to Somalia in the east, and also in eastern Africa, as far south as Mozambique. Their natural habitat is consisted of steppes, savanna and grassy areas. Hedgehogs are nocturnal, territorial, and solitary, except during courtship and when raising offspring. The sex of the hedgehogs can be determined by their external anatomy. The male has a prepuce located midway along the ventral abdomen, lacking the scrotum. The female urogenital system is located a couple of milimeters cranially from the anus.

• Material and method

•The study was conducted for a period of six months on two mature African hedgehogs, male and female, aged 10, respectively 6 months and later on their first hoglet (from birth until sexual maturity). The animals were kept in captivity as indoor pets in plastic storage boxes.



•The subjects were bred first time in the spring and the second time in the fall. For each breeding they were kept together for 10 days.

•They were observed while mating for four times, so the reproductive behaviour could be described later on.

•The female have had performed 2 vaginal smears daily (one in the morning and one in the night) for a period of 16 days in order to identify the vaginal aspects before, during and after the mating . Collection of the vaginal drainage was made using ear cotton buds. The Diff Quick and Harris Shorr staining was used for the vaginal smears.

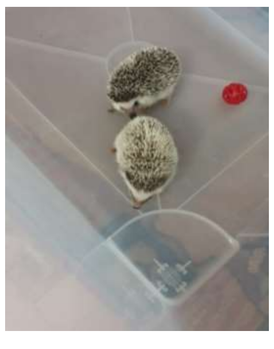
•Semen collection was made by female vagina leakage after the copulation. The female was exposed to the male for two times. Morphometric aspects were evaluates using the Diff Quick, Eosine and Spermac staining on sperm smears.

•Gestation was monitored by weighing the female weekly after the mating and daily since the fourth week after mating. After two weeks and a half since the first time they were seen mating, the female had an abdominal ultrasound examination. Five days before the expected parturition and five days after it, the female was not touched and disturbed at all in order to avoid stress.

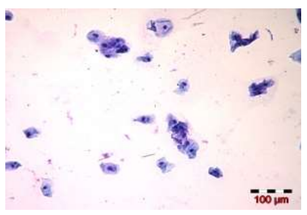
•The parturition was captured by the video camera (Xiaomi Mi Home Security Camera Basic 1080P).

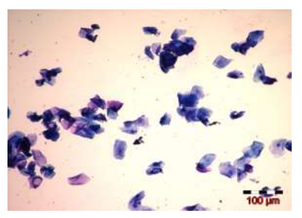
• Results and discussions

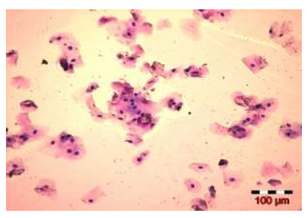
The following were observed and noted : the courtship ritual, the mating process, the gestation and the parturition. The courtship ritual started with the male getting close to the female. The male made some specific sounds (chirping) and the female was huffing. She was not sexually receptive at first, but after 10 minutes she showed interest in the male and stretched her hind limbs and also her front limbs and raised her posterior region allowing the intromission to take place.



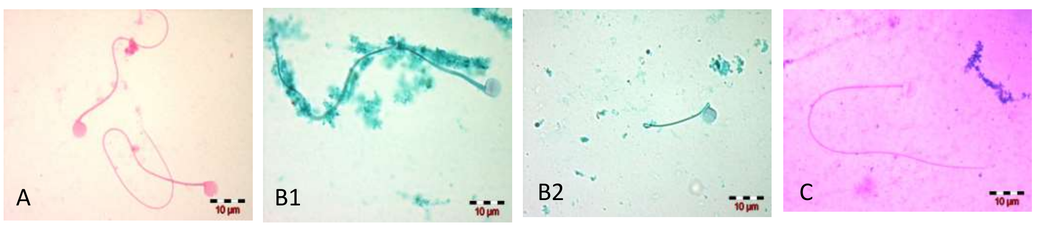
Vaginal cytology showed changes of the vaginal smears aspect before, during and after mating. In the period of the exposure to the male, the female's vaginal smears presented exclusively superficial epithelial cells showing the estrus stage.







All three stainings used for the morphologic analysis highlight very good the structural components of the spermatozoa and the spermatozoa with anomalies. At the morphometric analysis of the spermatozoa the next values were obtained: average of spermatozoa head longitudinal axis (4.13±0.17µm), average of spermatozoa head transversal axis (3.86±0.3), average of spermatozoa tail length (85.64±8.04µm). An abaxial insertion of the spermatozoa tail was observed in majority of the spermatozoa.



African Hedgehog spermatozoa stain with Eosin (A), Spermac (B1 & B2) and Diff Quick (C) x 100

At 19 days after the first mating the abdominal ultrasound was performed in the female and the gestation was confirmed. The gestation lasted 35 days for the first mating and 34 days for the second one. In the first gestation she gained 110 g (before-285g, after-395g) and in the second one 94g (before-306g, after-400g).

The parturition lasted approximatively 30 minutes. With 24 hours before the first parturition was described the loss of appetite, which was not observed for the second parturition of the same female. Prolificity for the second gestation was one hoglet and for the second one 6 hoglets, with a sex ratio of 5:1 (5 females to one male).

• Conclusions

Average gestation period is 35 days. During the gestation the female gained approximatively 100 grams.
The cytovaginal smears show changes during the mating stages.
The hedgehog spermatozoa presents a head almost rounded and a long tail of 85µm
The prolificity registered at both of the gestations belonging to the same female was of 1 , respectively 6 hoglets.