



Critérios gerais de malignidade

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Zachary & McGavin. Pathologic basis of veterinary disease.

TABLE 6-1 Comparisons between Benign and Malignant Tumors

Characteristic	Benign	Malignant
Differentiation	Well-differentiated appearance Structure similar to tissue of origin Little or no anaplasia	Usually some lack of differentiation Structure often atypical Variable degree of anaplasia
Growth rate	Slow, progressive expansion Rare mitotic figures	Slow-to-rapid growth; erratic growth rate Mitotic figures often numerous
Local invasion	Normal-appearing mitotic figures No invasion Cohesive and expansile growth Capsule often present	Mitotic figures sometimes abnormal Local invasion Infiltrative growth Usually no capsule
Metastasis	No metastasis	Frequent metastasis (definitive criterion for malignancy)

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Critérios de malignidade

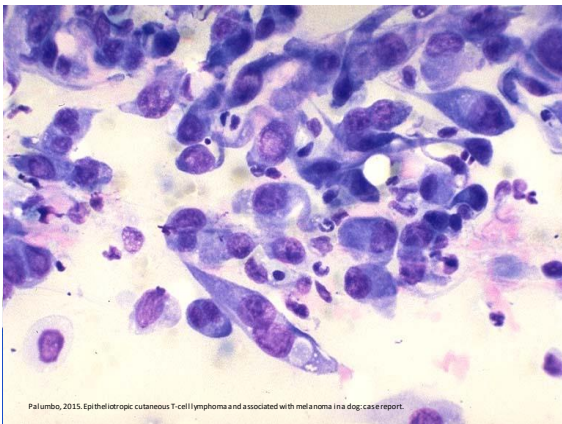
- ✓ Os critérios de malignidade são representados por alterações estruturais nas células tumorais, passíveis de observação ao microscópio de luz, representando diferentes estados de diferenciação celular.
- ✓ TODOS os critérios devem ser interpretados frente a biologia e morfologia do tecido normal.
- ✓ TODOS os critérios devem ser avaliados em uma mesma população (citotipo)

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Pleomorfismo

- ✓ É a capacidade de assumir variadas formas caracterizando um estado ou qualidade (Merriam Webster, Medical Dictionary).
- ✓ Normal em alguns tecidos (ex. Epiderme, mucosa vaginal e epitélio de transição)

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Palumbo, 2015. Epitheliotropic cutaneous T-cell lymphoma and associated with melanoma in a dog: case report.

Anisocitose, macrocitose, anisocariose e macrocariose

- ✓ Termos que referem-se a variação no tamanho celular.
- ✓ Normal em maior ou menor grau
- ✓ Critério x não critério
- ✓ Comumente super-estimados

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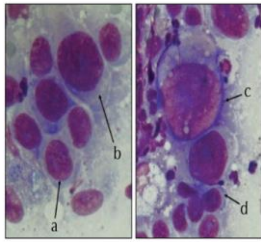


Figure 157 - Anisocytosis: cells belonging to the same cytotype show significantly different size (a vs. b); in some cases, the difference in the cell size (c vs. d) is so marked that justifies the use of the term 'macrokaryosis' or 'cell gigantism'.

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Cr terios nucleares

- ✓ As mudanas progressivas na estrutura nuclear durante a transformao maligna esto associadas a mudanas na matriz nuclear, anormalidades na membrana nuclear e organizao da cromatina (Dey P, 2009. Diagnostic Cytopathology).

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Multinucleao

- ✓ Definio
- ✓ Crit rio importante
- ✓ Nmeros pares x mpares
- ✓ Clulas normalmente bi ou multinucleadas
- ✓ Tamanho dos ncleos na mesma clula
- ✓ Tecidos normais: fgado, medula, osso.

Cowell & Tyler. Cytology and Hematology of the Dog and Cat

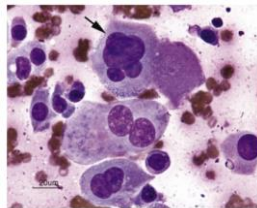


FIGURE 2-42 Aspirate of a transitional cell carcinoma from a dog. Two binucleate cells are present with equally sized nuclei. However, one multinucleated cell (arrow) shows significant variation in nuclear size.

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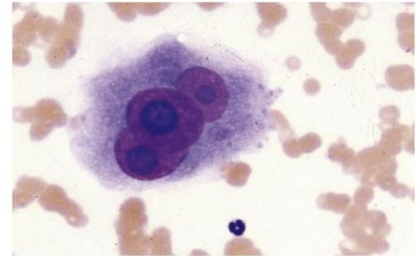


FIGURE 2-63 A multinucleated cell with an odd number of nuclei. Prominent, large nucleoli of varying size are also present. The erythrocytes and neutrophil can be used for size comparison. Cowell & Tyler. Cytology and Hematology of the Dog and Cat

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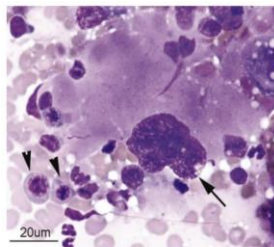


FIGURE 2-44 Splenic aspirate from a dog with extramedullary hematopoiesis. A single megakaryocyte is present. This large cell has expansive cytoplasm and a single, multilobulated nucleus and can resemble a multinucleated cell. Cowell & Tyler. Cytology and Hematology of the Dog and Cat

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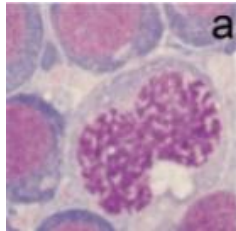
Figuras de mitose e contagem

- ✓ ndice mittico  frequentemente usado na gradao de malignidade
- ✓ Tecidos normais x transformados

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Cr terios nucleares

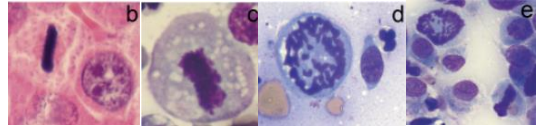
Figuras de mitose normais/t picas
✓ Pr fase



Tvedten H. Atypical mitoses: morphology and classification. Vet Clin Pathol. 2009

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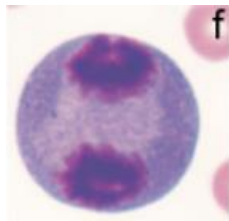
Figuras de mitose normais/t picas
✓ Met fase



Tvedten H. Atypical mitoses: morphology and classification. Vet Clin Pathol. 2009

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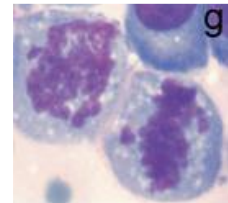
Figuras de mitose normais/t picas
✓ An fase



Tvedten H. Atypical mitoses: morphology and classification. Vet Clin Pathol. 2009

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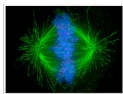
Figuras de mitose normais/t picas
✓ Tel fase



Tvedten H. Atypical mitoses: morphology and classification. Vet Clin Pathol. 2009

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Figuras de mitose anormais/at picas



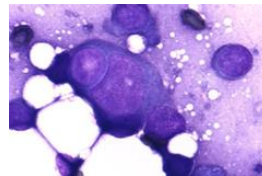
Mitosis high resolution, condensed chromosomes in blue, kinetochores in red, and microtubules in green during metaphase of mitosis.

https://en.wikipedia.org/wiki/Spindle_apparatus

Chromosom3. 2008 Dec;117(6):511-9. doi: 10.1007/s00412-008-0169-1. Epub 2008 Jun 6.
Classification of chromosome segregation errors in cancer.
Gisselsson D¹.

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Amoldamento nuclear



Cowell & Tyler. Cytology and Hematology of the Dog and Cat

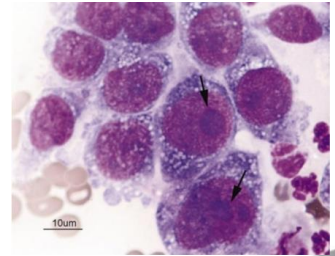
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- Nucléolos anormais
- ✓ Anisonucleose
 - ✓ Proeminência nucleolar
 - ✓ Nucléolos angulares
 - ✓ Macronucleose

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Nucléolo anormal

Cowell & Tyler, Cytology and Hematology of the Dog and Cat



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Nucléolo anormal

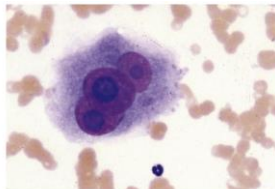
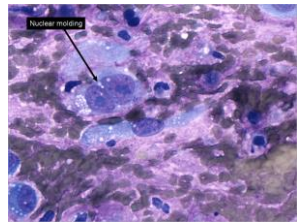


FIGURE 243 A multinucleated cell with an odd number of nuclei. Prominent, large nucleoli of varying size are also present. The erythrocytes and neutrophil can be used for size comparison. Cowell & Tyler, Cytology and Hematology of the Dog and Cat

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Nucléolo angular e amoldamento



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Cowell & Tyler, Cytology and hematology of the dog and cat.

Resumo

Cellular	Description	Schematic Representation
General Criteria		
Anisocytosis and macrocytosis	Variation in cell size, with some cells 2 times larger than normal	
Hypercellularity	Increased cell utilization caused by decreased cell adhesion	Not depicted
Pleomorphism (except in lymphoid tissue)	Variable size and shape in cell of the same type	
Nuclear Criteria		
Macrocytosis	Increased nuclear size; cell with nuclei larger than 20 micrometers (µm) in diameter suggest malignancy	
Increased nucleus-to-cytoplasm ratio (N:C)	Normal nonlymphoid cells usually have a N:C of 1:3 to 1:8. Depending on the tissue, increased ratio (1:2, 1:1, etc.) suggests malignancy	See "neovaryosis"
Anisokaryosis	Variation in nuclear size, especially important if the nuclei of multinucleated cells vary in size	
Multinucleation	Multiple nuclei in a cell, especially important if the nuclei vary in size	
Increased mitotic figures	Mitosis is rare in normal tissue	
Abnormal mitosis	Interphase alignment of chromosomes	See "increased mitotic figures"
Coarse chromatin pattern	The chromatin pattern is coarser than normal; may appear stippled or cordlike	
Nuclear molding	Deformation of nuclei by other nuclei within the same cell or adjacent cells	
Macronucleoli	Nucleoli are increased in size; nuclei 5 µm or more suggest malignancy. For reference, RBCs are 5-6 µm in the cat and 7-8 µm in the dog	
Angular nuclei	Nucleoli are flattened or have other angular shapes instead of their normal round to slightly oval shape	
Anisonucleosis	Variation in nucleolar shape or size (especially important if the variation is within the same nucleus)	See "angular nuclei"

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