

Age at preputial detachment and penile release in mithun (*Bos frontalis*) bull calves

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In mithun, due to paucity of literature it is not known when complete separation of penis from prepuce takes place. It is pertinent to mention over here that mithun is a unique wild/semi-wild animal under *Bos* species, which occupies an important position in the socio-economic life of the tribal people of North Eastern India (Bhattacharyya *et al.* 2005). Determining the age at preputial detachment is another criterion for predicting age at puberty. The present communication reports on determining the age at preputial detachment and penile release in mithun bull calves.

The present study was conducted at the National Research Centre on Mithun (NRCM), ICAR, Jharnapani, Nagaland, India. Mithun bull calves (7) were selected and reared under semi-intensive system of management in the farm along with other animals of the farm. The semi-intensive system included feeding of concentrate in the morning and evening followed by grazing between the 2 feeding periods. All the calves were allowed to run along with oestrus female at weekly interval in open paddock and were observed for separation of penis from prepuce. At the time when separation of penis from prepuce took place, scrotal circumference, testis length (TL), testis breadth (TB) and testis thickness (TT) were measured as per Bhattacharyya *et al.* (2007). Testicular volume was measured by the formula $0.523 \times (TL) \times (TB)^2$ as described by Bailey *et al.* (1996). Testicular measurements were taken separately for right and left testis and average value was considered as mean value.

The average age, body weight, heart girth, scrotal circumference and testicular measurements of the experimental calves at complete penile detachment are shown in the Table 1. The complete detachment of penis from prepuce occurred at an average age of 48.28 ± 1.30 weeks when the average body weight was 184.43 ± 2.72 kg. The earliest age and latest age at complete release of penis in mithun bulls were observed at an age of 42 and 53 weeks respectively. The age at

Table 1. Mean age, body weight, scrotal circumference and testicular measurements of mithun bulls at complete preputial detachment and penile release

Attributes	Mean $\pm$ SE
Age at preputial detachment (weeks)	48.28 $\pm$ 1.30
Body weight (kg)	184.43 $\pm$ 2.72
Heart girth (cm)	129.50 $\pm$ 2.11
Scrotal circumference (cm)	14.43 $\pm$ 0.53
Testicular measurements	
Testis length (cm)	4.63 $\pm$ 0.04
Testis breadth (cm)	2.28 $\pm$ 0.29
Testis thickness (cm)	2.67 $\pm$ 0.13
Testis volume (cm ³)	12.6 $\pm$ 0.30

complete preputial detachment and penile release in mithun bulls occurred at a later age than those reported in cow bulls (Almquist and Amann 1976, Patel and Singh Laishram 1996). Scrotal circumference in mithun bulls (14.43 ± 0.53 cm) at the time of complete preputial detachment was also lesser than that in cow bulls (Patel and Singh Laishram 1976). However, similar scrotal circumference at the time of 12 months of age was recorded in Swamp buffalo of Assam when animals attained average body weight of 132 kg (Ahmed 2006), although results with respect to scrotal circumference at the time of complete preputial detachment in this species is yet to be ascertained. The factor for lesser scrotal circumference recorded in mithun bulls at the time of complete preputial detachment from penis may be attributed to species variation only. From the above study it can be concluded that complete separation of penis from prepuce in mithun bulls normally occurs at a later stage than that in cow bulls.

SUMMARY

Apparently healthy mithun bull calves (7) were allowed to run along with oestrus female at weekly interval to determine the age at preputial detachment and penile release. Mean age at preputial detachment and penile release in mithun calves was recorded as 48.28 ± 1.30 weeks when the average body weight was 184.43 ± 2.72 kg.

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