

GROSS ANATOMY OF DIFFERENT BONES IN THE BARN OWL (*Tyto alba*)

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Abstract: Owls are known as silent predators of the night due to quietness of their flight. Capturing prey without any noise, that would be detectable by the owl's prey is maintained by several features in its body and wing system. Wing bones are well developed than the pelvic limb bones. The pelvic girdle is small and contained a deep renal fossa. The fovea capitis is very much prominent on the head of femur. The frontal bone is the largest bone in the skull. The parietal bones are situated on the posterior part of the skull. The bony orbit is well developed and incomplete antero-ventrally. The inter-orbital septum is very thick. All these features helps owl to capture its prey.

Keywords: Bone, barn owl, gross anatomy.

Introduction

Skeletal system provides strong framework and protection to all system, organs, and tissues making whole body of animals (Golbreicha *et al.*, 2006). The skeletal anatomy is altered according different habitation, different modes of survivability among various species and within species also. Barn owl is cosmopolitan bird with long wing and long leg, which plays a major role in the ecosystem feeding mainly on rodents and limiting population of the same (Bachmann *et al.*, 2007). It prefers farmland with interspersed woodlands. The present study was conducted on the skeletal system of the owl after its death which was brought to dept of surgery at college of veterinary sciences, Rajendranagar, Hyderabad.

Materials and Methods

Skeleton was prepared by removing the skin, feathers and viscera including the tough scales in the tarso-metatarsus and digits of the foot. The denuded carcass was put in container with water and boiled for more than two and a half hour, after which it was cooled and the bones with attached muscles were scrubbed and kept in hot air oven at 100°C, various morphological features were studied based on comparison with normal fowl bones.

Pectoral Limb: Scapula is knife like, elongated with regular acromian process and depression which formed a part of glenoid cavity. Clavicle had no hypocleidium and clavicle of both

sides rested directly on sternum. Coracoid was thick bone with distal extremity wide and compressed. Humerus had well developed deltoid tuberosity and showed a foramen in median side just below the head. Distal extremity of humerus has two condyles with well marked olecranon fossa. Radius and ulna were rod like bones (Fig 1). The ulna found to be the longest bones in the skeleton of the owl. The proximal row Carpals were two in number which were small namely radius and ulnar carpal.

Pelvic limb: Pelvic girdle consisted of three bones ilium, ischium, and pubis. Size of the girdle was very small in which ilium is elongated concave anteriorly and convex posteriorly. Renal fossa was very deep. Posterior part showed a prominent crest on the lateral side. Femur was elongated and thick bone showed prominent fovea capitis on its head. The length of the femur was comparatively smaller than humerus. Tibiotarsus was long and distal part was in the form of trochlea with two prominent ridges with a groove in between of it. Tarso-metatarsus was well developed elongated bone, compressed antero-posteriorly and had a prominent projection below the proximal extremity on medial side and three processes at distal extremity (Fig 2).

Skull: Parietal bones are present on the posterior surface of skull. Frontals were found to be the largest bones in the skull which has a deep groove in the middle. Basilar tubercles were wide apart. Pterygoid bones were well developed and it articulates with basilar tubercle of occipital. Temporal fossa was quite deep. Bony orbit was very wide and opened antero-ventrally. Inter orbital septum was very thick. Ethmoid was well developed.

Sternum: Manubrium sternum was absent, with greater sternal width. The body showed articular cavities on its lateral border for 3rd to 6th ribs (Fig 3). Keel was low. Dorsal surface of body was deep and concave. Postero lateral processes were short and undivided (Fig 4).

Results and Discussion

The barn owl is nocturnal and has to catch the prey without any noise and for that wing should be very wide which is supported by the long radius and ulna inferring the great wing broadness also giving the necessary arching of the wings (James, 1871).

The main anatomical features like absence of hypocleidium helps the clavicle to articulate firmly with sternum which has greater sternal width supporting effective formulation of breast muscles helping in the flight of the bird (Peters, 1994). Radius and ulna are long bones which infer the possibility of good development of extensor and flexors aiding in leverage of the flight. The deep fovea capitis suggests the strong articulation with oscoxae and well developed tarso metatarsus assisting in the grabbing of the prey.

Temporal fossa was quite deep, Bony orbit is very wide. Inter orbital septum is very thick. Ethmoid is well developed, all these are substantiative of well sprung advancement in the sensing through ear, eye, olfaction helping the bird channelizing and pointing the precise position and placement of prey (Bachmann *et al.*, 2007).

This anatomical study is a bridge between evolution, adaptability, formability survivability of the various species according to their nature of their habitat and tactics of mannering the amassment of the food or prey of fascinating animal world.

References

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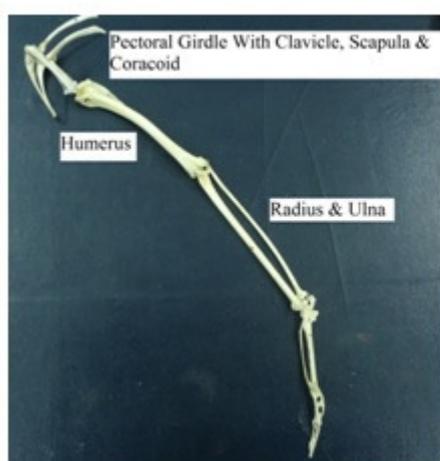


Fig 1: Pectoral Girdle



Fig 2: Pelvic Girdle

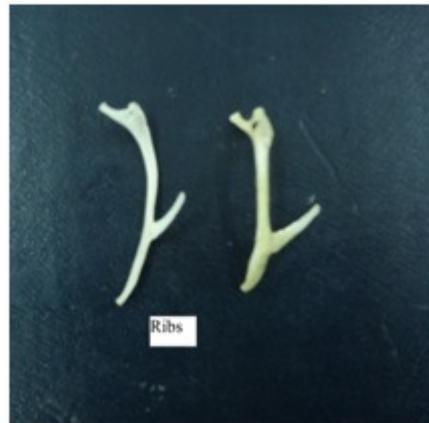


Fig 3: Ribs



Fig 4: Skull, Sternum and pelvic Girdle