Lateral and Dorsoventral Radiographic Anatomy of the Head Bones of One-Humped Camel (*Camelus dromedarius*)

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Keywords: Anatomy, Radiography, Camel, Head bone

Summary

Lack of references on normal radiography of head region makes difficult interpretation of head radiographs in camels. The purpose of this study was obtaining normal lateral and dorsoventral (DV) radiolographic images of the head region of one humped camel in order to define head bone details. Eight healthy camel heads from several slaughterhouses were selected. Lateral and DV radiographs of the rostral (face) and caudal (neurocranium) parts of the head were obtained and bone details were numbered and identified. Several differences in radiography of the head bones of camel compared to other animals especially horse and cow has been discussed. The results of this study can be used as a radiographic reference in clinical cases of suspected abnormalities in the head bones of camel.

Introduction

Radiographic anatomy of the head region is quite difficult to understand due to complex arrangement of numerous structures (5). Evaluation of traumatic diseases and mass changed deformities of the head make it necessary to have a good imagination of detailed normal structures of the head (4). This results in the sense of need of some standard radiographic studies which have deal with normal anatomical appearance of the head structures in different animals (1). This has been done on many domestic animals previously (3, 6) but according to our knowledge a detailed radiographic anatomy of the head of the camel which is kept as a domestic animal in south and east of Iran has not been done yet. So we arranged a study to identify the position of the head bony structures of the camel.

Materials and Methods

Eight healthy camel heads from several slaughterhouses were selected and transferred to the Faculty of Veterinary Medicine, University of Tehran for radiographic evaluation. Lateral and dorsoventral (DV) radiographs of the rostral (face) and caudal (neurocranium) parts of the head were obtained under two different exposure conditions while care was taken in the proper positioning. Grid was used to decrease the scattering radiation and the better resolution of the films. Detectable anatomic structures of the head were studied in details and finally numbered and nominated in each radiographic view.

Result and Discussion

The results of this study have been shown in the 4 images as labeled anatomic components of the head. These images belong to one camel which have been selected from 8 heads.

Camel has remained neglected in comparison with other livestock species. Some interest and attention have been drawn recently toward camel because of unique adaptive characteristics for survivability in the desert ecosystem. Despite spread applications of diagnostic imaging techniques in animals, little reports can be found about camels. Equipment limitations in the origin countries of the camel may be the reason. Arencibia et al. have reported using the MRI for imaging of the normal brain in a newborn dromedary camel. Although they have mentioned the accessibility and expense limitations of MRI (2).

Other imaging techniques such as ultrasonography have been mostly used in the theriogenology of the camels (8, 9).

Camel’s head is more similar to equine head than other herbivorous animals; however, there are many differences compared with equine and bovine. Maxillary sinus is bigger than horse and is seen as a large radiolucent three compartmented area in DV view. The occipital condyles are larger than those of the cow. The dorsal border of the foramen magnum is notched in the center contrary to the horse and cow (7). The temporal condyle is wider compared to the cow. The petrous part of the temporal bone is more eminent than the cow and horse. Nasal bone is shorter and narrower than cow and horse. Maxilla bone is larger than other ruminants.
Frontal sinus in the camel is visible as a radiolucent triangular-shaped region in lateral view while the caudal part lacks the lamellar bones. Paranasal sinuses, proportion to the body size, are smaller than other animals. Due to complexity of the bony structures of the camel’s head, providing other radiographic positioning such as oblique and rostro-caudal views may be helpful in complete evaluation of the head in camels.

References
5 Dyce et al., 2002. Textbook of Veterinary Anatomy.