

Métodos diagnósticos para os linfomas em cães e gatos

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Diagnóstico e classificação

- Classificação clínica
- Classificação patológica
 - Exame citopatológico
 - Exame histopatológico
 - Citometria de fluxo
 - Exame imuno-histoquímico
 - Exame molecular (PARR)

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Box 7.1 Summary of the Revised European–American Lymphoma (REAL) classification of lymphoid neoplasms adopted by the World Health Organization as applied for use in animals

B-cell neoplasms

Precursor B-cell neoplasms

- Lymphoblastic leukemia/lymphoma
- Mature (peripheral) B-cell neoplasms
- Chronic lymphocytic leukemia/small lymphocytic lymphoma
- Prolymphocytic leukemia
- Lymphoplasmacytic lymphoma
- Plasmablastic lymphoma
- Mantle cell lymphoma (MCL)
- Follicular lymphoma
- Diffuse large B-cell lymphoma (DLBCL)^a
 - Subtypes: T-cell-rich large B-cell; primary mediastinal (thymic)
- Angiocentric B-cell lymphoma (lymphomatoid granulomatous)
- Marginal zone lymphoma (MZL)^a
 - Nodal, splenic, extranodal marginal zone lymphoma of mucosa-associated lymphoid tissue type (MALT)
- Burkitt's lymphoma/Burkitt's cell leukemia
- Provisional entity: high-grade B-cell lymphoma Burkitt's-like
- Plasma cell myeloma
- Plasmacytoma

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T-cell and putative NK-cell neoplasms

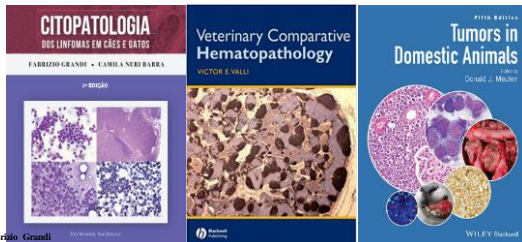
Precursor T-cell neoplasms

- Lymphoblastic lymphoma (LBL)/leukemia
- Mature (peripheral) T-cell and NK-cell neoplasms
- Chronic lymphocytic leukemia (CLL)/small cell lymphoma (SLL)
- Prolymphocytic leukemia
- Large granular lymphocytic (LGL) leukemia/lymphoma
- T-zone lymphoma (TZL), nodal^a
- Intestinal T-cell lymphoma (enteropathy associated)
- Hepatosplenic γδ T-cell lymphoma
- Mycosis fungoides/Sézary syndrome
- Intravascular lymphoma (angiocentric)
- Subcutaneous panniculitis-like T-cell lymphoma
- Angioimmunoblastic T-cell lymphoma
- Aggressive natural killer (NK)-cell leukemia/lymphoma
- Adult T-cell lymphoma/leukemia
- Anaplastic large cell lymphoma; cutaneous and systemic
- Peripheral T-cell lymphoma not otherwise specified (PTCL-NOS)^{a,b}

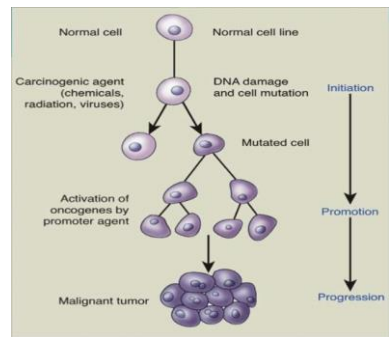
^a These five tumors account for approximately 80% of canine lymphomas.
^b Peripheral T-cell lymphomas not otherwise specified (PTNOS) are those that are not presently specified to a specific subtype.
 T-zone lymphoma is not part of the WHO classification for humans but it is listed here because it is one of the more common lymphomas in dogs. The most common feline lymphomas are enteric, large B-cell (includes T-cell-rich large B-cell lymphoma (T-RLBCL), nasal, mediastinal, and Burkitt's in some studies). The most common equine lymphomas are T-RLBCL, cutaneous, large B-cell, and enteric.

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Literatura



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- CITOLOGIA POR AGULHA FINA
- NÃO-ASPIRATIVA OU POR CAPILARIDADE



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Material necessário

- SERINGA (10 ML)
- AGULHAS HIPODÉRMICAS (22G)
- LÂMINA LISA
- LÂMINA FOSCA
- LÁPIS

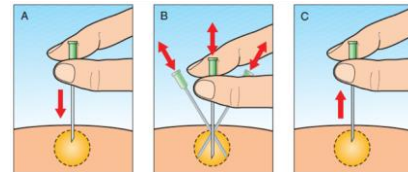
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Procedimento padrão

- TRICOTOMIA LOCAL
- ANTISSEPSE CIRÚRGICA (CULTIVO MICROBIANO)
- ANTISSEPSE LOCAL COM ÁLCOOL 70%
- FIXAÇÃO DA LESÃO ENTRE O DEDO INDICADOR E O POLEGAR

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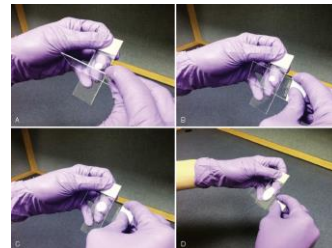
Procedimento padrão



Fonte: Petemergency

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Esmagamento ou *squash* "Esfregaço único"



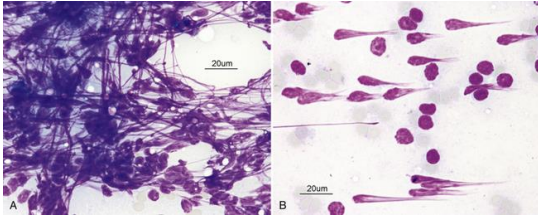
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Fonte: Cibas & Durlatman, Cytology: Diagnostic principles and clinical correlates, 4th ed.

<https://www.youtube.com/watch?v=JTVBNeTH8>

<https://www.youtube.com/watch?v=rmoXWocJw4c>

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<http://veteriankey.com/sample-collection-and-preparation/>

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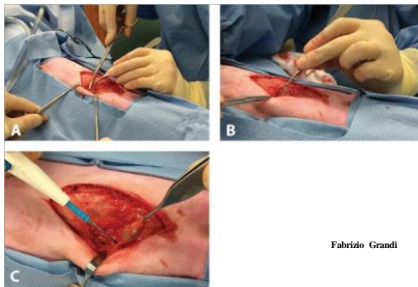
<https://www.youtube.com/watch?v=QF07G03J4A>

Fixação e coloração



Fonte: Centexis

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<https://todaysveterinarypractice.com/oncology/lymphadenectomy-overview-of-surgical-anatomy-removal-of-peripheral-lymph-nodes/>

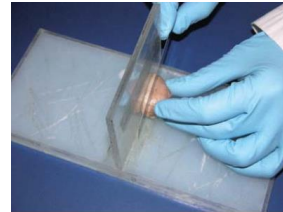
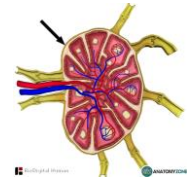


Figure 2-46A. Support device to assist gaining a uniformly smooth cut surface of a lymph node adjacent to an incision made in the fresh tissue to assist fixation. The frame is constructed of lucite plastic with the base filled with paraffin to reduce dulling of cutting instruments. The node is being trimmed with a disposable cryostat blade, with the tissue to be embedded clearly viewed by the prosector. Photograph by S. H. Hsiao, DVM, and section by M. Chen, VM2.



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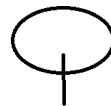
Fixação

- Conceito
- Tipos de fixadores e concentrações
- Proporção fixador: tecido
- Tempo total de fixação
- Processamento pós-fixação

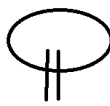


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Submandibular E



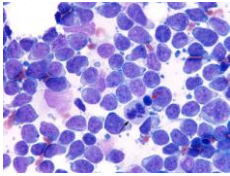
Submandibular D



Popliteo D

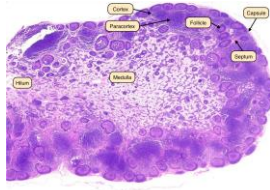


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<https://eclinpath.com/hematology/leukemia/leukemia-types/lymphoma-in-a-dog/>

- Não preserva arquitetura



http://medcell.med.yale.edu/systems_cell_biology/lymphatics_lab.php

- Preserva arquitetura

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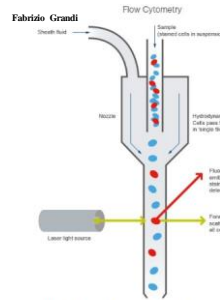
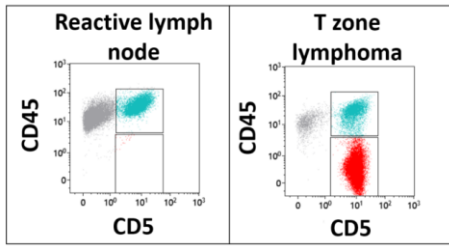


Figure 1: The basics of a flow cytometer

Table 1: Canine leukocyte markers commonly used for immunophenotyping

Antigen	Antigen generally found on
CD3	T cells
CD4	T helper cells
CD8	T cytotoxic cells
CD21	B cells
CD34	Hematopoietic progenitor cells/leukemia
CD79a/b	Part of B cell receptor, on immature cells
CD11d	Macrophages of spleen and bone marrow
CD45	All leukocytes

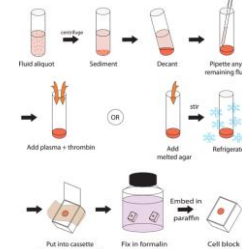
https://www.mspca.org/angell_services/canine-lymphoma-diagnostics-making-sense-of-flow-cytometry-vs-parr/



<https://vetmedbiosci.colostate.edu/chi/principles-of-testing/>

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Cytology: Cell block technique



<https://www.degruyter.com/document/doi/10.1515/pp-2016-0001/html>

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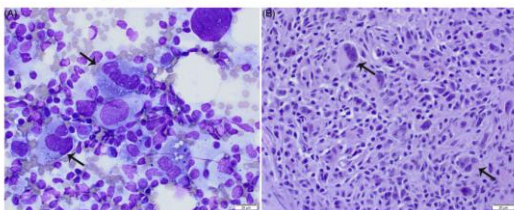
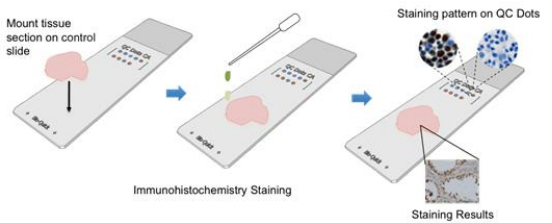
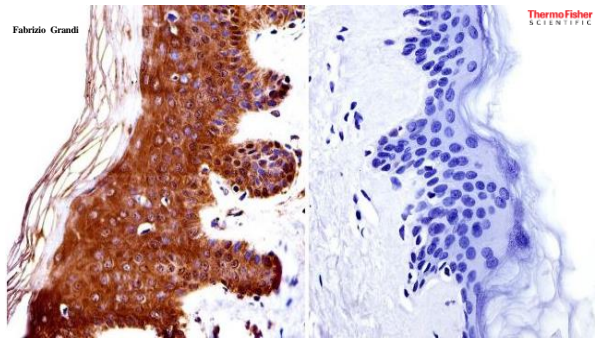
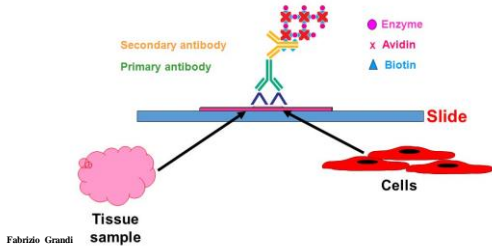


FIGURE 2 Lymph node fine needle aspirate biopsy with cytological evaluation (FNAB-C) and corresponding cell block (CB) of metastatic sarcoma indicated by the black arrows. (A) FNAB-C demonstrates highly pleomorphic mesenchymal cells among a mixed lymphocyte population (Wright-Giemsa, 500x). (B) CB reveals similar sarcoma cells among a mixed lymphoid population (haematoxylin and eosin, 500x) [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]



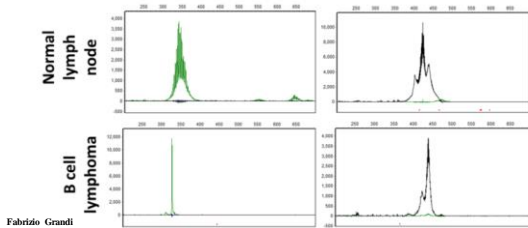
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IMMUNOHISTOCHEMISTRY



[https://vetmedbiosci.colostate.edu/chi/principles-of-testing/PCR-for-Antigen-Receptor-Rearrangement-\(PARR\)](https://vetmedbiosci.colostate.edu/chi/principles-of-testing/PCR-for-Antigen-Receptor-Rearrangement-(PARR))

Immunoglobulin heavy chain T cell receptor gamma chain



<https://www.uoguelph.ca/ah/content/companion-animals-1>

