
Morpho-topographic researches on cervico-cephalic lymphcentres at ferret

Anca ȘEICARU*¹, C. BELU¹

1 University of Agronomic Sciences and Veterinary Medicine,
Faculty of Veterinary Medicine, Department of Preclinical Science,
Splaiul Independenței no. 105, district 5, Bucharest, Romania

*Address for correspondence to: ancaseicaru@gmail.com

Abstract

The muscular lymph centers from the cervico-cephalic region emerge with the muscles and in specialty literature there is little information regarding muscles at the ferret, hence why in this study we have also referred to this morphological segment. In the cephalic region, the skin muscles existing at the ferret do not present significant differences to those existing in domestic carnivores, but the masticatory muscles have some peculiarities. The temporal muscle, masseter muscle and digastric muscle are highly developed. On the surface of the masseter muscle is identified a lymphonodular group covered by the skin muscle and tegument. Due to topography, it was considered that this lymphonodular group represents the parotid lymph center, although some authors do not even mention the presence of this lymph center in the ferret. At the ventral edge of the parotid gland and at the mandibular cranio-dorsal edge there is a mandibular lymph center formed by two lymphonodular structures. The retropharyngeal lymph center is represented by a single lymph node. In the cervical region the superficial cervical lymph center was identified, formed by a single structure. Although in specialty literature the presence of the profound cervical lymph center is not signalled, the structure was identified in two from the total of four corpses used.

Keywords: dissection, dye ink, ferret, lymph center.

Introduction

The ferret is an animal raised for its fur, as a pet, but also as a laboratory animal. Taxonomically, the ferret belongs to the *Mammalia* class, *Carnivora* order (*Fissipeda*), *Mustelidae* family, *Putorius* species. Although they are carnivores, they exhibit anatomical particularities related to their lifestyle which make them quite different from the other carnivores (Valentina Hrițcu & al., 2000; Coțofan V., 1975; Predoi & al., 2001).

Due to the scarce information in the literature concerning the morpho-topography of the lymph centres from the cervico-cephalic region in ferrets, our study aimed to describe the particularities of these structures in connection to the adjacent muscles (R. BARONE, 2012; G. PREDOI & al., 2002).

The study of the lymphcentres in correlation with their morpho-topography is useful for the veterinarians who can make use of the results of such investigations during their practice.

This paper is intended to be an addition to the data already present in the literature.

Materials and methods

The study material was represented by four adult ferret bodies, of different ages, without any pathological changes that would indicate the existence of any disease. The chosen method for identifying the lymphatic structures was the injection of a coloured substance – China ink dye 40%. The dye was filtered through filter paper. The filtrate was diluted 1/1 with physiological saline. Stratigraphic and regional dissections were performed up to the limit of visibility, and more detailed investigations were done by means of a SMZ-Nikon stereomicroscope. After removing the skin, the muscles, arteries and veins were dissected, revealing the lymph centres and the lymphatic vessels, preserving their relations with the adjacent formations.

The homologation of the formations was made according to Nomina Anatomica Veterinaria 2017.

Results and discussions

Compared to the size of the animal, the lymph centres have a considerable size and are able to drain lymph from an extended area.

The parotid gland has a triangular appearance, with a reduced preauricular portion and a developed retroauricular one.

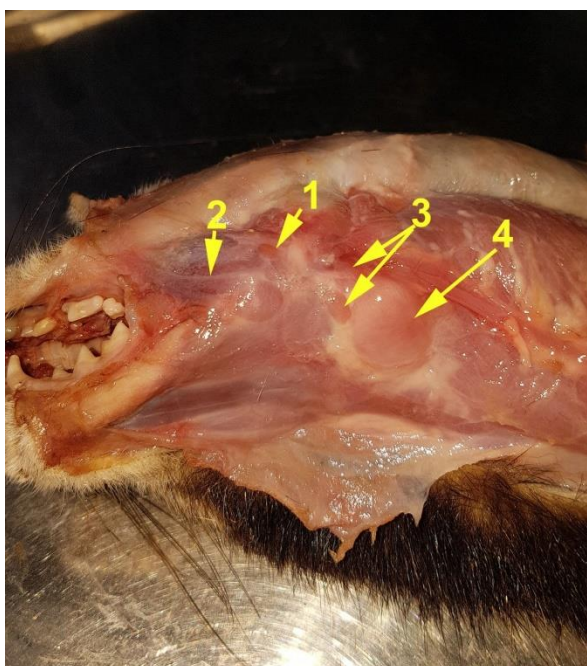


Fig. 1 Parotid and mandibular lymph centers

1-parotid lymph nodes; 2- masseter muscle; 3- mandibular lymph nodes; 4- mandibular gland.

Cranial from the ventral angle of the parotid gland, on the masseter muscle, a lymphnodular group was identified, measuring about 2 mm in diameter, and covered by the subcutaneous muscle and by the skin. Topographically, we consider that this lymph center is the parotid lymph center, although the literature does not mention its existence. The parotid gland duct passes below this lymphatic structure and then passes over the upper third of the lateral face of the masseter muscle.

At the ventral edge of the parotid gland and the dorso-cranial edge of the mandibular gland, two lymph nodular structures that form the mandibular lymph centre were identified.

The appearance of the mandibular lymph centre is circular with a diameter of 4 mm. A second mandibular lymph node was found cranially to the first, both superficially, covered only by the subcutaneous muscle. (Fig.1).

The lymph comes from the lips, cheeks, eyelids, salivary glands, masseter muscles, and parotid gland. The efferent vessels are tributary to the retropharyngeal lymph node.

In all studied corpses, the retropharyngeal lymph centre was represented by a single lymph node, placed along the anterior third of the internal jugular vein, caudal to the larynx and on the

lateral side of the pharynx. The afferent vessels drain lymph from the tongue, oral mucosa and from the cervical muscles. The efferent vessels are drained in the tracheal trunk, near the confluence angle between the jugular vein and the axillary vein. (Fig.2).



Fig. 2 Retropharyngeal lymph center

1- medial retropharyngeal lymph node; 2- sterno-hyoid and sterno-thyroid muscles; 3- internal jugular vein; 4- common carotid artery; 5- vagosympathetic trunk

In the cervical region, the cervical lymph centre is represented by a round shaped lymph node of about 4mm in diameter, disposed on the medial face of the omotraverse muscle. The afferent vessels come from the thoracic limb, from the cervical and the pectoral region. The afferent vessels are drained in the tracheal trunk. (Fig. 3).



Fig. 3 Cervical lymph centre

1- deep cervical lymph node; 2-sterno-occipital muscle; 3 - superficial cervical lymph node.

The existence of the deep cervical lymph centre is not described in the literature, but we identified it in two of the four corpses.

The deep cervical lymph centre was found on the medial face of the sternooccipital muscle. This lymph centre is represented by a rounded lymph node of about 2.5 mm. The associated vessels come from the trachea, oesophagus, and the vessels of the tracheal trunk.

Conclusions

Unlike carnivores, the lymph centres are characterized by appreciable dimensions in relation to the size and weight of the animal.

The particular morpho-topography of these lymph centres allows them to drain the lymph from a more extended area.

In the cephalic region, we identified a lymphonodular group on the surface of the masseter muscle, under the subcutaneous muscle, and covered by the skin.

Although in literature does not mention the presence of the parotid lymph nodes in the ferrets, the lymphonodular group localised on the surface of the masseter muscle may be considered as belonging to the parotid lymph centre.

Some authors do not indicate the existence of other lymph centres in the cervical region, aside from the cervical superficial lymph centre.

We have identified a single lymph node located on the medial face of the sternooccipital muscle, and topographically it can be considered to represent the deep cervical lymph centre.

The parotid gland has a triangular aspect, with a reduced preauricular portion and another, more developed retroauricular one.

The mandibular gland is larger than the parotid gland and is located in a ventro-caudal position compared to latter.

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