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Comparative macro morphological study on the appendicular Skeleton of Arm region of domestic pig (*Sus Scrofa indicus*) and Pygmy hog (*Porcula salvania*)

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Abstract

Comparative macro morphological study on the Appendicular Skeleton of Arm Region of Domestic pig (*Sus Scrofa indicus*) and Pygmy hog (*Porcula salvania*) was conducted. The study was carried out in Department of Anatomy and Histology, College of Veterinary Science, Assam Agricultural University, Khanapara, Guwahati, Assam, India in August month, 2015. The results showed that appendicular skeleton of arm region of dome pig (*Sus scrofa domesticus*) and Pygmy hog (*Porcula salvania*) was formed by humerus, a long bone. The humerus of Pygmy hog could be easily distinguishable from that of dome pig by some unique gross features viz., the radial and olecranon fossae of Pygmy hog communicated with each other by way of supratrochlear foramen, and presence of well-developed deltoid tuberosity.

Keywords: Appendicular, skeleton, arm, humerus, domestic pig, pygmy hog

1. Introduction

The Pygmy hog (*Porcula salvania*) is a critically endangered suid, previously spread across India, Nepal, and Bhutan, but now only found in Assam^[8]. The current world population is about 150 individuals or fewer. It is the smallest, rarest and most highly specialized member of the pig family^[9]. The indigenous pig of Assam called the Dome pig is prevalent in Assam and found mainly in Dhubri district, and few in Bongaigaon and Goalpara districts^[10]. This study will help full for wild veterinarian in disease control regime. Literature on the humerus of domestic pig (*Sus Scrofa indicus*) and pygmy hog (*Porcula salvania*) which is considered as a important species is found to be scarce. Therefore considering the importance of this species the present work was undertaken to elucidate the macro anatomical parameters of the humerus.

2. Materials and Methods

In the present study, both the thoracic limbs of pygmy hog were collected during post mortem examination. The skin, fasciae, muscles and associated structure were removed with sharp knife, brought to the department and processed as per the standard technique advocated by Young^[3] and utilized for the present study. Thoracic limbs of dome pig was collected from the market and processed in the same way as in Pygmy hog and utilized in the study.

3. Results and Discussion

In the present investigation, the appendicular skeleton of the arm consisted of the humerus which presented a shaft and two extremities- proximal and distal in both *Sus Scrofa indicus* and *Porcula salvania*. Shape of the humerus of the both the species appeared as the italic alphabet 'f' minus the cross-bar (Fig.1) in accordance with Sisson^[6]. The shaft was medio-laterally flattened and presented a shallow musculo-spiral groove for attachment of brachialis muscle. Deltoid tuberosity of the humerus of Pygmy hog was well developed (Fig.2) in comparison to pig similar to that of rat^[2]. The presence of a prominent deltoid tuberosity in this rat agreed with what was reported for the Muridae family^[7, 4, 1].

The proximal extremity of humerus consisted of a head, a neck, lateral tuberosity, medial tuberosity and bicipital groove.

The head of both the species was strongly curved and heart shaped, it was connected to the shaft by a short neck. Lateral tuberosity was very prominent and divided into two parts- cranial and caudal in both the species. The cranial part of the lateral tuberosity was very large (Fig.3) and extended proximal to the front of the proximal extremity similar to that of cattle. The medial and lateral tuberosities were separated by a bicipital groove, which was undivided and cranial part of the lateral tuberosity overhung the bicipital groove as in cattle. A third eminence was present distally from the caudal part of the tuberosity in both the species.

The distal extremity consisted of two condyles- medial and lateral, two epicondyles- medial and lateral, two fossae- olecranon and radial. Medial condyle of domestic pig was larger than the lateral condyle with trochlea passing through the medial condyle. However, the medial condyle (Fig.5) was separated from the lateral by a ridge in dome pig which was absent in Pygmy hog. In Pygmy hog, the medial condyle was separated from the lateral by the trochlea. The distal extremity of the rat's humerus presented supracondylar foramen similar to what was reported for cats [5]. The olecranon fossa in both the species was very deep in comparison to the shallow radial fossa separated by a thin plate of bone. However, in pygmy hog a supratrochlear foramen (Fig.4) was present connected both the fossae which was not found in the dome pig.



Fig 1: Photograph showing the Shape of the humerus of Pygmy hog as well as Domestic pig was 'italic' alphabet 'f' minus the cross-bar



Fig 2: Photograph showing the shallow muscular groove in both species, deltoid tuberosity (B) well developed in Pygmy hog and head (A,C) in the proximal extremity of both the species was strongly curved and heart shaped, it was connected to the shaft by a short neck.



Fig 3: Photograph showing the lateral tuberosity of proximal extremity and deep bicipital groove of pygmy hog was more developed than doom pig.



Fig 4: Photograph showing the supratrochlear foramen (A), olecranon fossa (B), medial condylar (C) and lateral condylar (D) of distal extremity of Pygmy hog which is not found in domestic pig.



Fig 5: Photograph showing the radial fossa (A), medial condylar (B) and lateral condylar (C) of distal extremity of Doom pig.

4. Conclusion

Humerus of both Pygmy hog and dome pig was reverse italic "f" shaped minus cross bar. Lateral tuberosity of proximal extremity of pygmy was well developed. Trochlea present on the distal extremity of pygmy hog separates both condyles. Supratrochlea foramen was present in pygmy hog.

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6. References

1. Ozkan ZE. Macro-anatomical investigation on the forelimb skeleton of mole rat (*Spalax leucodonnordmann*). *Veterinary Arhiv*, 2002, 91-99.
2. Olawoye SS, Tobeckukwu OK, Sunday MM, Jibril I, Adeniyi OS. ARTICLE. *Journal of Veterinary Medicine and Animalhealth* 2011, 82-87.
3. Young TH. Preparation of a skeleton specimen. *Equine practice* 1980, 29.
4. Calitlar T. Laboratuvar Hayvanlary Anatomisi. Fy rat Univ. VetFak Yay.14 Ankara Un Basymevi, Ankara, 1978.
5. Dyce KM, Sack WO, Wensing CJW. *Veterinary Anatomy*. WB Saunders, Philadelphia.4th Ed.2002.
6. Sisson S. *Porcine Osteology in Sisson and Grossman's The anatomy of the domestic animals*, Edited by Robert Getty. W. B. Saunders company, Philadelphia, 1995.
7. Saunders JT, Manton SM. *A manual of practical vertebrate morphology*. Clarendon press, Oxford, 1969.
8. Narayan G, Deka P, Oliver W. *Porcula salvania*. *IUCN Red List of Threatened Species. Version 2014.3*. International Union for Conservation of Nature. Retrieved, 2014.
9. Deka A, Sarma K, Das BJ. Histomorphological observation on Testes of Pygmy hog (*Porcula salvania*). *Indian Veterinary Journal*. 2014; 91(05):82-83.
10. Zaman G, Laskar S, Ferdoci AM, Chandra SM, Chetri AJ. Molecular characterization of Doom Pigs using microsatellite markers. *African Journal of Biotechnology*. 2014; 13(30):3017-3022.