Data Note

Body morphometry of newborn cats

ABSTRACT

This study aimed to provide the body morphometric data of neonatal cats. A total of 48 neonatal cats (35 stillbirths and 13 live births) from the delivery of 13 queens were included for analysis. In all newborns, macromorphometric data were obtained, included weight, total length, crown-rump length, eye circumference, ear length, abdominal length, biparietal diameter, thoracic length, caudal length, and size of the thoracic and pelvic limbs.

Comment [a1]: including body weight, total body length

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Keywords: Anatomic mensuration, feline, morphometry, neonatology.

1. INTRODUCTION

The neonatal period in cats corresponds to 30 days and is characterized by a critical period of adaptation of the organic systems to the new environment. The first minutes of life after birth represents the most critical phase for neonatal animals (Gropetti et al. 2015). Feline neonatal mortality in the first weeks of life reaches approximately 30% (Silva et al. 2008, Mila et al. 2014). but can reach more than 50% depending on the type of delivery (Löhr, 2011). The inability to perform the correct clinical analysis and lack of technical-scientific knowledge are the main causes of the high rates reported (Silva et al. 2008).

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The most delicate phase of neonates occurs shortly after birth (Gropetti et al. 2015). In the first 24 h, the newborn loses about 10% of its weight owing to dehydration and suffers from loss of wraps and fetal fluids (Domingos et al. 2008). Thus, it is important for the veterinarian to properly assess the parturient to select the best approach (normal delivery or cesarean section) (Domingos et al. 2008; Siena; Milani, 2021).

Morphological studies are relevant aspect of neonatology. These data are scarce for neonatal cats, but necessary, since established morphometric patterns may be used as guidance for examinations such as ultrasonography, providing an early diagnosis in morphological changes (Siena; Milani, 2021) and cranial formation disorders, for example, open fontanel opening and hydrocephalus (Vannuchi; Abreu, 2017). Morphometric data of animals soon after birth are useful parameters for acquiring information that contribute to the development of kittens, identification of structural abnormalities, clinical anatomy, and external morphology, in addition to guiding the neonatologists to perform general clinical examination post-delivery (Silva et al. 2015; Siena; Milani, 2021).

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Considering the scarcity of morphological information on feline neonates, the objective of this study was to collect data on the body morphometry of feline neonates.

METHOD

The procedures performed during the experiment were approved by the Ethics Committee on Animal Experimentation at the institution where it took place (protocol 272/16).

The study was conducted with 48 neonatal cats (35 stillborn and 13 alive) from 13 pregnant cats treated in a Teaching Veterinary Hospital (TVH). Parturients were weighed before and after parturition.

RESULTS AND DISCUSSION

All neonates were identified by sex and weighed on a precision digital scale (Mars/AY220) to obtain the body mass. All neonates underwent a macro-morphometric analysis using a precision digital pachymeter (Lee Tools - 150 mm). The analysis included total length (mm) (Figure 1A), cranial length (mm) (Figure 1B), crown-rump (measure from base of head to base of tail) (mm) ((Figure 1C), ocular perimeter (mm), auricular length (mm), abdominal length (mm), biparietal diameter (mm), thoracic length (mm), caudal length (mm), and weight (g). Thoracic (mm) and pelvic limbs (mm) size were also measured (Table 1).The data obtained were tabulated in Excel 2011. A descriptive analysis of the study variables was performed to determine means and standard deviations (Table 1).

Fig. 1Macromorphometric data of feline neonates. A: Full length; B: Cranial length; C: Crown-rump.

Table 1. Body morphometry means and standard deviations (mm), and weight (g) of neonatal cats

VARIABLE	N	MEAN	STANDARD DEVIATION	CV (%)
Cranial length (mm)	48	38.8	15.61	40.23
Crow-Rump (mm)	48	102.95	15	14.57
Eye length (mm)	48	9.74	3.7	37.99
Ear length (mm)	48	15.95	4.19	26.27
Abdominal length (mm)	48	41.96	7.98	19.02
Biparietal diameter (mm)	48	24.43	4.43	18.13
Thoracic length (mm)	48	35.77	5.57	15.57
Thoracic limb size (mm)	48	68.64	8.16	11.89
Pelvic limb size (mm)	48	69.5	8.25	11.87
Tail length (mm)	48	63.95	14.04	21.95
Weight (g)	48	83.88	13.25	15.80

N: number of neonates; CV: coefficient of variation.

Comment [a13]: if possible, kindly furnish a table showing stillbirths and live kittens per queen. Calculated percentage of still births can also given in same table. This will also add more value to the paper. Whether all cats were from same breed? Please mention. If not of same breed, then kindly give data addressing breed of each cat under study in table mentioned above.

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Comment [a15]: Please mention how was it measured...from ...to.

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Parametric t-student statistical tests were performed to compare the mean weights of the neonates in relation to the birth situation (Table 2).

Table 2. Mean birth weight (g) of neonatal cats born from 13 female cats treated in a Teaching Veterinary Hospital (n=48).

situation at birth	mean (g)	standard deviation	CI* (95%)
dead (35)	82.73	13.32	(78.15, 87.30)
Alive (13)	87	13.06	(79.11, 87.30)

**Confidence interval*

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ETHICAL APPROVAL

All authors hereby declare that "Principles of laboratory animal care" (NIH publication No. 85-23, revised 1985) were followed, as well as specific national laws where applicable. All experiments have been examined and approved by the appropriate ethics committee (Protocol 272/16).

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