

ORIGINAL ARTICLE

Osteomorphology of Femur of the Asian Palm Civet (*Paradoxurus hermaphroditus*)

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ABSTRACT

Gross osteomorphometrical study was conducted on the femur of 3 adult Asian palm civets. It was the longest bone of the appendicular skeleton. Except the extremities, the shaft was regularly cylindrical. The mean circumference of the shaft was measured to be 3.17 ± 0.15 cm, 2.55 ± 0.08 cm and 3.57 ± 0.22 cm at its upper, middle and lower parts, respectively. Proximal extremity of the femur comprised of head, greater trochanter, and deep trochanteric fossa. Trochanter major was lower in position than the head. The mean circumference and width of the proximal extremity was 4.71 ± 0.21 cm and 1.27 ± 0.05 cm, respectively. Distal extremity of femur was larger than proximal extremity. It consisted of trochlea, cranially and condyles, caudally. The mean circumference and width of distal extremity were 5.02 ± 0.63 cm and 1.61 ± 0.06 cm respectively.

Keywords: Asian palm civet, femur, morphology, morphometry.

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INTRODUCTION

The Asian Palm Civet also called toddy cat, is a small member of the family Viverridae native to South and Southeast Asia. It is widely distributed with large populations that in 2008 were thought unlikely to be declining [1]. The scientific information and literature on femur of Asian Palm Civet is meager for the reason of which the present study was carried out to illuminate the osteomorphometrical features of the femur of Asian Palm Civet.

MATERIALS AND METHODS

Gross morphological and morphometric study was carried out on femur of three adult Asian Palm Civets. The data collected were analyzed for mean and standard error as per the standard procedure [2, 3].

RESULTS AND DISCUSSION

Femur was the longest bone of the appendicular skeleton of Asian palm civet. It was strong, heavy and cylindrical, directed downward and forward in an oblique manner. It articulated with acetabulum to form hip joint and with, tibia, fibula and patella below to form stifle joint. It presented a shaft and two extremities (Fig 1). The shaft was cylindrical except at the extremities [4, 5]. The mean circumference of the shaft was 3.17 ± 0.15 cm, 2.55 ± 0.08 cm and 3.57 ± 0.22 cm at its upper, middle and lower parts, respectively (Table 1). Lateral, medial and cranial surfaces were smooth except proximal part of the cranial surface was rough. The caudal surface was rough in its upper third and smooth and expanded at its lower third. This finding was similar to that of Devendra *et al.* [5] in leopard whereas Ray *et al.* [6] reported that caudal surface was flat and smooth in leopard. The lesser trochanter was in the form of a small tuberosity, situated at the upper part of medial border (Fig 1). Distal part of the medial border presented rough prominence known as medial supracondyloid crest in the form of rough prominence. At the same level, towards the lateral side, lateral supracondyloid crest was present (Fig 1). Proximal extremity of the femur comprised of head, greater trochanter, and deep trochanteric fossa. Trochanter

major was at the same level in position with that of the head (Fig 1). The mean circumference and width of the proximal extremity measured 4.71 ± 0.21 cm and 1.27 ± 0.05 cm, respectively (Table 1) whereas Ray *et al.* [6] recorded the same parameters 11.2 cm and 14.00 cm respectively in the leopard. The head of femur was smooth, spherical and placed medially [4]. The mean circumference and diameter of the head was 3.98 ± 0.10 cm and 1.27 ± 0.18 cm respectively. It articulated with the cotyloid cavity of oscoxae to form hip joint. The fovea capitis was in the form of small sulcus at the center of the head (Fig 1). Neck was prominent medially. On the lateral side of proximal extremity, there was compressed mass of bone known as greater trochanter and had rough muscular lines for muscular attachment. Trochanteric ridge connected greater and lesser trochanter and was oblique. This observation coincided with that of the report of Devendra *et al.* [5] in leopard, Pandit [4] in tiger. Riser [7] and Evans and Christensen [8] had reported two trochanter in dog. . Between neck and greater trochanter, there was a deep depression, the trochanteric fossa (Fig 1). The mean depth of trochanteric fossa was 0.20 ± 0.03 cm. Distal extremity of femur was larger than proximal extremity. It consisted of trochlea, cranially and condyles, caudally. The mean circumference and width of distal extremity measured 5.02 ± 0.63 cm and 1.61 ± 0.06 cm respectively (Table 1). The trochlea was 1.25 ± 0.10 cm wide. The medial ridge of the trochlea was lower and shorter than lateral ridge (Fig 2). The lateral aspect of both the condyles was rough and presented shallow depression. The lateral condyle was slightly lower in position than the medial condyle. The medial condyle was regular and more convex than the lateral condyle (Fig 1). However, Evans and Christensen (1979) reported that the medial condyle was smaller and less convex than that lateral condyle in dog. The intercondyloid fossa was wide and rough. The mean depth of intercondyloid fossa was 0.37 ± 0.04 cm.

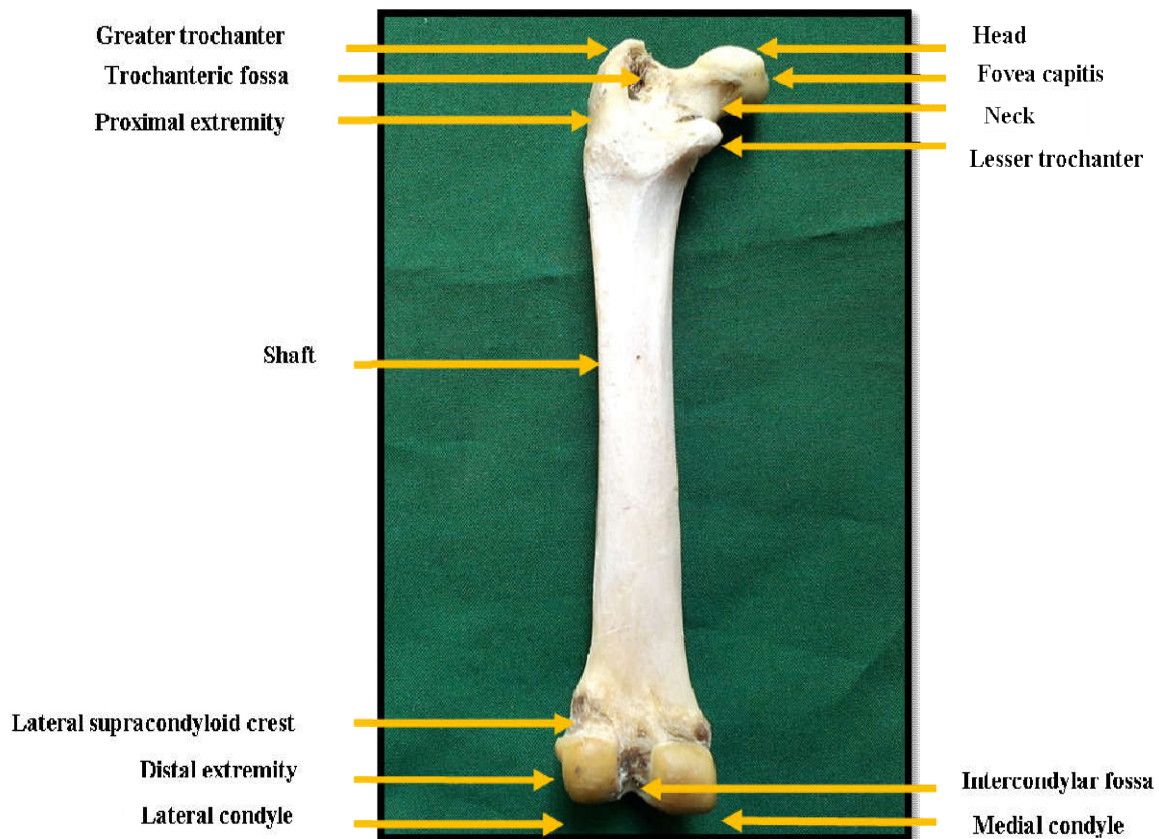


Fig 1: Showing the proximal extremity, shaft and distal extremity along the structures of the extremities

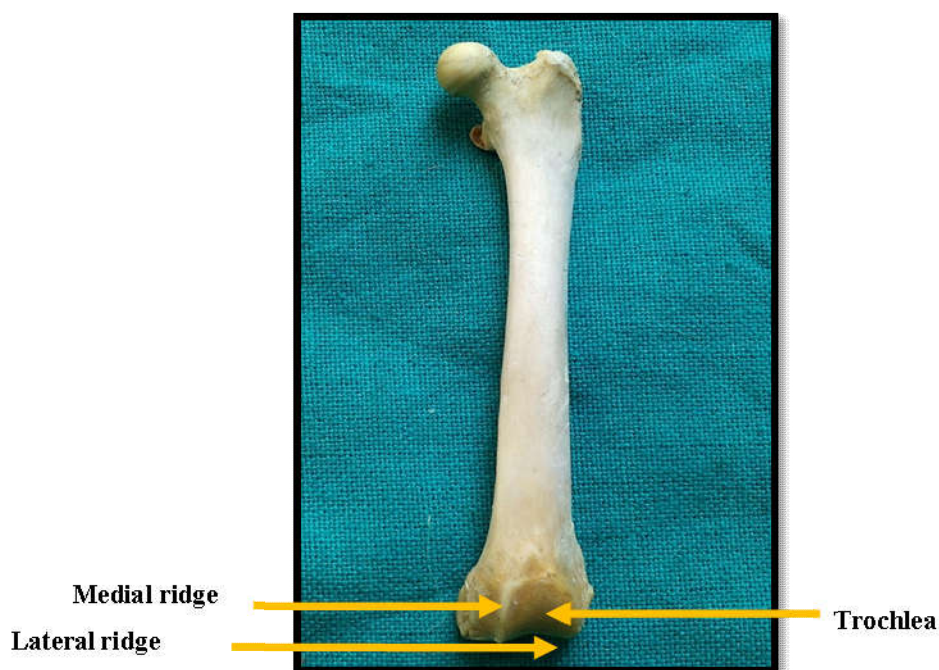


Fig 2: Showing the distal extremity of the femur

Table 1: Showing the results of different parameters of femur

Sl no.	Parameter	Results
1.	Weight (gm)	10.63 ± 1.76
2.	Length (cm)	10.52 ± 0.44
3.	Shaft length	8.0 ± 0.52
4.	Circumference (cm)	
	Upper part	3.17 ± 0.15
	Middle part	2.55 ± 0.08
	Lower part	3.57 ± 0.22
5.	Height/ length of trochanter major (cm)	1.15 ± 0.22
6.	Depth (cm)	
	Trochanter fossa	0.20 ± 0.03
	Intercondyloid fossa	0.37 ± 0.04
7.	Proximal extremity	
	Circumference(cm)	4.71 ± 0.21
	Width(cm)	1.27 ± 0.05
8.	Distal extremity	
	Circumference(cm)	5.02 ± 0.63
	Width(cm)	1.61 ± 0.06
9.	Width of trochlea (cm)	1.25 ± 0.10

CONCLUSION

The gross morphological and morphometrical parameters were established. The information obtained by the study will be of academic importance. The data will be useful to compare anatomical diversities among the same group and will also be helpful for future research programmes.

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