



ISSN: 2456-2912

VET 2024; SP-9(3): 286-287

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www.veterinarypaper.com

Received: 25-03-2024

Accepted: 25-04-2024

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Gross anatomical studies on the pectoral girdle of Aseel bird

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Abstract

A study was conducted on male Aseel birds between the ages of 3-4 months. The shoulder girdle of Aseel was composed of three bones, namely the scapula, coracoid, and clavicle. The scapula was sword-like shape and slightly curved in a craniocaudal direction, and its proximal extremity consisted of an acromion process and a coracoid process. The coracoid was the strongest bone of the shoulder girdle, and its proximal extremity had a hook-like appearance. The right and left clavicles fused distally to form a single bony component, the furcula, which was 'U' shaped.

Keywords: Aseel, pectoral girdle, scapula, coracoid, clavicle

Introduction

Over the last twenty years, the poultry industry has become one of the world's most active and rapidly growing sectors. Aseel is a significant native chicken breed from India, distinguished by its pugnacity, stately walk, and martial traits (aggressive fighting abilities). (Rajkumar *et al.*, 2017) [8]. The scapula, coracoid, and clavicle make up the pectoral girdle, one of the crucial parts of the skeletal system linked to a flight mechanism in birds. The blade-like scapula, which is generally static, articulates anteriorly with the clavicle, coracoid, and humerus. It is firmly connected to the ribs by muscles and ligaments. The large coracoid lies between the sternum and shoulder joint, during flight and together with the ribs aids in preventing the collapse of the thorax in the wing-down stroke.

Materials and Methods

The materials for the study were collected from male Aseel birds brought for post-mortem examination to the Department of Veterinary Pathology, Acharya Narendra Deva University of Agriculture & Technology, Ayodhya. The pectoral limb was collected by the regular process of maceration, cleaned, dried, and the various gross anatomical features recorded.

Results and Discussion

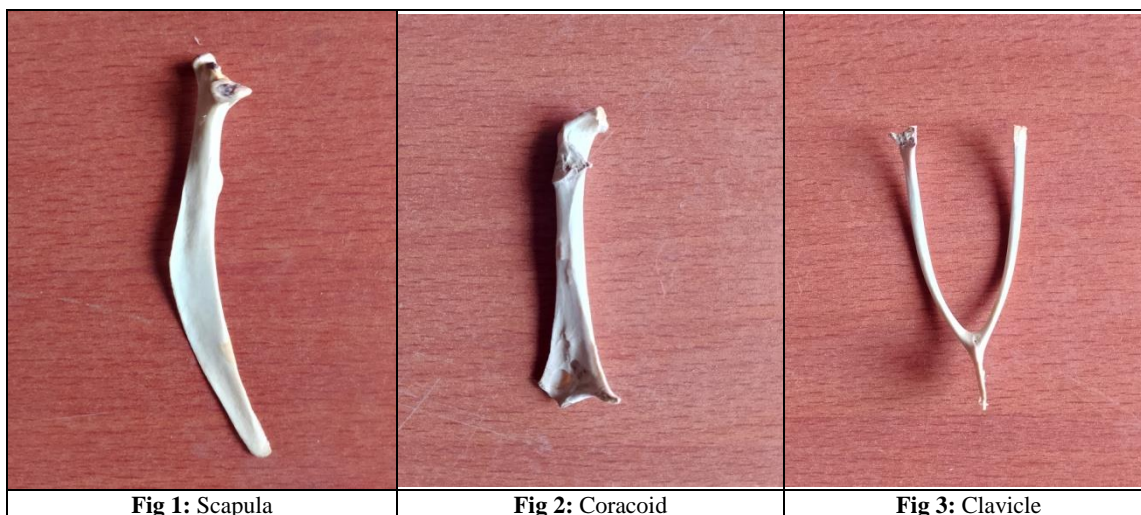
Scapula was a long sword-shaped bone (Fig. 1) as reported in all domestic birds and pigeon (Nickel *et al.*, 1977 and Jayachithra and Iniya., 2021) [5, 2] and in common hawk cuckoo (Supriya *et al.*, 2019) [9]. Scapula had two borders, two surfaces and two ends as in other domestic birds. The caudal end of the scapula was extended up to the level of cranial border of ilium and the cranial end was located at the level of last cervical vertebra. The caudal end appeared pointed and thin in pigeon and it was thicker and blunt in domestic fowl. The coracoid, was nearly quadrilateral in shape, connected anteriorly with the scapula and was narrowed in the middle (Fig. 2). The distal sternal end was triangular in shape and was also slightly concave, had facet, medial, and lateral angular processes, and articulated with the sternum. A triangular procoracoid process was visible slightly above the constriction along the cranial margin. There was a well-developed large pneumatic foramen on both sides, located just cranial to the constricted part of the coracoid.

Clavicles were short, round to rod-like bones, with two surfaces and two borders. (Fig. 3).

On the medial surface, there was an elongated facet for articulation with the scapulocoracoid. In pigeons, (Parvez *et al.*, 2016) [6] noted that the clavicle had a narrow, slender rod-like shape. According to (Kumar and Singh, 2014) [4] in emu reported that clavicle was varied from flattened to round due to the presence of a clavicular articular facet on the coracoid. The borders of the cranium and caudal region were almost straight. The proximal extremity was slightly curved and had a facet for coracoid similar observations reported by (Parvez *et al.*, 2016) [6] in pigeons. While in emus, hypocleideum was not seen, and the distal extremity tapered to a narrow point. whereas (Parvez *et al.*, 2016) [6] noted that in pigeons, the distal extremity was bigger and thicker than the proximal extremity, and it merged with the opposing side's bone to produce a rudimentary hypocleideum. The hypocleideum in

crows was reported by (Patki *et al.*, 2010) [7] as a flattened 'S'-shaped sagittal plate, and in fowl by (Getty, 1975) [1] as an oval, thin plate.

According to (Tomar *et al.*, 2010) [10] in pariah kite report that there was no union of the two clavicles to form a furculum made of two clavicle bones had a wide 'U' form noted that a foramen triosseum was formed by the bones of pectoral girdle. Which allows passage of the ligament of supracoracoideus muscle to attach to the humerus and, thus played role in flight mechanism. The foramen triosseum was not observed in present investigation, however in pigeon reported by (Parvez *et al.*, 2016) [6] and in domestic birds described previously by different authors (Getty, 1975; King and McLelland, 1975) [1, 3] presence of foramen triosseum.



Acknowledgement

The authors are grateful to Dean, C.V.Sc. & A.H., ANDUAT, Kumarganj, Ayodhya for providing necessary facilities and support for the successful completion of his study work.

Conflict of Interest. There is no conflict of interest among authors.

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How to Cite This Article

Gond SP, Jaiswal S, Singh A, Asthana S, Gangwar AK, Yadav S, *et al.* Gross anatomical studies on the pectoral girdle of Aseel bird. International Journal of Veterinary Sciences and Animal Husbandry. 2024; SP-9(3): 286-287.

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