

A Review on Local Iraqi Dog Skull Anatomy and Radiology of Regional Bone

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Abstract: The anatomy of the adult dog's skull is a critical component of skeletal system providing shape, support and protection of brain. Its form and size exhibit significant breed and individual variations, which are influenced by the dog's evolutionary history and selective breeding practices. The skull's structure plays an important role in distinguishing dog breeds, with phenotypic differences, especially during the initial phases of dog breeding. The structure of the skull is central to breed standards, often utilized in clinical practices, where understanding the regional anatomy can aid in diagnosis and surgical interventions where the skull of local dog, with its distinct features like a narrow, elongated cranium and well-developed frontal sinuses, showcases notable differences from other breeds. Use terms of radiological anatomy, computed tomography good idea for internal structure analysis of skull, although despite its limitations. As a result, radiography remains the most common method of skull examination in many medical cases. This study investigates the anatomical and radiological characteristics of the adult Husky dog's skull, focusing on the neurocranium and facial skeleton. Notable features include the bones of the frontal, parietal, occipital, and temporal regions that provide protection the brain, and the facial skeleton consisting of the mandible, maxilla, and zygomatic bones. Further, the research explores the variation in skull morphology, with particular reference to the unique characteristics of the Iraqi local dog breed. The findings emphasize the role of skull shape in breed differentiation and provide a basis for understanding the radiological implications in veterinary practice.

Keywords: Anatomy, Skull, Adult dog, Regional radiology, Breed variation.

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INTRODUCTION

General Descriptions of Skull in Dog

The skull of a dog is regarded as the main component of the skeletal system, as it provides structure and support to the vertebral column of an animal's body. The shape and dimensions of a dog's skull exhibit significant variation among different breeds and individuals [1]. Variations in phenotype were prominent during the initial stages of dog breeding, and notably, skull shape is the key factor in defining standard dog breeds. Clinical anatomy serves as a foundational principle in surgical practices; hence, the structure of the canine skull has been examined by earlier researchers for its relevance to clinicians [2].

The skull is regarded as abnormal or dependent on breed unless comprehensive measurements of

particular traits for each breed are available to act as benchmarks when necessary [3]. The skull bone different from breed to other in size and measurement also different in power and shape where the husky is known as a medium-sized in features a wolf's well-developed frontal sinuses, which is a helpful way to differentiate their skull from those of coyotes and foxes. They also have upright triangular ears and characteristic patterns on their head [4] while raccoon dog (*Nyctereutes procyonoides* Gray) Computed tomography substantially facilitates the interior structure of the skull. The mandible was discovered to have four distinct morphological traits focused in the mandibular ramus, but the cranial bones of the skull, particularly the frontal and occipital bones, had the most distinctive morphological features [5] because not all medical facilities typically have computed tomography available.

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Thus, given the widespread availability of radiology equipment, radiography typically continues to be the sole option in many medical centres at the time of this study. The current research was conducted to investigate the radiological and anatomical features of the skull bones of adult Husky dogs [6].

Key Aspects of dog skull anatomy

1. **Size and Shape:** The local Iraqi skull dog is appearing elongated and narrow in front and appear the skull bon of partial region semi concave
2. **Cranium (neurocranium):** This is the area of the skull that covering and protects the brain. It includes the frontal, parietal, occipital, and temporal bones, which are fused in the adult dog
3. **Facial Skeleton (Visceral Skull):** This area includes the bones that make up the face, including the upper jaw, nose, cheek, and lower jaw.
4. **Mandible (Legacy):** Being the only bone in the skull that can move, the mandible is crucial to chewing of food
5. **Cranial Region (Neurocranium):** The Iraqi local dog skull is relatively large compared to the face and appear the nasal region narrowing comparative with other skull bone and skull important part to protect the brain and give attachment points for muscles involved in jaw movement and including: Frontal Bones: Form the forehead area and contribute to the upper portion of the eye sockets (orbits). and appear these bones are long and flattened and appear wider from location attachment of partial bone and appear semi narrowing foremen site attachment with nasal area and appear suture connection between two parts of bone and local Iraqi dig different from other breed dog that appear the shorter the frontal bone area. Parietal Bones: located on either side of the skull, they form the roof of the skull. They are larger in larger dogs and contribute to the overall strength of

the skull. And appear in Iraqi dog is medium size and appear same Occipital Bones: The occipital bone at the back of the skull is robust. The occipital condyles, located on either side of the foramen magnum, connect to the first cervical vertebra, allowing movement of the head. and, serving as an anchor for the powerful neck muscles that and facilitate feeding and movement. Temporal bones: These bones are located on either side of the skull, and house the structures of the inner ear. The temporal bone's zygomatic process joins the zygomatic bone. (cheekbone), forming part of the zygomatic arch.

1. Facial Skeleton (Viscerocranium)

Nasal bones: These bones form the bridge of the nose. They are long and wide in in Iraqi local dog - The nasal cavity is wider in dogs with long noses. Maxilla: The maxilla is the upper jaw bone and located in the upper teeth, including the canines. The shape of the upper jaw different from breeds, appear a wider and shorter upper jaw. Cheekbones: These bones form the cheekbones and contribute to the formation of the eye socket. The zygomatic arch is formed by the zygomatic process of the temporal bone and the zygomatic bone itself.

2. Ventral View

Palatal bones: These bones form part of the hard palate, and contribute to the separation of the oral and nasal cavities. The palatal bones are particularly important in oral anatomy and feeding of animal with prescent the nutrient foramen. Lacrimal bones: These small bones are found near the inner corner of each eye and contribute to the formation of the eye socket and suture of skull appear more. It is very visible in the dorsal appearance of the skull, which is formed in close connection with the bones of the skull (Figures 1, 2, 3).



Figure 1: Dorsal view of adult local Iraqi dog skull



Figure 2: Occipital region view of adult local Iraqi dog skull



Figure 3: Ventral view of adult local Iraqi dog skull

Radiographic Result of SK

the dorsal view of skull appear the frontal region and nasal region can show the orbital region under the CT also appear clearly the occipital region while the

ventral region under the CT appear the palatine region clearly with occipital region an nutrient foramen of skull and tympanic bulla (figures 4 and 5).

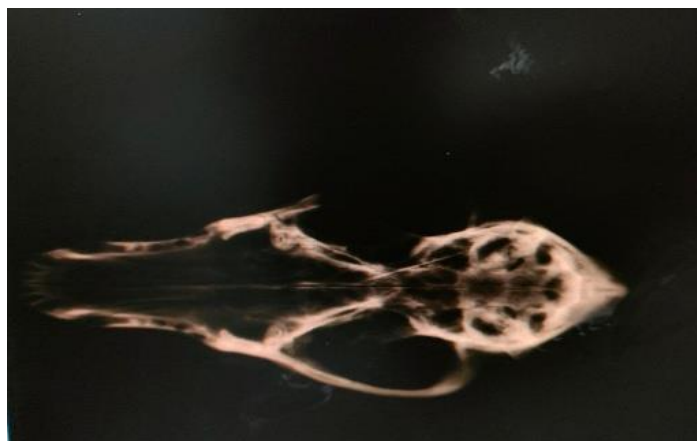


Figure 4: Ventral radiological view of dog skull

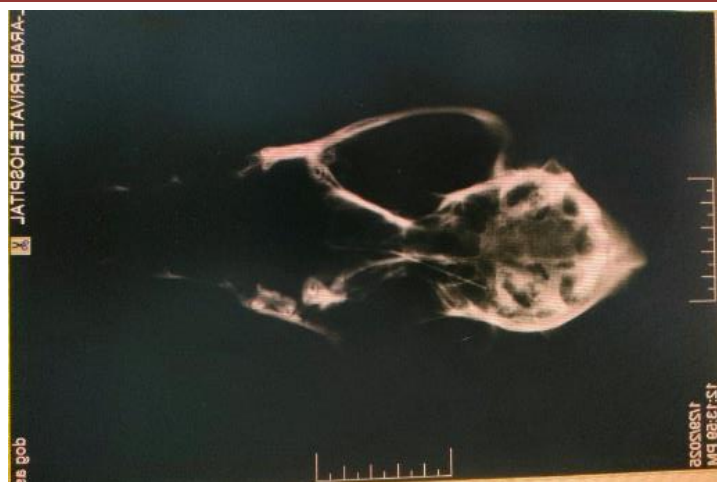


Figure 5: Dorsal radiology view of skull dog

CONCLUSION

This review explores the variation in skull morphology, with particular reference to the unique characteristics of the Iraqi local dog breed. The findings emphasize the role of skull shape in breed differentiation and provide a basis for understanding the radiological implications in veterinary practice.

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