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SHORT NOTE

BIOMETRICAL ANALYSIS OF SCAPULA BONE OF FISHING CAT, LEOPARD CAT AND SMALL INDIAN CIVET

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The fishing cat (*Prionailurus viverrinus*) is a medium-sized wild cat with a sporadic distribution in mangroves, wetlands, rivers, and swamps in parts of South and Southeast Asia (Nowell and Jackson, 1996). The fishing cat is in the red list of IUCN as vulnerable (IUCN, 2016). The fishing cat is the state animal of West Bengal (India). The leopard cat (*Prionailurus bengalensis*) is a small wild cat native to the South and East Asia (Ross *et al.*, 2015). Since 2002, it has been assessed as least concern on the IUCN red list as it is widely distributed but threatened by habitat loss and hunting in parts of its range (Ross *et al.*, 2015). The small Indian civet (*Viverricula indica*) is a civet found in South and Southeast Asia. It is in the least concern list of IUCN because of its wide geographical distribution (Choudhury *et al.*, 2015). Scapula is an important bone responsible for the movement of forelimb. The research related to the biometrical analysis of scapula of fishing cat, leopard cat and small Indian civet are lacking, so the present investigation was conducted.

The biometry of scapula bones of two fishing cat, one leopard cat and two small Indian civets were studied. The bones were collected from the section of Veterinary Anatomy, IVRI, Izatnagar (India). The biometrical data were recorded with the help of a thread, scale and Vernier calipers. Biometric parameters of scapula bone of the above animals included in the study were:

1. Scapular index = Maximum width of scapula × 100/Maximum length of the scapula
2. Supraspinous length: Maximum length of supraspinous fossa
3. Supraspinous width: Maximum width of supraspinous fossa
4. Supraspinous index = Maximum width of supraspinous fossa × 100 /Maximum length of supraspinous fossa
5. Infraspinous length: Maximum length of infraspinous fossa
6. Infraspinous width: Maximum width of infraspinous fossa
7. Infraspinous index: Maximum width of infraspinous fossa × 100/Maximum length of infraspinous fossa
8. Spine height
9. Spine length
10. Diameter of glenoid cavity

The biometrical data of scapula bones is shown in Table 1. The scapular index was highest in fishing cat and small Indian civet and lowest in leopard cat. It means the scapula of the fishing cat and small Indian civet were less elongated and widest, whereas the scapula of leopard cat was more elongated and less wide (Fig. 1-3). Swimming and climbing animals had wide scapula (Charles, 1980). It is similar to our findings as fishing cat and Small Indian civets are good swimmer and climber. The supraspinous index was higher in leopard cat and fishing cat and lowest in small Indian civet and the differences were 2.5 times. It means supraspinous fossa were wider in leopard cat and fishing cat and

Table 1: Biometrical data of scapula bones of fishing cat, leopard cat and small Indian civet (in cm)

Parameters	Fishing cat	Small Indian civet	Leopard cat
Scapular index	79.6	76.0	63.1
Supraspinous length	8.9	13.5	7.0
Supraspinous width	3.1	2.5	3.3
Supraspinous index	34.8	18.5	47.1
Infraspinous length	8.9	6.7	7.0
Infraspinous width	4.6	3.2	3.1
Infraspinous index	51.7	47.7	44.2
Spine height	1.8	1.3	1.3
Spine length	10.3	7.2	7.6
Diameter of glenoid cavity	1.5	2.2	1.2

narrowest in small Indian civet. Gálvez-López (2020) reported that aquatic carnivorans had the widest supraspinous fossa. This scapular morphology had made the leopard cat and fishing cat good swimmer. The infraspinous index was the highest in fishing cat and lowest in leopard cat and small Indian civet. The infraspinous index was higher than the supraspinous index but in leopard cat, it was almost similar. The differences between supra-spinous index were highest in small Indian civet (2.5 times). The spine was the highest in the fishing

Fig. 1: Scapula of fishing cat

Fig. 2: Scapula of small Indian civet

Fig. 3: Scapula of leopard cat

was the highest and lengthiest in the fishing cat but almost similar in leopard cat and small Indian civet. The diameter of the glenoid cavity was highest in small Indian civet but lowest and almost similar in leopard cat and fishing cat. This could be linked with a higher degree of manipulation as present in small Indian civet (running, digging and climbing). It is hoped that the present study will be helpful for biomechanics, wildlife or zoo veterinarians, clinicians, conservationists and ethologists.

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