

THE CONSIDERATIONS ON HEAD AND NECK LYMPHOCENTERS MORPHOTOPOGRAPHY IN GUINEA PIG

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Abstract: Lymph from head and neck regions is collected, filtered and drained from towards through the afferent and efferent vessels of main lymphcenters: the buccal, facial, submandibular, auricular, superficial cervical and deep cervical. The lymph centers are characteristically organized in lymph nodes groups in a different way, depending from a series of factors, depending on the head and neck length and the conformation of the salivary glands. In guinea pigs the lymphcenters are included in a great amount of adipose tissue. In the center of this tissue we reveal the lymphcenter which are gray colored. The lymph centers in the guinea pig are spread in more numerous groups. The buccal lymph center consist of a single lymph node and it is close of the superior molar glands which are characteristic in rodents. The parotid lymphcenter consist of a three lymph nodes.

The anterior auricular lymph center consists of two lymphnodes groups: round and kidney shaped. The posterior auricular lymph center is covered by parotidoauricular muscle. The mandibular lymph center is kidney shaped in aspect and is covered by the platysma muscle. The superficial cervical lymphcenter is characterized by ventral superficial cervical lymph nodes situated between the caudal border of the parotid gland and the cleidoocipital muscle. The deep cervical lymphcenter (cranial, middle and caudal) is situated at the caudal pole of the submandibular gland or on the lateral side of the sternothyroid muscle.

Key words: guinea pig, lymph, lymph node, lymph center

MATERIAL AND METHOD

Six mature guinea pigs from each sex were injected with a 0.1 ml dose of China ink in physiological serum solution. The injection's purpose was to visualize the lymph nodes and the path of the lymphatic vessels. The colorific substance was injected intradermic, subcutaneous, intratracheal, intraperitoneal. The chosen spot was represented by the caudal face of the auricular concha, the tip of the nose, the inferior lip. Animal scarification was performed 24 hours later through profound narcosis with ethyl ether. Stratigraphic and regional dissection applied, using the Nikon stereomicroscope.

RESULTS AND DISCUSSIONS

The head lymph centers

- The mandibular lymph center: a group of 2-3 obvious lymph nodes, representing the rostral mandibular lymph center and a single lymph node, representing the aboral mandibular lymph center. The rostral mandibular lymph nodes are covered by the platysma muscle in relation to the rostral edge of the mandibular gland. The aboral mandibular lymph nodes are placed behind the previous ones, parallel to the horizontal branch of the mandible and to the external maxillary vein. The efferent lymphatic vessels drain themselves through the lateral retropharyngeal lymph nodes and into the tracheal conduct.



Figure nr. 1



Figure nr. 2

- 1 – aboral mandibular lymph node
- 1 – rostral mandibular lymph node
- 2 – oral parotid lymph node
- 2 – parotid lymph nodes
- 3 – facial lymph node

- The buccal lymph center: situated on the lateral face of the buccinator muscle, in relation to the superior molar glands. The efferent vessels collect the lymph from the facial region, the tip of the nose, the superior lip, the musculature of the cheeks, the eyelids and from the masseterian region.
- The facial lymph center: a single lymph node on the lateral face of the buccinator muscle, dorsal from the buccal lymph center. The afferent vessels collect the lymph from the oral portion of the buccal cavity, the efferent vessels being tributary of the mandibular lymph center.
- The parotid lymph center: three nearly spherical lymph nodes, a lymphonodular group on the surface of the superior edge of the masseter muscle. Another lymphonodular group, on the temporal muscle's surface, right behind the caudal auricular vein and artery. Another lymphonodular group at the base of the auricular concha. The lymph is collected from the parotid gland and from the ear pavilion. The efferent vessels reach into the mandibular lymph center and into the cervical collector canal.
- The auricular lymph center: anterior – two lymph nodes, on the path of the rostral auricular artery

Posterior – behind and lateral from the base of the ear, on the path of the caudal auricular artery.

- The retropharyngeal lymph center: represented by the medial retropharyngeal lymph nodes – arranged on the dorsal side of the pharynx, on the path of the ascending palatine artery – and the lateral retropharyngeal lymph nodes, placed on the path of

the occipital artery, under the sternocephalic and cleidomastoid muscle, on the caudal edge of the parotid gland.

Cervical lymph centers

- The superficial cervical lymph center – cranial superficial cervical lymph nodes: two lymph nodes situated on the confluence angle between the jugular and the maxillary veins. The afferent vessels collect the lymph from the anterior cervical region and from the larynx.
- Caudal superficial cervical lymph nodes – situated on the angle between the cleidocephalic and cleidooccipital muscles, on the path of the superficial cervical artery, the ascending branch.

Profound cervical lymph center

- Cranial profound cervical lymph nodes: on the path of the external maxillary artery, at the posterior pole of the mandibular gland.
- Middle profound cervical lymph nodes: situated in the middle third of the neck, lateral to the sternothyroid muscle.
- Caudal profound cervical lymph nodes: situated about 4 mm away from the brachiocephalic trunks's origin.



Figure nr. 3

1 – Ventral cervical lymph nodes



Figure nr. 4

1 – Caudal profound cervical lymph nodes

CONCLUSIONS

1. The muscular lymph centers are found in a variable quantity of fat, being visible thanks to their grey coloring.
2. There is a notable variability of the lymph nodes' shape in the head region: globular, reniforme.
3. The mandibular lymph center was spotted in 85% of the cases.
4. The lymph nodes from the head and neck regions have an appreciable development in relation to the size of the animal.
5. The profound cervical lymph nodes appear very close to each other because of the cervical region's reduced length.

REFERENCES

1. Gabriel Predoi, Bogdan Georgescu, Cristian Belu, Iulian Dumitrescu, AncaȘeicar, PetronelaRoșu, Comparative Anatomy of domestic mammals. Osteology, Artrology, Miology, CERES editure, Bucharest, ISBN – 978-973-40-0906-0, pg. 286, 2011.
2. Șeicar, Anca – Comparative morphology of the lymphatic system in laboratory rodents. Thesis, F.M.V. Bucharest, 2001.
3. Gheție, V. – Contributions to the study of lymphatic vessels in the horse bladder. Thesis, F.M.V. Bucharest, 1928.
4. Dănac, Viorel – Comparative pathologic researches regarding the leporidae lymphatic system. Thesis, F.M.V. Bucharest, 2000.