

## COMPARATIVE GROSS ANATOMICAL STUDY OF THE AXIAL SKELETONS OF BUFFALOES AND COWS

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### ABSTRACT

In buffalo the lateral margins of wing of atlas were curved upward and foramina transversarium was present. The 7<sup>th</sup> cervical vertebra was having 4-5 inches long spinous process, the summit of the spinous processes from 8-13<sup>th</sup> thoracic vertebrae were undivided. The cranial articular surfaces were triangular laterally in lumber vertebrae. Groove between medial and lateral crests of sacrum were deeper.

Occipital bone covered all the posterior half of the dorsal surface of the skull, foramen magnum was wider and paramastoid processes were bent caudomedially. The cornual processes were located at a lower level, temporal crest was caudal to the corneal process. Posterior nares were wider, the posterior surface of the skull was parabolic. The infraorbital foramen was situated in a deep fossa slightly rostral and about 1.5 inches dorsal to the first premolar.

**Key Words:** Buffaloes and Cows, axial skeleton, anatomy

### INTRODUCTION

Axial skeleton comprises of the vertebral column, ribs, sternum, and skull. Vertebral column consist of a chain of median, unpaired, irregular bones which extend from skull to the end of coccygeal vertebrae. Ribs are curved elongated bones which form the skeleton of lateral thoracic wall. Sternum is a median segmental bone which form the skeleton of thorax ventrally. Skull includes all the bones of the head. The literature on the anatomical aspects of buffalo is limited, therefore the present study was undertaken to observe the comparative gross anatomical features in the axial skeleton of buffalo and cow.

### MATERIAL AND METHODS

Ten adult buffaloes and cows, which were brought for dissection purposes at different times were slaughtered in the Anatomy Laboratory, University of Agriculture, Faisalabad. After Skinning, the bones were cleansed, macerated, processed (Young, 1980) and prepared for study.

### RESULT AND DISCUSSION

#### Bones of the Vertebral Column

The lateral margins of wings of atlas were curved upwardly in buffalo and were straight in cow (Bone, 1988). The foramen transversarium of atlas was present in buffalo and was absent in cow. The axis, the typical,

and the 6<sup>th</sup> cervical vertebrae were similar in buffaloes and cows. The 7<sup>th</sup> cervical vertebra of buffalo was having 4-5 inches long spinous process while in cow the length of spinous process was 2-3 inches.

In thoracic vertebrae of cow from 8-13<sup>th</sup> the summits of spinous processes were divided into two prominences (Sisson, 1985). While in buffalo the summits were undivided (Fig. 1). In the lumber vertebra the spinous processes were prominently pointed at both ends. The transverse processes were curved downward, and cranial articular surfaces were triangular laterally in buffalo and were rounded in cow.

The groove between medial and lateral crests of sacrum was deeper in buffalo than cow. No considerable differences were found in coccygeal vertebrae, ribs and sternum.

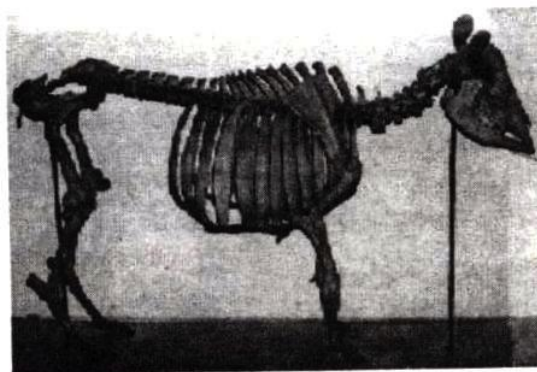


Fig. 1: Skeleton of Buffalo (Lateral View)

### Bones of the Skull and Mandible

The occipital bone covered all the posterior half of the dorsal surface of the skull in buffalo and it covered only posterior surface of skull in cow. The external occipital protuberance was not present in buffalo skull, the foramen magnum was wider and paramastoid processes were bent caudomedially.

Frontal bones were wider and extensive than cow. The cornual processes were located at a lower level than that of cow where they were present at the junction of caudal and lateral borders (Getty, 1975). The supra orbital foramen was situated an inch craniomedial and caudomedial to the zygomatic process of the frontal bone in buffaloes and cows respectively.

The temporal crest in buffalo was situated caudal to cornual process, and in cows cranial to the cornual process of the frontal bone. Posterior nares were wider in buffaloes than cows. The posterior surfaces of the skulls were parabolic in buffaloes and were undulating in cows (Fig. 2).

The infraorbital foramen was situated in a shallow fossa about 1.5 inch rostral and dorsal to the first premolar tooth in buffaloes. In cows the infraorbital foramen was not situated in a fossa and was an inch dorsal to the first premolar tooth. Mandibles resembled in buffaloes and cows.



Fig. 2: Skull of Buffalo (Dorso-Lateral View).

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