

Visualization of mammary gland sentinel lymph node and its lymphatic pathway using lymphography in female dogs.

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Purposes: Sentinel lymph node is defined as the first lymph node receiving lymph flow from the primary neoplasm and reflects the tumor status of the entire lymphatic drainage. In canine mammary gland tumors, the lymphatic system is considered a main route of metastasis, therefore, the surgical biopsy and assessment of the sentinel lymph node has become a standard practice for minimally invasive surgery. The purpose of this study is to identify the lymph drainage pattern by injection of contrast medium into mammary gland in healthy dogs with radiographic lymphography and computed tomographic lymphography(CT-LG) and to report a potential clinical application of lymphographic study to canine mammary tumor patients.

Material and Methods: To visualize the mammary efferent lymphatic vessels and lymph node, undiluted iopamidol(612mg/ml) was injected subcutaneously overlying at upper and lower mammary glands in 7 female dogs. After gentle massage at the injection site, two orthogonal radiographs were taken serially. Also, contiguous, 2mm-thickness helical CT images were obtained at axilla and inguinal area after same procedures. The location, size, and general pathway of sentinel lymph node receiving upper and lower mammary gland lymphatics were assessed.

Result: Radiographic lymphography and CT-LG allowed visualization of a direct connection between sentinel lymph node and its efferent lymphatic vessels draining from the injection site without any significant adverse effects in all animals. Although CT can provide comprehensive anatomic outline of these lymphatic pathway, radiographic lymphography also effectively localized the mammary lymphatic vessels and its sentinel lymph node. Mean lymph node length/body weight and mean width/body weight ratio measured at radiographic lymphography were $0.14 \text{ cm} \pm 0.04$ and $0.06\text{cm} \pm 0.015$, respectively.

Conclusion: Radiographic lymphography and CT-LG might have enough excellent potential for visualization of sentinel lymph node and its efferent lymphatic pathway and for preoperative localization of mammary gland sentinel lymph node.

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keyword: mammary gland, lymphatics, lymphography, CT

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