

Sugimura, Kudo and Takahata (5) described the lymph nodes of the body surfaces and thoracic and pelvic limbs. They described two lymph nodes which were never observed in my investigations. These are the prefemoral and lateral femoral lymph nodes. *Ottaviani* and *Cavalli* did not observe either of these nodes in any of the cats they examined.

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A Simplified Method for Cannulation of the Normal Canine Cervical Thoracic Duct

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In view of the reawakened interest in the lymph circulation, a description of a simplified technique for cannulation of the thoracic duct in the neck of the dog is timely. *Markowitz* states (1) that the anatomy of the cervical thoracic duct in the normal dog varies, that the duct often subdivides into multiple channels, and that successful cannulation is often difficult or even impossible. He suggests obstruction of internal, external jugular and subclavian veins, or isolation of these veins into a closed pouch at the entry of the thoracic duct - inconvenient or indirect methods for exposure of the thoracic duct and for collection of lymph. Using the position shown in Fig. 1 we have been uniformly successful in isolating and cannulating the thoracic duct with ease in the neck of normal dogs.

In contrast to man, the canine thoracic duct empties into the left *external* jugulo-subclavian venous juncture often via a common cistern which also drains lymphatics from the left neck and forelimb. The clavicle is absent in the dog, and hyperextension of the head and neck after endotracheal intubation places the superior mediastinum under tension and facilitates exposure without obstructing ventilation. Initially, without previous preparation with vital dyes, fatty meal or intravenous fluids, the relatively avascular medial border of the external jugular vein is dissected and the arching thoracic duct located. The duct is exposed in a caudad direction for approximately two inches adjacent to the lateral border of the common carotid artery, controlled as for a venous cutdown, and incised in its anterior wall. The lips of the opening are separated by a

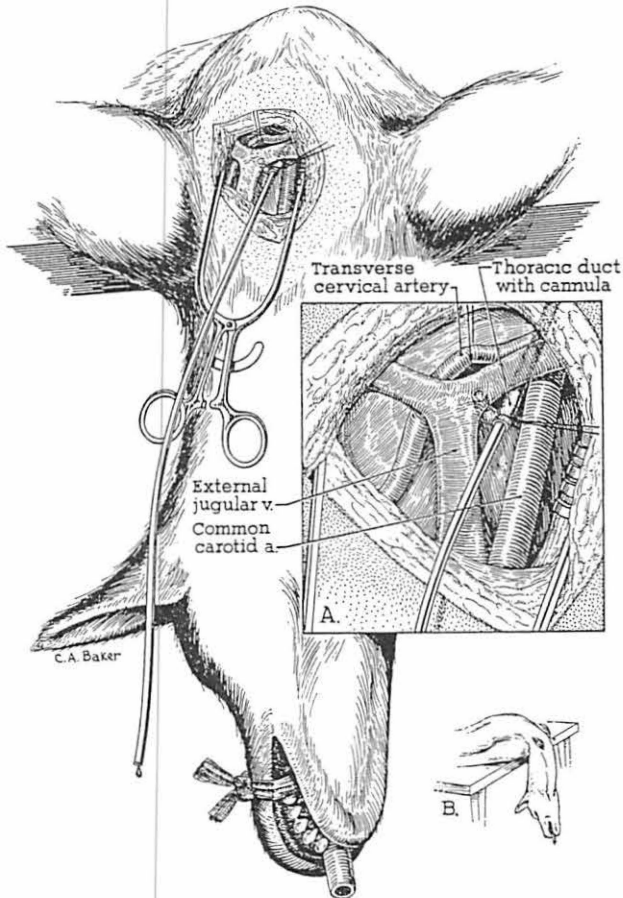


Fig. 1 Operative position designed for optimum exposure of the canine thoracic duct. The head and neck of the dog hangs freely over the end of the table (inset B), thereby tensing the superior mediastinum. The thoracic duct is isolated proximal to its arch into the jugulosubclavian venous junction and intubated for more than two inches with an appropriately sized polyethylene catheter (inset A).

slow continuous jet of normal saline, and the duct intubated with appropriately sized polyethylene tubing (P. E. No. 160 or 190). By beveling the catheter slightly and applying pressure gently, the danger of puncturing the duct wall as one or two intraluminal valves are overcome is minimized and the catheter can be inserted for two or three inches or further into the thoracic duct lumen. After cannulation is completed, a ligature is placed around the duct containing the cannula, and the dog returned to a more "physiologic" position on the operating table for subsequent experimentation.

This simple approach averts artificial kinking of the duct and dislodgement of the cannula and assures successful cannulation.

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ABSTRACTS

Basic Science

KUPRIANOV, V. V. (2nd Med. Inst., Moscow G-146, U.S.S.R.): **Some Features of the Initial Lymphatic Vessels in Their Interrelation with Blood Vessels.** *Acta anat. (Basel)* 73 (1969), 69-80

The author always finds valves in the lumens of the thin lymphatic channels forming capillary networks. The valves were revealed by impregnating the vessels with AgNO₃, from the exterior without intra-lymphatic injection. He concludes that there are 3 kinds of lymphatic capillaries: tubular (beginning blindly), loop-shaped, sinusoidal (e. g. in intestinal villi). He suggests distinguishing the intermediate lymphatics, between the capillaries and the collecting vessels, and naming them lymphatic postcapillaries. (They have a thin wall, no muscle cells, and have valves.) It seems that the initial networks of the lymphatic system are formed, as a rule, by the lymphatic postcapillaries.

Few experimental details are given since this is partly a review paper; this is a pity since the techniques seem valuable and the only references he gives to his own work are in Russian.

He considers that stomata are absent and that the "pseudofenestrae . . . are not openings in the wall but spaces resulting from the division of the vessel and limited by the latter." This view has been repeatedly refuted by the electron microscope, which often shows open inter-endothelial junctions, however these are likely to be usually invisible in the light microscope.

He suggests that the finger-shaped, blindly ending lymphatics are not necessarily newly-growing vessels, but a permanent part of the system - one form of the initial lymphatic capillaries. Others are loopshaped capillaries forming networks, and sinusoidal forms. (The distinctness of the last are more debatable in the opinion of the reviewer.)

He makes the very important point that there is often no difference between the initial vessels without valves (the "capillaries") and those adjacent to them with valves, but without thick walls and muscle cells. He considers these to be capable of functioning as initial lymphatics and says that they are often far more numerous than the capillaries. He calls