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THE MACROSCOPIC MORPHOLOGY OF HEAD, NECK AND FORELEG LYMPH NODES AT COYPU (MYOCASTOR COYPUS)

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Abstract

The coypu (Myocastor coypus) is a semi-aquatic mammal rodent, native from South America. Besides the fact that they are resistant to diseases and eat less, the coypu are useful for the precious fur and also for the tasty meat. After analyzing the bibliographic material it was noted that the data referring to the anatomy of this species are very sketchy, in particular those relating to the lymphatic system. For this reason I have chosen this topic, aiming to complement the existing data in the literature on the morphology of the muscular lymph nodes, at coypu. For the necessary investigations from this study, have been used corpses of coypu. After dissection it has been noted that existence of the mandibular, parotid, lateral retropharyngeal, rostral hyoidian, axillary and accessories lymph nodes. At the macroscopically level it was not possible to certainly determine the existence of superficial cervical lymph nodes, instead were described in detail the axillary lymph nodes, which is not found in this species bibliographic data. After dissection it was noted the presence of one lymph node, bilateral, at 40% of the dissected individuals (two specimens out of five). Their topography is the one characteristic to another domestic species, being situated caudal from the scapulo-humeral articulation, between the thoracic member and trunk, caudal to the emergence of the caudal cutaneous nerve of the forearm (the ulnar nerve).

Key words: *cervical region, coypu, dissection, lymph nodes.*

INTRODUCTION

The advantage of growing coypu is that these rodent mammals are not picky eaters, the feeding being composed solely of vegetable origin (Barach and Hafner, 2002).
Besides the fact that they are resistant to diseases and eat less, the coypu are useful for the precious fur and also for the tasty meat. After analyzing the bibliographic material it has been noted that the data on the anatomy of this species are very lackluster, especially those related to the lymphatic system (Suntsova and Panfilov, 2009; Predoi,et.al., 2011; Predoi and Belu, 2001).
Besides a detailed study of the morphology of the linked mesenteric lymph nodes at this species, the other studies address to this subject in general, also the included photos are relatively simple schemes without any photographic images (Pérez et.al.,2008; Wood et.al., 1992; Hrițcu and Coțofan,2000).
For this reason I have chosen this topic, aiming to supplement the existing data in the specialty literature regarding the morphology of the muscular lymph nodes at coypu.

MATERIALS AND METHODS

For the investigations of this present study, 5 corpses of adult coypu have been used . First of all, the animals were anesthetized and injected intradermally with colouring substance called the China dye. The China dye was filtered through a filter paper, attached to a funnel on a Berzelius glass for about 30 minutes.
The elective spots for the dye substance administration were at: the retroauricular region, the nose tip region, the commissure of the lips region, the dorsal cervical region, the ventral cervical region and the palmar pad (until forming a intradermal button).
For each injection used 0.3ml of substance have been used. After euthanasia, the investigations of the lymph nodes was performed through stratigraphical and regional dissection. The identification, the description and the approval of the structures has been made according to the NAV. -2005.

RESULTS AND DISCUSSIONS

The mandibular lymph center is formed from two lymph nodes.
The proper mandibular lymph node is developed, rounded and slightly flattened latero-laterally with a diameter of about 10 mm (Figure 1-*1*).
It is located at the ventral edge of the masseter muscle, on the surface of the occipito-mandibular muscle.
The caudal edge of the lymph node is in contact with the cranial mandibular gland. The caudo-dorsal portion comes in contact with the much smaller **mandibular accessory lymph** node is much smaller (Figure 1-*1'*), which reaches near the linguo-facial vein confluence with the jugular vein.

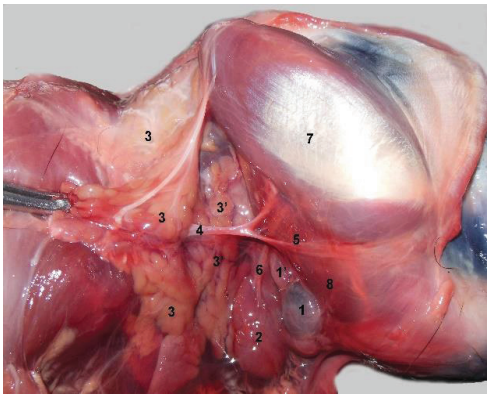

Figure 1. The morphology and topography of the mandibular lymph nodes at coypu
1- mandibular ln.; 1'- mandibular accessory ln.; 2- mandibular gland; 3-the superficial portion of the parotid; 3'-the profound portion of the partoid gland; 4-jugular vein; 5-linguofacial vein; 6-mandibular gland duct; 7-masseter muscle; 8-occipitomandibular muscle. ln = lymph node

The parotid lymphcentre is formed by one or two reduced lymph nodes that are very difficult to isolate from the parotid acini through macroscopical view (Figure 2-*1*). They are placed at the base of the ear: between the auricular cartilage and the dorsal edge of the masseter muscle, being differentiated only by the slightly darker colour of the gland. The dimension is of approximately of 1-3 mm in diameter.

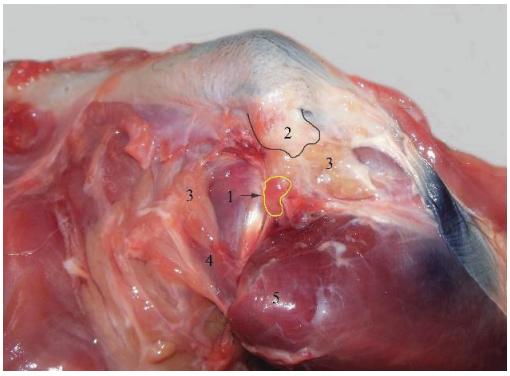

Figure 2. The Parotid lymph node morphology and topography at coypu: *1- parotid lymph node.; 2-the base of auricular cartilage; 3- portions remaining after removing the the parotid gland; 4- occipitomandibular muscle; 5- masseter muscle*

The retropharyngeal lymph centre is represented by the **lateral retropharyngeal lymph node**. It can be revealed after splitting the cranial insertion (on the occipital paracondilar process of the cleidooccipital muscle). It is extremely small, about 2 mm long and has relations with the vagosympathetic trunk, under the wing of the atlas (Figure 3-*3*). Much better represented is the **rostral hyoidian lymph node**, „hidden" in the medial occipito-mandibular muscle and lateral of the sterno-hyoidian muscle (Figure 3-*2*). The dimensions of this ovoid lymph node are approximately 10/5 mm. However the profound topography makes it difficult to approach. The literature does not reveal the presence of the **superficial cervical lymph nodes** at this species. However after the dissection through classic methods, some darker, smaller, monoliform formations were identified, interweaved in fat tissue in the prescapular region, at the medial trapezius muscle. To establish the existence of limfonodular structures harvesting and making histological preparations would be recommended,. Their analysis could clarify this issue. The lymphonodular groups belonging to the **profound cervical lymphocenter** couldn't be identified in any of the individuals.
The axillary lymph centre is represented by **the axillary accessory lymph nodes**. These are situated on the line connecting the shoulder with the olecranon thoracic angle, behind the tricipital line, on the surface of latisimus dorsi muscle. They are relatively easy to approach.(Figure 4-*1*).

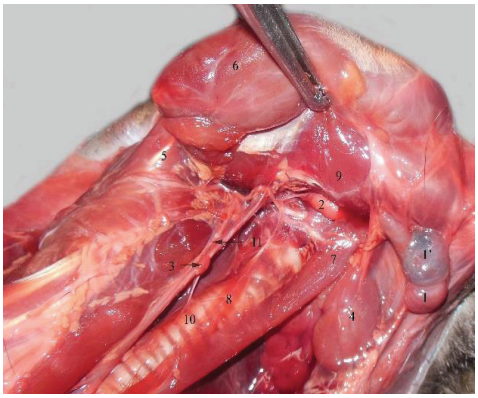

Figure 3. The morphology and the topography of lateral retropharyngeal and rostral hyoidian lymph nodes at coypu, after removing the parotid (original) *1- mandibular lymph node; 1'-accessory mandibular lymph node; 2-rostral hyoidian lymph nodes; 3-lateral retropharingeal lymph nodes; 4-mandibular gland; 5-atlas wing; 6-masseter muscle; 7-sternohyoidian muscle; 8-sternothyroid muscle; 9-occipitomandibular muscle; 10-tracheea; 11- vago-sympathetic cord in the vicinity of the common carotid artery.*

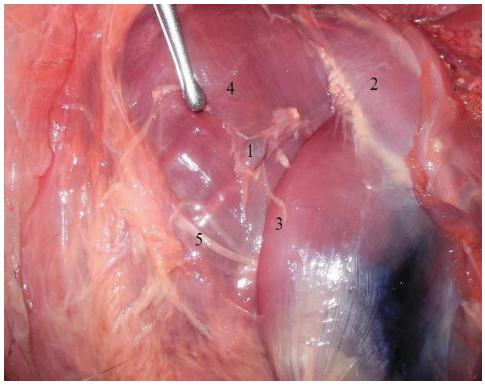

Figure 4. The morphology and the topography of the accessory axillary lymph nodes at coypu(original) *1- accessory axillary lymph nodes; 2-infraspinos muscle; 3-the caudal edge of the long portion of the triceps muscle, 4- latisimus dorsi muscle; 5- branches of lateral thoracic nerve.*

Contrary to some published literature that support the absence of **the proper axillary lymph nodes at this species**, after the dissection I have noted the presence of one lymph node, bilateral, at 40% of the dissected individuals (two specimens out of five).
Their topography is the one characteristic to domestic species, being situated caudal from the scapular-humeral articulation, between the thoracic member and torso, caudal to the emergence of the caudal cutaneous nerve of the forearm (the ulnar nerve) (Figure 5-*1*). The shape is globular and the diameter is of about 5 mm.

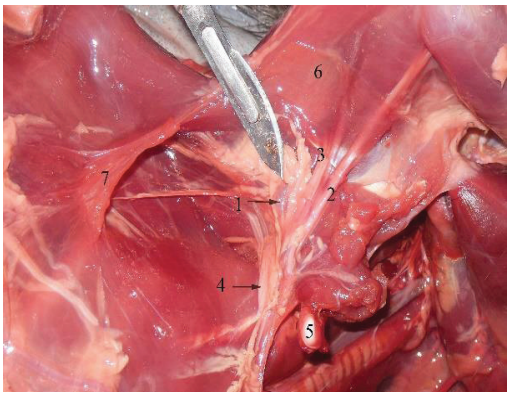

Figure 5. The morphology and topography of the proper axillary lymph nodes at coypu after opening the axillary region by cutting the clavicle and pectoral muscles (original): *1-proper axillary lymph node; 2-median nerve; 3-ulnar nerve, 4- radial nerve; 5-sectioned clavicle; 6 – long portion of the triceps; 7- latissimus dorsi muscle.*

CONCLUSIONS

The mandibular lymph centre constantly appears formed from two lymph nodes easily to identify and isolate.
Parotid lymph node is very reduced, difficult to identify and isolate (the parotid gland acini).
Specific to the retropharyngeal lymph center is the rostral hyoidian lymph node, most easily identifiable in this group.
Constantly, at coypu, the profound cervical lymph node is not present.
Although in the scientific literature proper axillary lymph nodes are not described, I have found their existence bilaterally in 40% of the cases dissected.

Although the scientific literature does not reveal the presence of the superficial cervical lymph nodes at this species, at the medial face of the trapezius muscle, on the prescapular region, darker, smaller monoliforme formations, interwaved in fat tissue. To establish the existence of these lymphonodular structures, harvesting and making histological preparations is recommended.

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