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Parturition of a Sunda colugo

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Subjects: Sunda colugo, *Galeopterus variegatus* (Mammalia: Dermoptera: Cynocephalidae).

Subjects identified by: Heng Yirui and Craig Justin Tan.

Location, date and time: Singapore Island, Mandai Lake Road, in the compound of Singapore Zoo; 31 May 2020; 1345 hrs, 1415-1500 hrs and 1700-1800 hrs.

Habitat: Suburban parkland and secondary forest.

Observers: Heng Yirui, Craig Justin Tan, Chong Shin Min, Delia Chua and Shangari d/o Sekar.

Fig. 1. Lateral view of apparently lifeless neonatal colugo attached to its mother. Photograph by Heng Yirui

Observation: At 1345 hrs, an adult female colugo was sighted on a *Pommetia pinnata* tree along a boardwalk. The animal had her back arched and tail slightly lifted from the tree trunk she was resting on. There was an attachment at the caudal opening of the animal, which on closer observation, was revealed to be a neonatal colugo (Fig. 1). Approximately 10 cm of the neonate was visible and its colour was a healthy brown-pink. The thoracic limbs of the neonate could be seen, with the right forelimb completely extended and the left forelimb flexed at the level of the elbow. Both eyes of the neonate were partially open throughout the entire duration of observation. The animal was dry and not covered in an amniotic sac or amniotic fluid, although spots of meconium were observed along the dorsum. No voluntary movement of the limbs or facial features of the neonate was observed. Flies were observed hovering around and landing on the neonate.

From 1415 to 1500 hrs, the adult colugo was stationary for most part of the observation, although small movements were observed of her lifting her tail slightly higher, then relaxing it to the original arched position. She subsequently climbed further up the tree with the neonate still firmly attached to her. The colour of the neonate had become a much darker brown (Fig. 2). From a new visual angle, the left distal hind paw of the neonate could also be seen.

During a follow up observation in the evening from 1700 to 1800 hrs, the female colugo was found on a *Syzygium oblatum* tree, about 10 m away from the tree which she was seen on earlier (Fig. 3). There were no signs of the neonate being present and her entire body was flushed to the tree trunk. The female was engaged in extensive grooming procedures, often with her back arched and tail curled inwards, with rapid head motions grooming what seemed like her caudal opening. This constituted approximately 60% of her 45 minute grooming activity. The rest of the grooming actions were concentrated on both patagia.

Fig. 2. Neonatal colugo (indicated with arrow) with flexed pelvic limb.

Fig. 3. Mother colugo grooming herself.

Photographs by Heng Yirui

Remarks: The Sunda colugo occurs in Singapore, particularly at the Bukit Timah and the Central Catchment Nature Reserves, and there is a sizable population of wild individuals at the Singapore Zoo (Lim, 2008).

It is likely that the featured animal was in labour at the time of observation. The small movements of her tail were likely signs of contractions, which is common during mammalian parturition. (Young et al, 2011). It is unknown if the neonate was alive at the point of observation, and what had happened to it after parturition. Attempts to locate the newborn colugo on the mother and on the ground were unsuccessful. It is also unknown if the length of time of parturition is normal for the species. This is the first documentation of colugo parturition known to the authors.

The observers could not detect any signs of life in the colugo neonate, and it seemed to be stuck at the level of its mother's pelvis for an extended period of time. The head or shoulders are the widest points on the neonates of humans and other primates (Trevathan, 2015), which implies that dystocia secondary to foetal oversize is unlikely in this scenario as both anatomic features of the neonatal colugo had successfully passed through the maternal pelvis. What is unusual when compared to other mammalian delivery processes is that despite the foetus being stuck in the birth canal, the left hind paw, which is usually the last anatomic feature to exit the birth canal, could be visualised. This could be a case of foetal malpresentation, which would explain the extended period of maternal straining and the prolonged parturition process. Another possibility is that the umbilical cord between foetus and mother had not yet severed, hence the appearance of the neonate being stuck to the mother.

The Philippine colugo (*Cynocephalus volans*) has been documented to spend approximately 8.82 percent of its day grooming itself (Lim, 2008). The extended length of time at which the featured adult Sunda colugo was seen grooming herself is likely to clean herself of birth fluid and potentially that of her neonate as well.

References:

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