



Letter to the Editor

Sentinel Lymph Node Identification: the Importance of new Methodologies and Preclinical Studies in Dogs

Hugo Enrique Orsini Beserra^{1,2}, Fabrizio Grandi^{1,2,3*}, José Fernando Ibañez⁴, Noeme Sousa Rocha^{1,3}, Luiz Gonzaga Porto Pinheiro⁵

¹Laboratory of Investigative and Comparative Pathology, School of Veterinary Medicine and Animal Science, Univ. Estadual Paulista – UNESP, Botucatu, Brazil.

²Department of Diagnostic Pathology, Public Veterinary Hospital, Veterinary Service of National Association of Small Animal Clinicians (ANCLIVEPA), São Paulo, SP, Brazil.

³Department of Pathology, Botucatu Medical School, Univ. Estadual Paulista – UNESP, Botucatu, São Paulo, Brazil

⁴Department of Veterinary Medicine, Federal University of Paraná – UFPR, Curitiba, Brazil

⁵Department of Surgery, Medical School, Univ. Federal do Ceará – UFC, Fortaleza, Brazil.

*Corresponding Author: Distrito de Rubião Júnior s/n – CEP 18618-970 - Botucatu – SP - Brazil, +55 14 38116293, E-mail: fgrandivet@gmail.com

Clinical and pathological staging of mammary tumors are important issues both in terms of treatment and prognosis. To achieve this goal, several ancillary tests are recommended including mammography, ultrasound, scintigraphy, fine needle aspiration cytology, biopsy and evaluation of sentinel lymph node status (2)

Dogs had been used as a comparative model for humans in an enormous set of preclinical studies (6,8). Since canine and human mammary tumors are very similar both clinically and pathologically (1), studies involving new biomarkers in sentinel node research in the canine species greatly reduces costs and time expended with basic research. Moreover, it contributes to Veterinary Oncology particularly regarding the potential use of SLNB (Sentinel lymph node biopsy) as a prognostic factor for dogs, which currently is a controversial issue (7,5,4).

SLNB is important in tumor, node, metastasis (TNM) classification system which gives three important prognostic criteria: tumor grade, node status and the presence of secondary tumors at distant sites (3).

Several techniques and dyes had been used to identify SNs both in human and animals including patent blue V, technetium 99mTc and recently autologous hemosiderin. Hemosiderin is an autologous, innocuous and inexpensive biomarker used by our team in an experimental setting in female dogs for sentinel lymph node identification (6).

Recently, we have routinely used patent blue V in dogs with mammary tumors at a Public Veterinary Hospital with no clinical or surgical complications either during or after the procedure. These preliminary results have stimulated our group to evaluate the applicability of autologous hemosiderin in a larger scale.

Hemosiderin has the potential to be used in sentinel lymph node identification breast cancer studies in both dogs and humans; nonetheless, the use of the canine species as a comparative model is of paramount importance in this context.

Suggested Reading:

1. CASSALI GD, LAVALLE GE, DE NERDI AB, et al. Consensus for the diagnosis, prognosis and treatment of canine mammary tumors. **Braz. J. Vet. Path.**, 2011, 4, 153-180.
2. KANAEV CV, NOVIKOV SN, SEMIGLAZOY VF, et al. Early diagnosis of breast cancer with scintimammography and ultrasound. **Vopr. Onkol.**, 2011, 57, 622-626.
3. KWAN ML, HAQUE R, LEE VS, et al. Validation of AJCC TNM staging for breast tumors diagnosed before 2004 in cancer registries. **Cancer Causes Control**, 2012, 23, 1587-1591.
4. MATOS AJF, FAUSTINO AMR, LOPES C, et al. Detection of lymph node micrometastases in malignant mammary tumors in dogs by cytokeratin immunostaining. **Vet. Rec.**, 2006, 158, 626-630.
5. PATSIKAS MN, KARAYANNOPOLOU E, KALDRYMIDOU LG, et al. The lymph drainage of the neoplastic mammary glands in the bitch: A lymphographic study. **Anat. Histol. Embryol.**, 2006, 35, 228-234.
6. PINHEIRO LGP, OLIVEIRA FILHO RS, VASQUES PHD, et al. Hemosiderin: A new marker for sentinel lymph node identification. **Acta Cir. Bras.**, 2009, 24, 432-436.
7. SORENMO KU, RASOTTO R, ZAPPULLI V, et al. Development, anatomy, histology, lymphatic drainage, clinical features, and cell differentiation markers of canine mammary gland neoplasms. **Vet. Path.**, 2011, 48, 85-97.
8. SUAMI H, SHIN D, CHANG DW. Mapping of lysosomes in the canine forelimb: Comparative anatomy between canines and humans. **Plast. Reconstr. Surg. J.**, 2012, 129, 612-620.