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THE MACROSCOPIC MORPHOLOGY OF THE OF THE THORACIC CAVITY LYMPH NODES AT COYPU (MYOCASTOR COYPUS)

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Abstract

The present study is performed on a number of 4 bodies of nutria. At this species, the azygos vein is placed on the right side, opening in cranial vena cava at the third intercostal space level, after intersecting from top to bottom the right side of the trachea and esophagus. At coypu, the vagal nerve is in direct contact with dorsolateral edge of the trachea. The parietal and visceral lymph nodes of the thoracic cavity were studied using the China 40% ink dye colouring method. The method used for highlight the lymph nodes was the stratigraphic and regional dissection, up to the limit of the visibility, and subsequently using the Nikon stereo microscope. The studied lymph centres are represented by the dorsal thoracal, ventral thoracal, mediastinal and bronchial lymph centers. No dorsal thoracic lymph centre was identifiable at the investigated animals. The left brhonchial lymph node has a smaller dimension compared to the right bronchial lymph node. The medial mediastinal lymph nodes are identifiable especially on the right side. There were no cranial mediastinal lypmh nodes found during the dissection. The caudal mediastinal lymph nodes were found macroscopical, but is but their presence is advisable to carry out histological examination certification.
The present lymph nodes from the thoracic cavity are reduced by number. In the discussion framework it were highlighted the medial mediasnital lymph nodes on the right side. On the right side of the stern, at the level of the second rib, it is well represented the cranial sternal lymph node. This lymph node belongs to the ventral thoracal lymph node and it appears constant as presence.

Key words: coypu, ink dye, lymph centers, thoracic cavity.

INTRODUCTION

The copyu belongs to the Rodentia Order, Mammalia Class, Myocastoridae Family, Myoscastor Genra, coypus species. This wild animal, semi-aquatic, lives in colonies or in pairs (Spătaru et al., 1997).
This rodent is grown for meat and fur. In the studied bibliography appear some relatively brief data on the visceral morphopathology lymphatic system. The study is realised to complete the existing data from the specific literature. (Dănacu et al.,2013; Gheție et al., 1967; Predoi et al., 1997; Predoi et al., 2003).
In the present study, before presenting the morphology and the topography of the thoracic lymph nodes at coypu, there are described in summary some intracavitary structures particularities following the anatomical and morphological base. (Barone, 1996; Coțofan et al., 1994).

MATERIALS AND METHODS

It were used 4 coypu bodies. The material was heterogenous regarding to the physiological age. For the injection of the Chinese inky dye solution 40% the coypu were previously anesthetized. For the thoracal cavity lymph centres dissection, the animals were euthanized after 2 hours from the injection of the dye. The administration was made intracavitary.

RESULTS AND DISCUSSIONS

In the thoracic cavity, the ceiling is formed from 13 thoracic vertebraes that presents a wiped ventral ridge. As exceptions are the last three vertebraes, where the ventral ridge is more prominent. At this species, the ventral face of all verebraes bodies is covered by

muscle, whereas the psoas muscle origin is ”advancing more”, getting to meet along the neck muscle.
The species is presenting nine pairs of sternal ribs, one asternal and three floating ribs. The first two pairs are relatively short, which makes the cranial thoracic aperture to be narrow, and the whole thoracic cavity structure is being like a funnel. The sternum is formed from seven sternal vertebraes at the young animals. At adults, the VI-th and the VII-th sternal vertebraes are welded together. At the level of the precordial mediastinal right phrenic nerve that accompanies on the dorsal path the cranial cava vein is passing lateral the sinus of the cava vein, continuing in the caudal cava vein meso to the diaphragm, at the dorso-lateral side of this vein. At this species the azygos vein is disposed on the right side and it is opening in the cranial cava vein, at the level of the third intercostal space, after crossing from top to bottom the right face the trachea and esophagus. Until the VIII-th thoracal vertebrae, the azygos vein is masked by the psoas muscles origin. At the level of the first two intercostal spaces, the esophagus is located on the right side of the trachea. Taking into account this particular aspect, the right vagus nerve is coming directly related with the dorso-lateral edge of the trachea. The two vagus nerves, arrived in the posterior mediastinum, will flank the esophagus forming a single cordon, dorsal from this one, at the entry in the abdominal cavity. The aorta emit the dorsal intercostal arteries, starting with the fifth intercostal space.
The thoracic cavity lymph nodes are reduced by number, being grouped in lymph centers: **dorsal thoracal, ventral thoracal, brochial and mediastinal.**
The ventral thoracal lymph centre is represented only by the cranial sternal lymph nodes. These are highly represented, placed at the second rib level, under the cranial cava vein. It has a diameter of about 5-7 mm, they are easily to be isolated and identified (Figure 1-*1*, Figure 4-*6*).

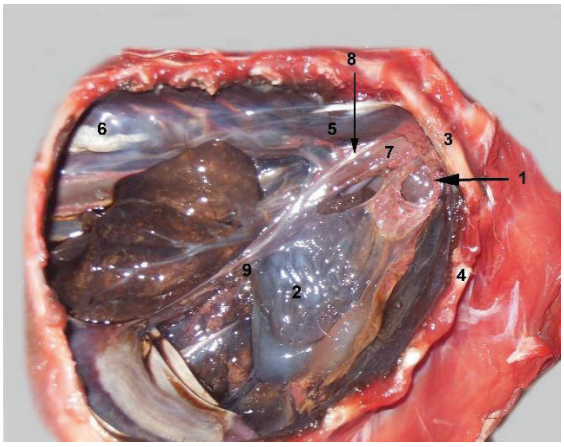

Figure 1. The topography of the cranial sternal lymph node – View on the right side, after opening the thoracic cavity (original)
1- the cranial sternal lymph nodes, 2 – the cordon coated in pericardium, 3 – the first rib, 4 – sternum, 5 – the long muscle of the neck, 6 – the origin of the psoas muscles, 7 – cranial cava vein, 8 – right phrenic nerve, 9 – caudal cava vein with the right phrenic nerve

It was not possible to be identified by macroscopic view the lymph nodes belonging to the dorsal thoracal lymph centre.
The bronchial lymph centre is represented on the right side by a right bronchial lymph node with a discoid form, with a diameter about 3 mm. It is situated lateral the trachea, behind the affluence of the azygos vein to the caudal cava vein. (Figure 2-*1*, Figure 4-*5*). On the left side, the left bronchial lymph node is more reduced compared with his congener from the right side (Figure 3-*1*). It appears situated at the origin of the costo-cervical

trunk, lateral by the trachea, at the ventral edge of the esophagus.
The mediastinal lymph centre appear constantly represented by the medial medistinal lymph nodes, especially visible on the right side, cranial by the affluence of the azygos vein in the cranial cava vein, lateral by the trachea, in relation with the vagus nerve (Figure 2-*2*).

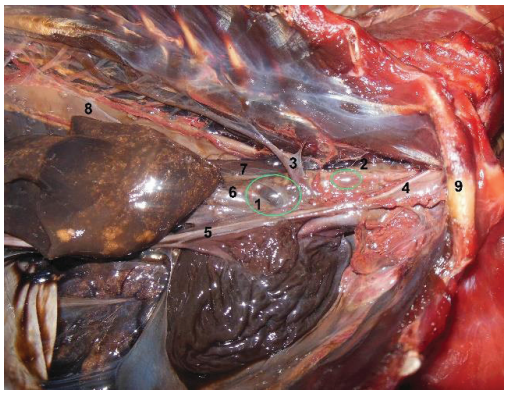

Figure 2. The topography of the right bronchial and medial mediastinal lymph nodes – Right side view of the thoracic cavity (original)
1 – right bronchial lymph node, 2 – medial mediastinal lymph node, 3 – right azygos vein, 4 – cranial cava vein with the phrenic nerve, 5 – caudal cava vein with the phrenic nerve, 6 – tracheal bifurcation, 7 – esophagus, 8 – aorta, 9 – first rib

It was not identified any cranial mediastinal lymph nodes. In the postcordial mediastin it could be observed a elongated group of reduced lymph nodes, which could correspond to the caudal mediastinal lymph nodes, by structure, situated nearby the ventral descendent edge of the aorta, which have not been described in the speciality literature (Figure 4-*1*).
However, harvesting and making histological preparations could clarify this.

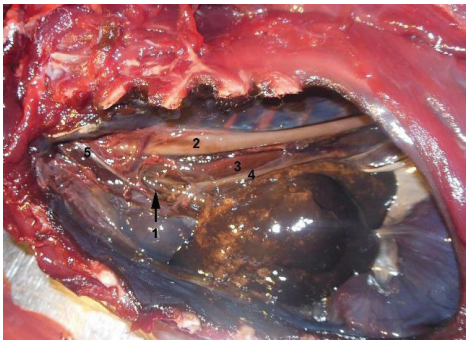

Figure 3. Topography of the left bronchial lymph nodes – Left side view of the thoracic cavity (original)
1 - left bronchial lymph node, 2 – aorta, 3 – esophagus, 4 – left vagus nerve, 5 – left phrenic nerve

Figure 4. The topography of the caudal mediastinal lymph nodes – right side view of the thoracic cavity (original)
1 – caudal mediastinal lymph nodes grouping, 2 – aorta, 3 – esophagus with the right vagus nerve, 4 – trachea, 5 – right bronchial lymph nodes 6 – cranial sternal lymph node

CONCLUSIONS

The thoracic cavity lymph nodes are reduced by number, being grouped in the lymph centres: dorsal thoracal, ventral thoracal, bronchial and mediastinal.

It couldn't be identified by macroscopic view the intercostal and toraco-aortic lymph nodes.

The bronchial lymph centre is represented by the left and right bronchial lymph nodes, the right one being better represented by the left one.

The mediastinal lymph centre is represented constantly by the medial mediastinal lymphnodes, being easily to identify after opening the right side of the thoracic cavity.

The most better represented is the cranial sternal lymph node, constantly, situated on the dorsal face of the sternum, on the distal extremity of the second rib.

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