Morphometric analysis of occipital bone in the domestic cat in comparison with selected skull size parameters and with special regard to skull morphotype

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Abstract

The aim of this study was to elaborate criteria defining the morphotype and to perform a morphological and morphometric analysis of the squamous part of the occipital bone and of the foramen magnum in the European cat. The study material comprised 50 corpses of European cats of both sexes and of bodyweight from 1.35 to 7.7 kg, aged from 1 year to 17 years. The study material underwent detailed preparation and morphometries of the skull, squamous part of the occipital bone and the foramen magnum were performed. The skull index (IC) data obtained indicate that the European cat represents a mesaticephalic morphotype. In the morphometrical analysis of the foramen magnum the following were included: the foramen magnum index (IFM), the occipital index (IOF), and the index of the squamous part of the occipital bone (ISO). In the morphology of the squamous part of the occipital bone two categories were distinguished: the first was characterized by a form close to an isosceles triangle with its base directed to the bottom.

In none of the specimens studied was a dorsal notch in the form of a “keyhole” observed, nor was there any other deformation in the foramen magnum, which takes the form of a slightly crosswise elongated regular oval. The results of this study indicate that in the European cat the foramen magnum is free from any pathology and its shape, in the individual development, is conservative.

Key words: cat, morphotype, occipital bone

Introduction

Morphological diversity observed within the species of Felis silvestris f. catus; Felis catus (domestic cat) leads to the following definitions commonly used to describe individual breeds or specimens: the short-, medium- and long-headed or respectively, brachy-, mesat- and dolioccephalic cat. The literature provides no information on available objective criteria for the basis of diversity of such morphotypes. Similar morphotypes can be identified in the domestic dog (Canis lupus f. domestica). In this species many methods and criteria have been elaborated based on numerous craniometrical parameters and calculated indices.