



— XXV Congreso
de la Sociedad Española
de Anatomía Patológica
y División Española de la
*International Academy
of Pathology*

— XX Congreso
de la Sociedad Española
de Citología

— I Congreso
de la Sociedad Española
de Patología Forense

Palacio de Congresos Expo Aragón

SEAP-IAP



ZARAGOZA

CLUB DE LINFOMAS



FACULTAD DE MEDICINA

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Servicio de Anatomía Patológica Hospital Clínico
Departamento de Patología Universidad de Valencia

Caso nº5

-Mujer de 81 años
-Acude a Urgencias por lesión cutánea en rodilla izquierda que provoca impotencia funcional y dolor



-Leucocitosis, hemoglobina y plaquetas normales.
-Frotis de sangre periférica: 68% de blastos.
-LDH aumentada.

Dermatología
(biopsia)

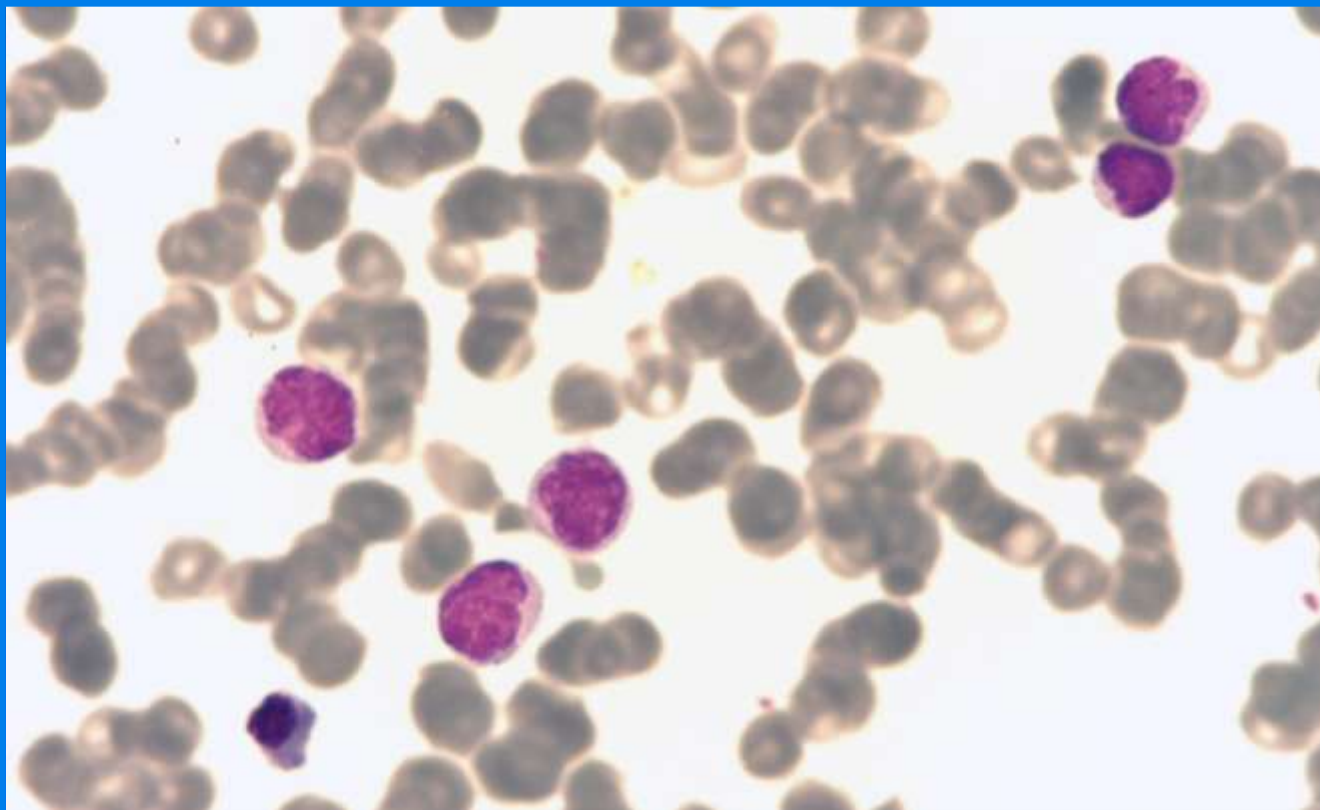
Hematología

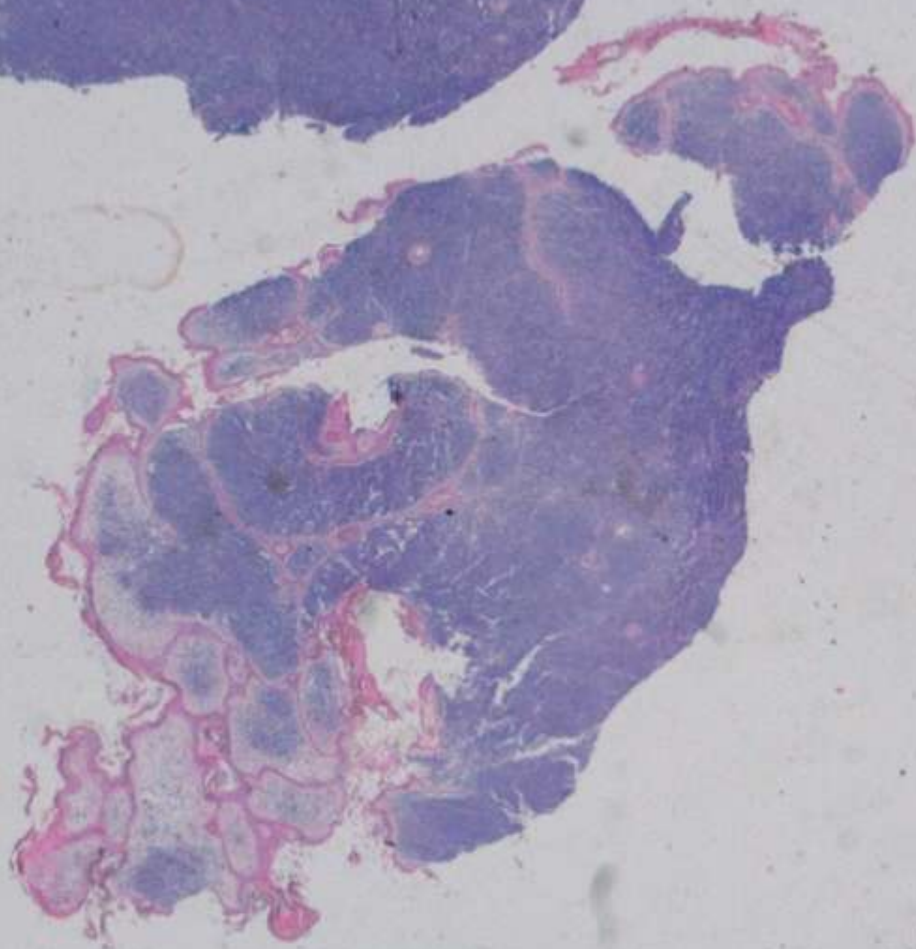
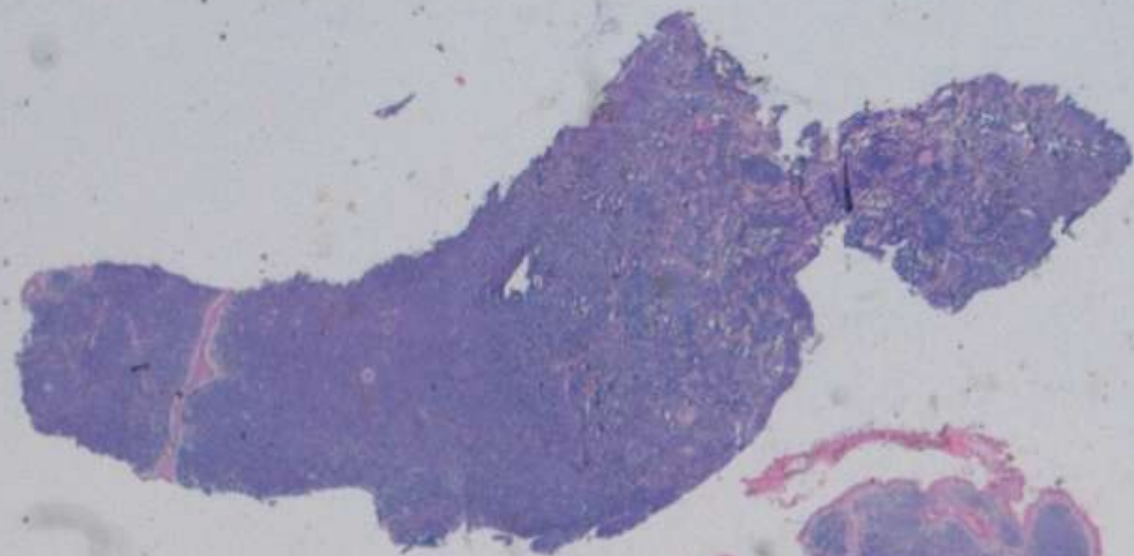


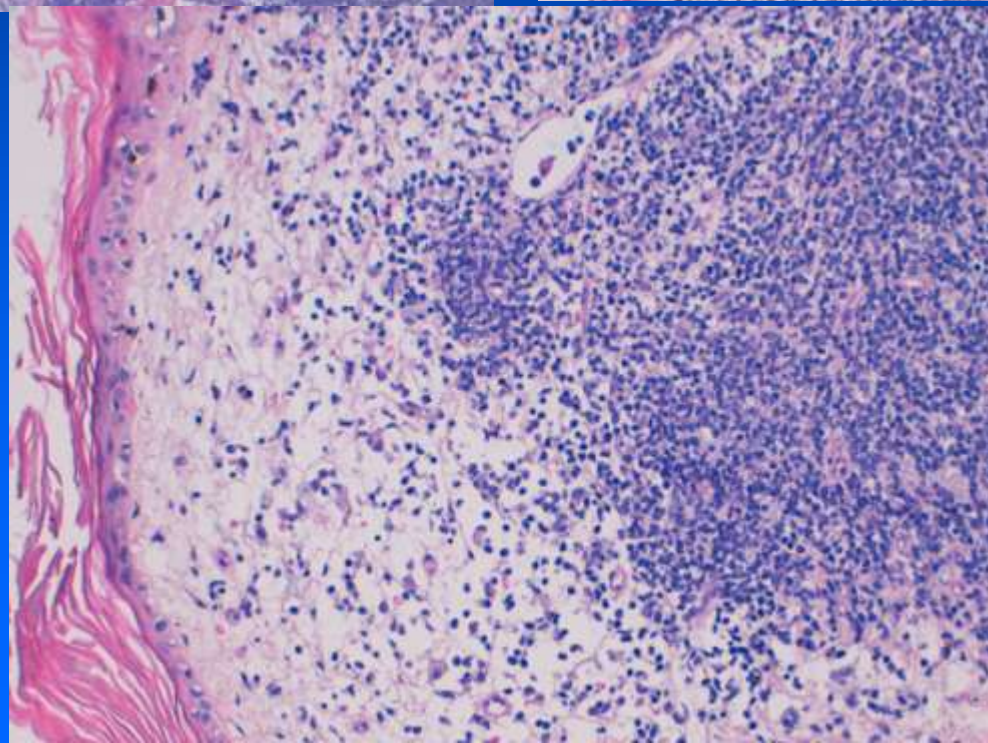
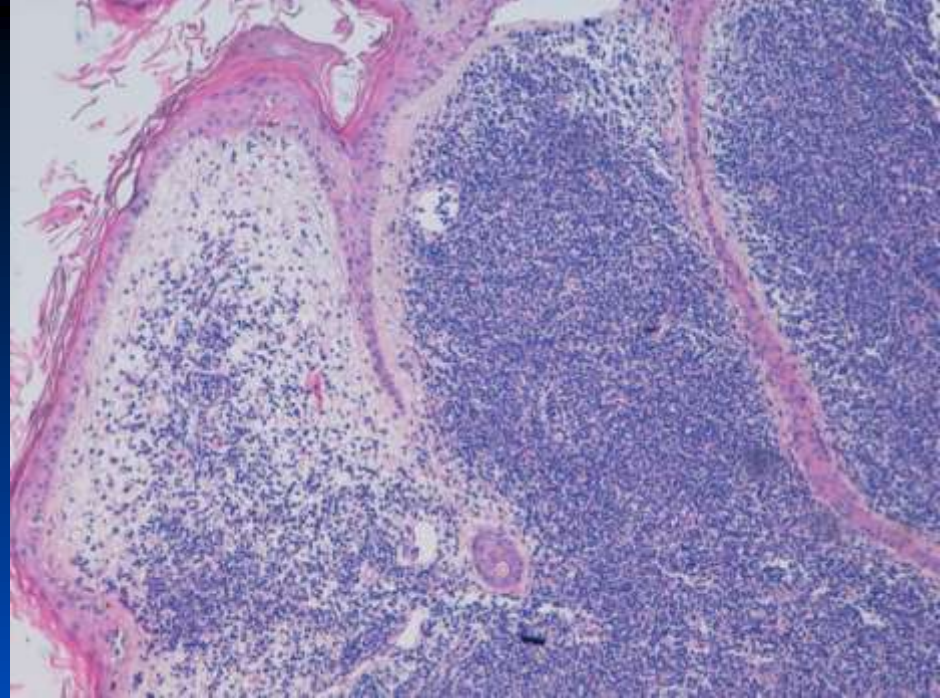
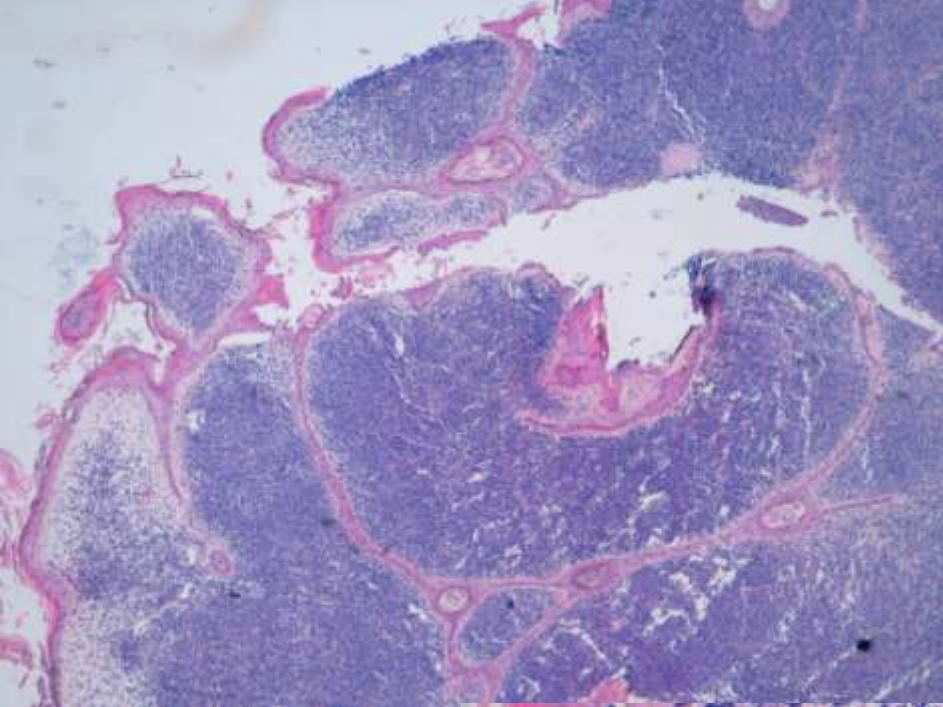
Historia clínica

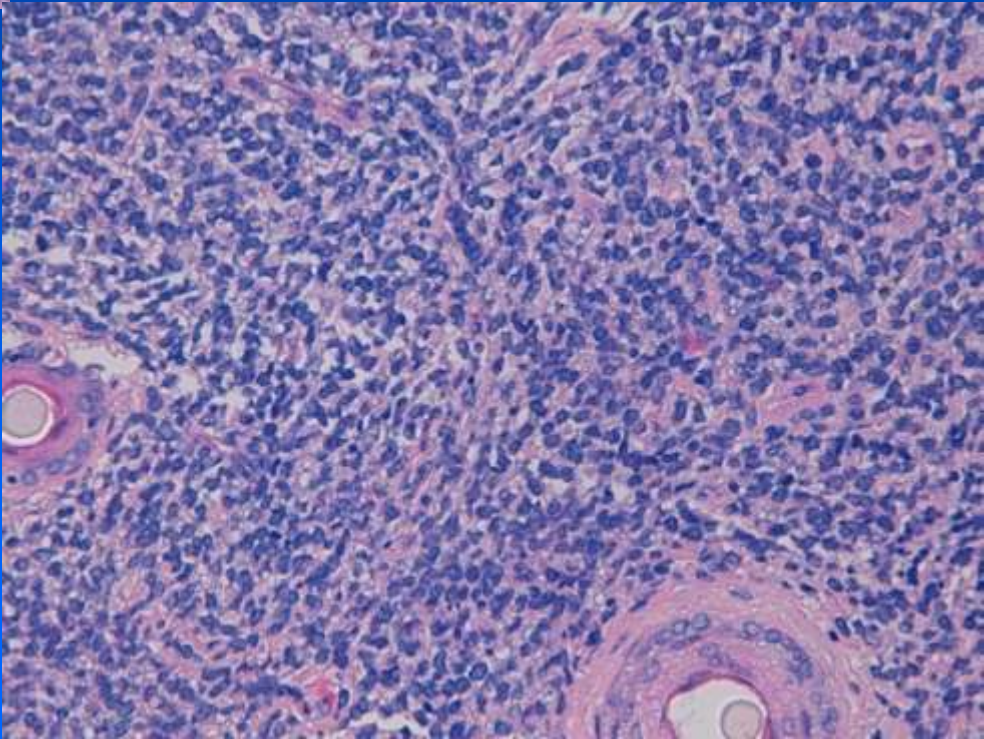
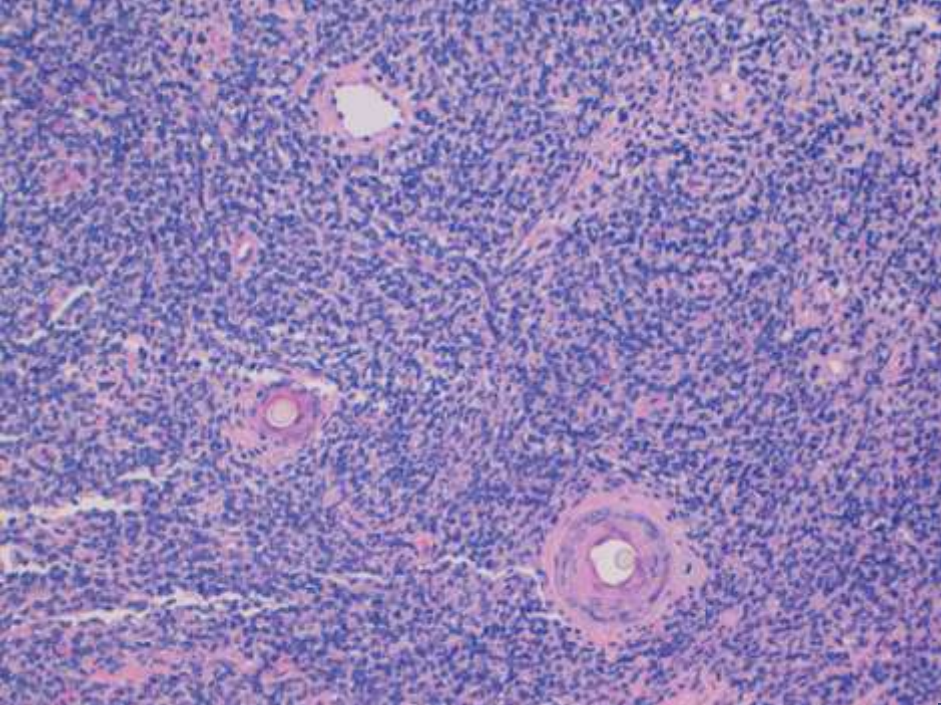
- **AP: DM tipo 2ID, prótesis bilateral de rodilla, histerectomía con doble anexectomía, cataratas.**
- **Presenta a nivel de rodilla izquierda lesión cutánea de evolución tórpida de tres meses de evolución.**
- **Astenia y anorexia progresiva**
- **ECO: aumento del tejido celular subcutáneo con marcada heterogenicidad**
- **Rx: no lesiones óseas**

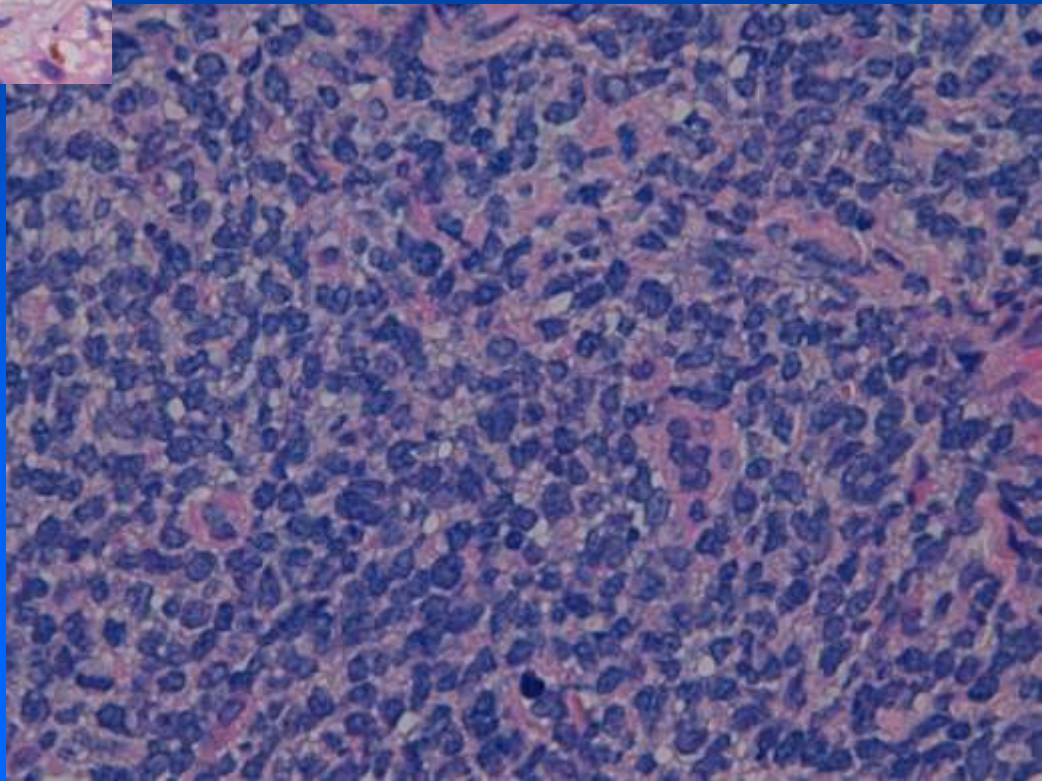
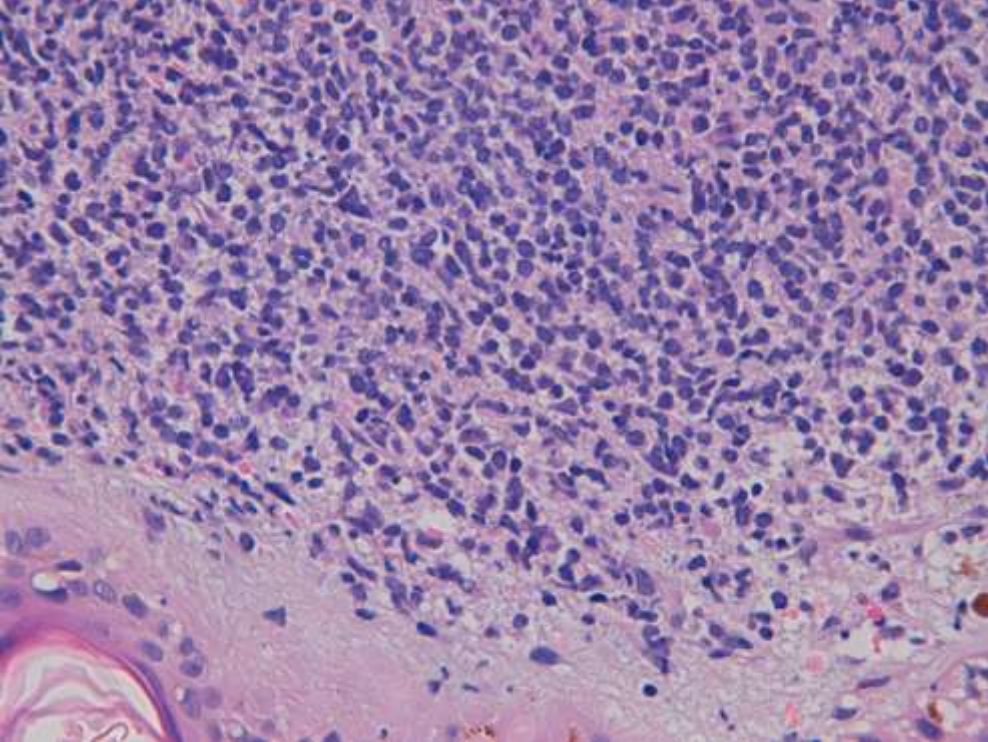
- **Hemograma:** Leucocitos $20.1 \times 10^9/L$ (neutrófilos $2.5 \times 10^9/L$, linfocitos $6.8 \times 10^9/L$, monocitos $10.5 \times 10^9/L$), plaquetas $152 \times 10^9/L$, Hb 9.3g/dL, VCH y HCM normales. Bioquímica; PCR 91.1 mg/L, resto de parámetros dentro de la normalidad.
- **Frotis de sangre periférica:** 65% monoblastos con displasia de serie granulocítica y 3% de eritroblastos.

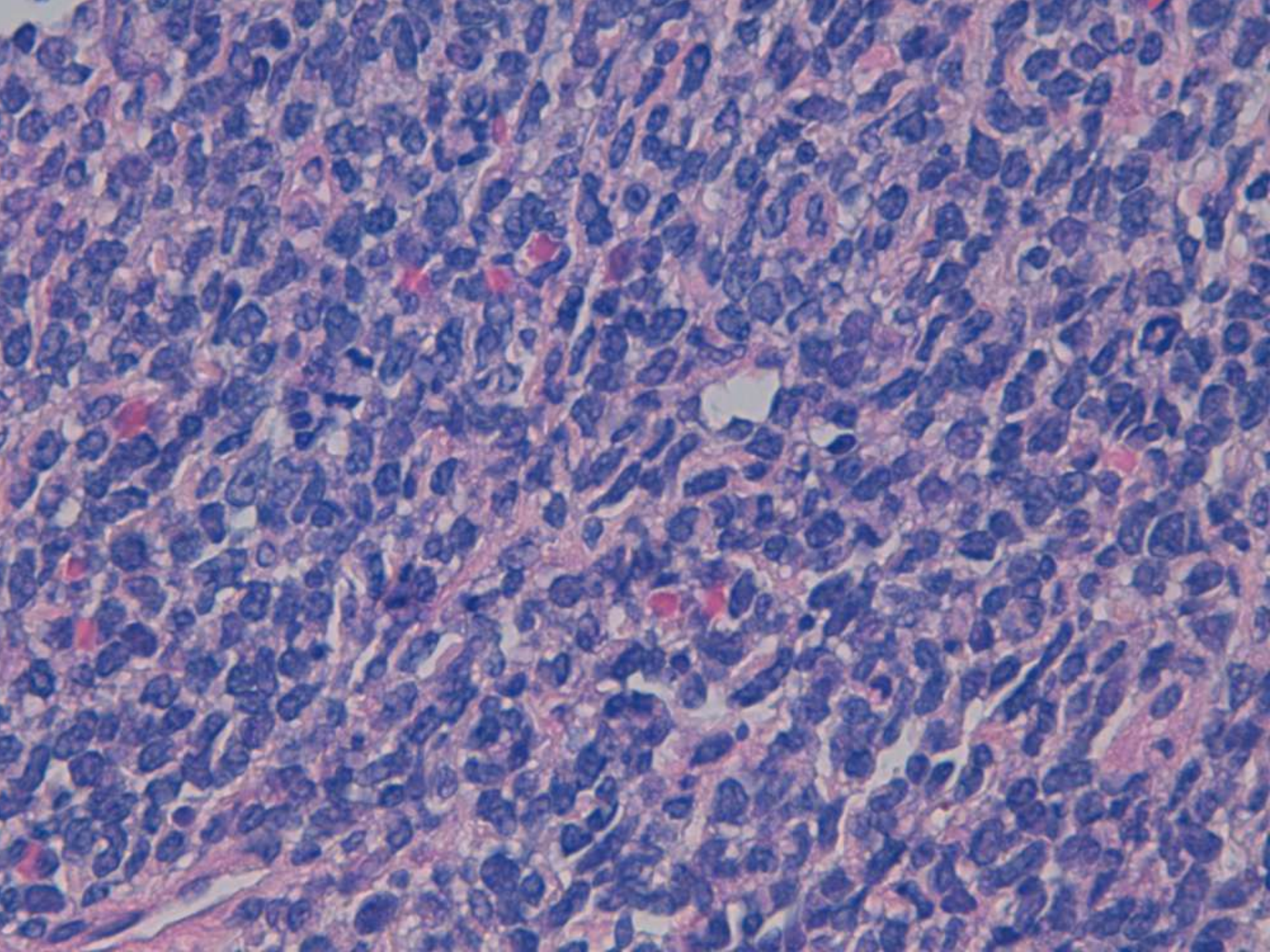


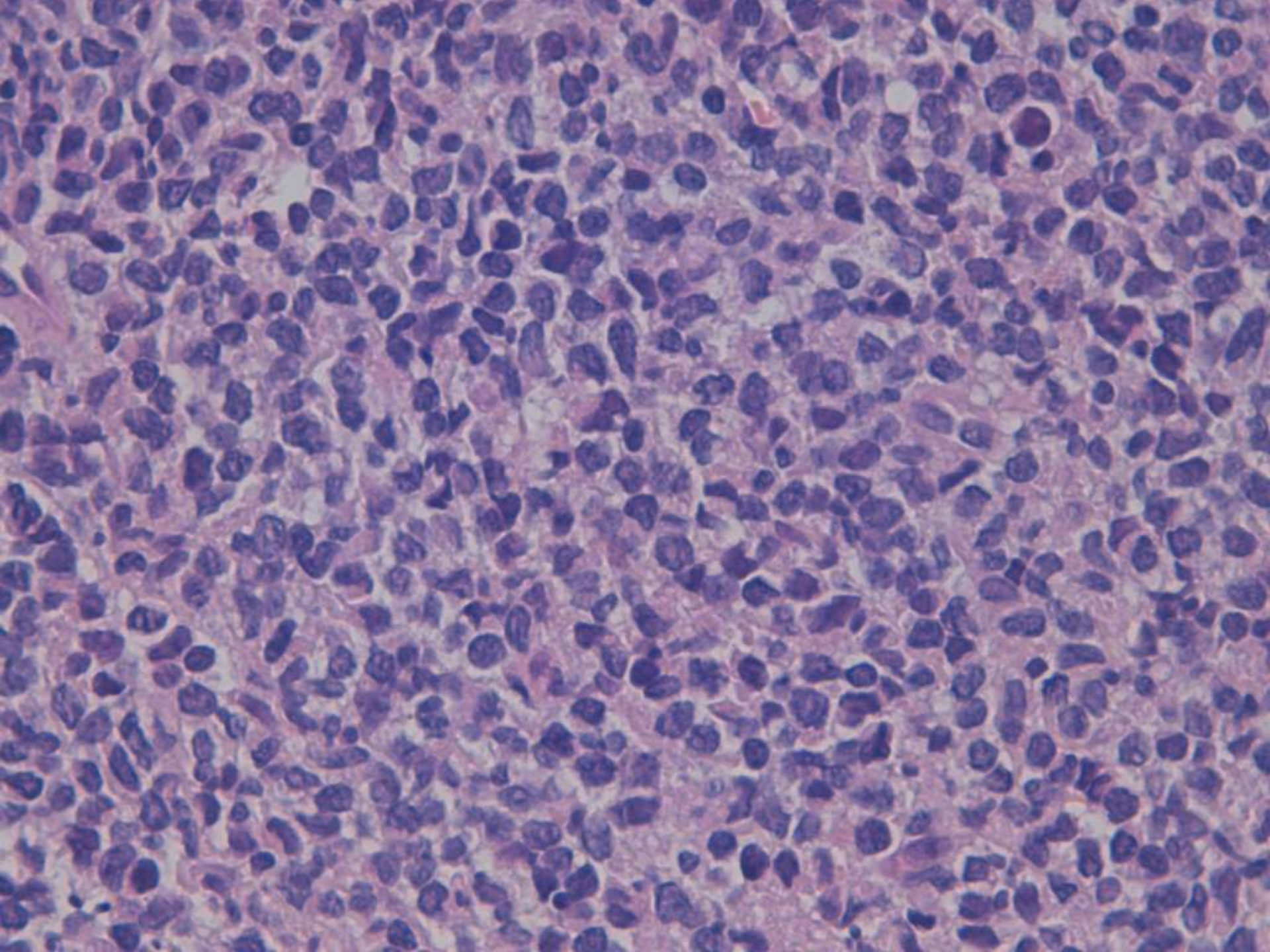












Morfología

- Infiltración cutánea de crecimiento difuso por células de hábito hemolinfoide
- No epidermotropismo
- Tamaño celular intermedio/grande
- Citoplasma mal definido con núcleos irregulares de cromatina laxa y nucleolos no evidentes
- Sospecha diagnóstica: infiltración cutánea por leucemia mieloide aguda Vs linfoma de células grandes



Leucemia cutis

Histologic and Immunohistologic Characterization of Skin Localization of Myeloid Disorders

A Study of 173 Cases

Claire Bénet, MD,¹ Aurélie Gomez,² Claire Aguilar,³ Claire Delattre, MD,⁴ Béatrice Vergier, MD, PhD,⁵ Marie Beylot-Barry, MD, PhD,⁶ Sylvie Fraitag, MD,³ Agnès Carlotti, MD,⁷ Pierre Dechelotte, MD,⁸ Valérie Hospital,⁹ Michel d'Incan, MD, PhD,⁹ Valérie Costes, MD,¹⁰ Olivier Dereure, MD, PhD,¹¹ Nicolas Ortonne, MD,¹² Martine Bagot, MD, PhD,¹³ Liliane Laroche, MD,¹⁴ Astrid Blom, MD,¹⁴ Sophie Dalac, MD,¹⁵ and Tony Petrella, MD^{1,16}

Key Words: Myeloid leukemia cutis; Morphology; Immunohistochemistry; CD68; CD33; CD123; Chronic myelomonocytic leukemia; Plasmacytoid dendritic cell

Table 1
Chronology of 173 Skin Lesions

Chronology	No. (%) of Cases
De novo; no underlying myeloid disorder	13 (7.5)
Concurrent with diagnosis of myeloid disorder	46 (26.6)
After diagnosis of myeloid disorder	105 (60.7)
Unknown	9 (5.2)

Table 2**Distribution of 173 Cases of Myeloid Disorders**

Myeloid Disorder	No. (%) of Cases
Acute myeloid leukemia	113 (65.3)
0	3
1	11
2	10
3	2
4	15
5	48
6	1
Not specified	23
Chronic myelomonocytic leukemia	19 (11.0)
Refractory anemia	18 (10.4)
Myeloproliferative syndrome	10 (5.8)
Chronic myeloid leukemia	5
Polycythemia vera	3
Essential thrombocythemia	1
Eosinophilic syndrome	1
Extramedullary granulocytic sarcoma	3 (1.7)
Unknown	10 (5.8)

Table 1

Subtypes of Leukemia Involving Skin

Myeloid/monocytic disorders

- Acute myeloid leukemia
- Acute myelomonocytic leukemia
- Acute monocytic leukemia
- Chronic myelogenous leukemia
- Chronic myelomonocytic leukemia (transformation)
- Myelodysplastic syndromes (transformation)

Lymphoproliferative disorders

- B-cell leukemias/lymphomas
 - Precursor B-cell acute lymphoblastic leukemia
 - Chronic lymphocytic leukemia/small lymphocytic lymphoma

T-cell leukemias/lymphomas

- Precursor T-cell acute lymphoblastic leukemia
- Adult T-cell leukemia/lymphoma
- T-cell prolymphocytic leukemia
- Sézary syndrome



Image 1 Clinical features of myeloid leukemia cutis. **A**, Multiple diffuse lesions. **B**, Solitary lesion.

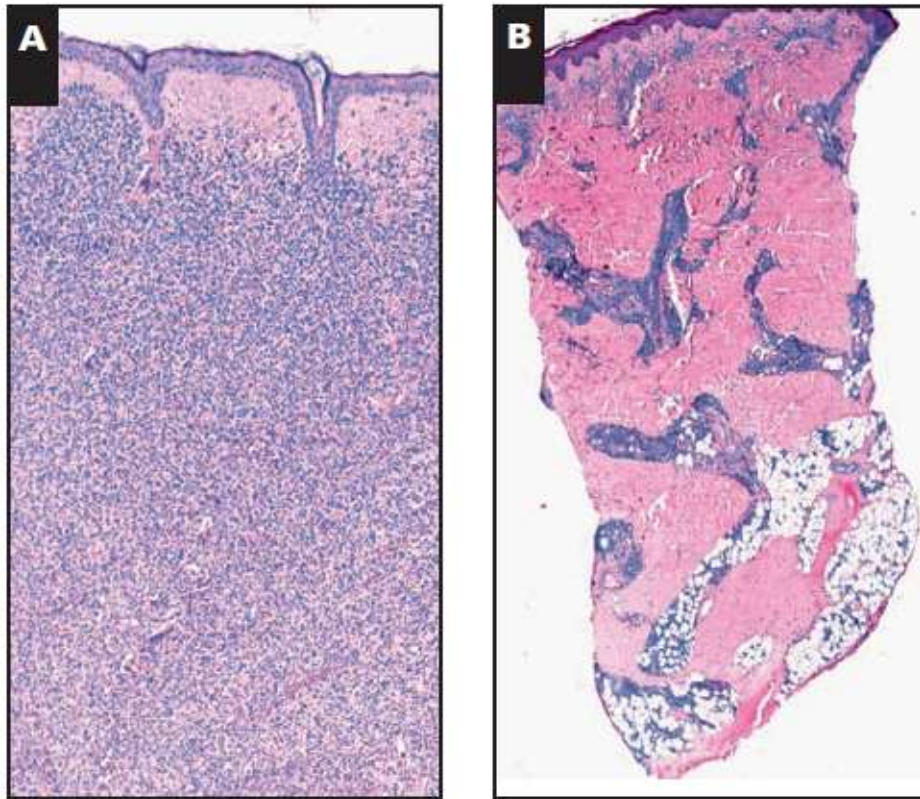


Image 2 Low magnification. Examples of diffuse (**A**, H&E, $\times 100$) and nodular (**B**, H&E, $\times 25$) patterns.

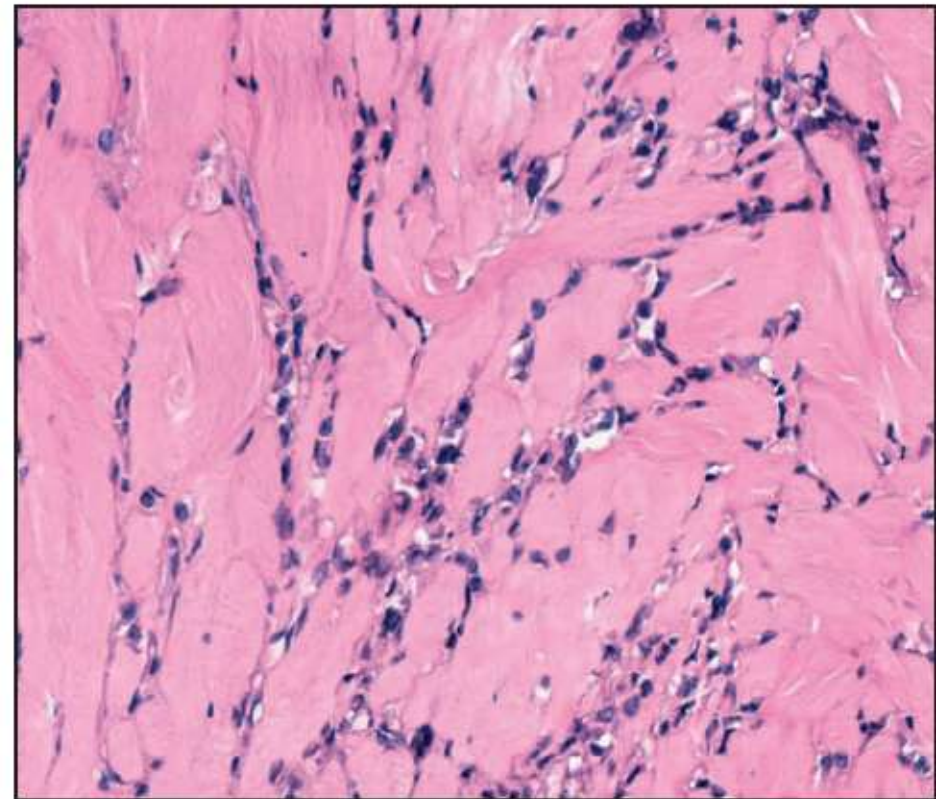


Image 3 Granuloma annulare-like pattern (H&E, $\times 200$).

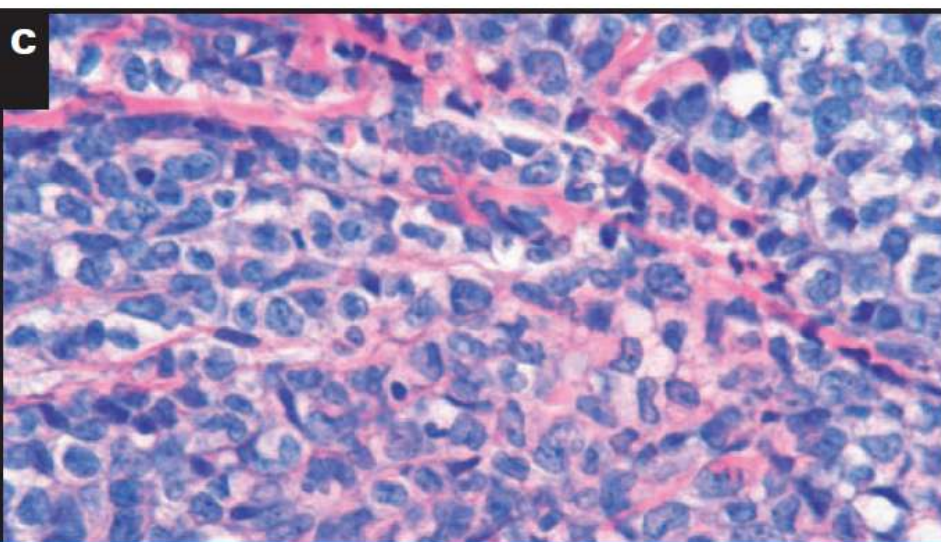
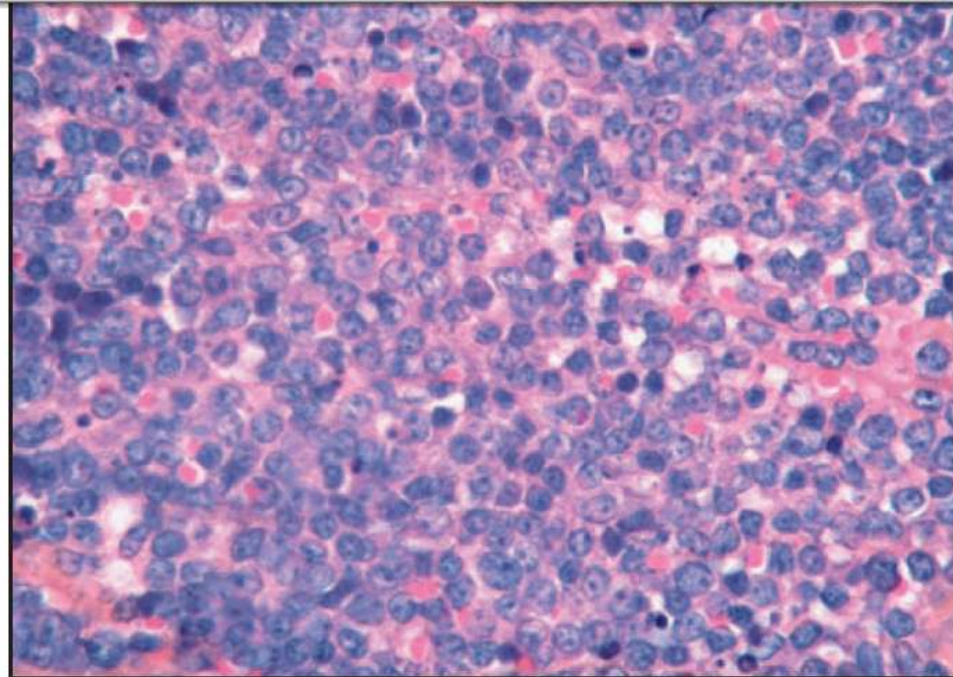
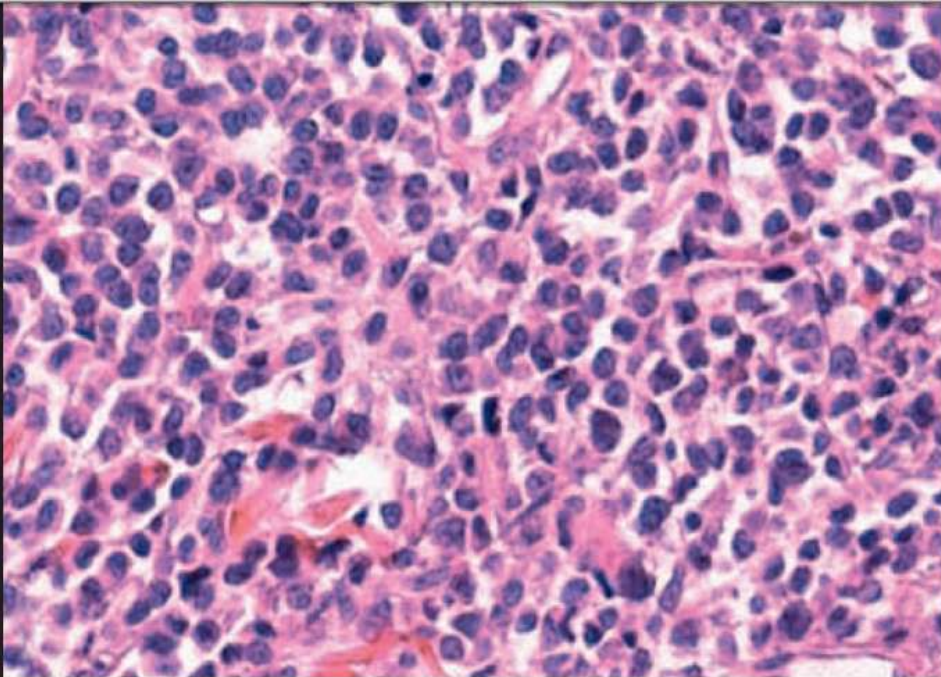


Image 4 High magnification. Examples of small (**A**, H&E, $\times 400$), medium-sized (**B**, H&E, $\times 400$), and large (**C**, H&E, $\times 400$) blast cells.

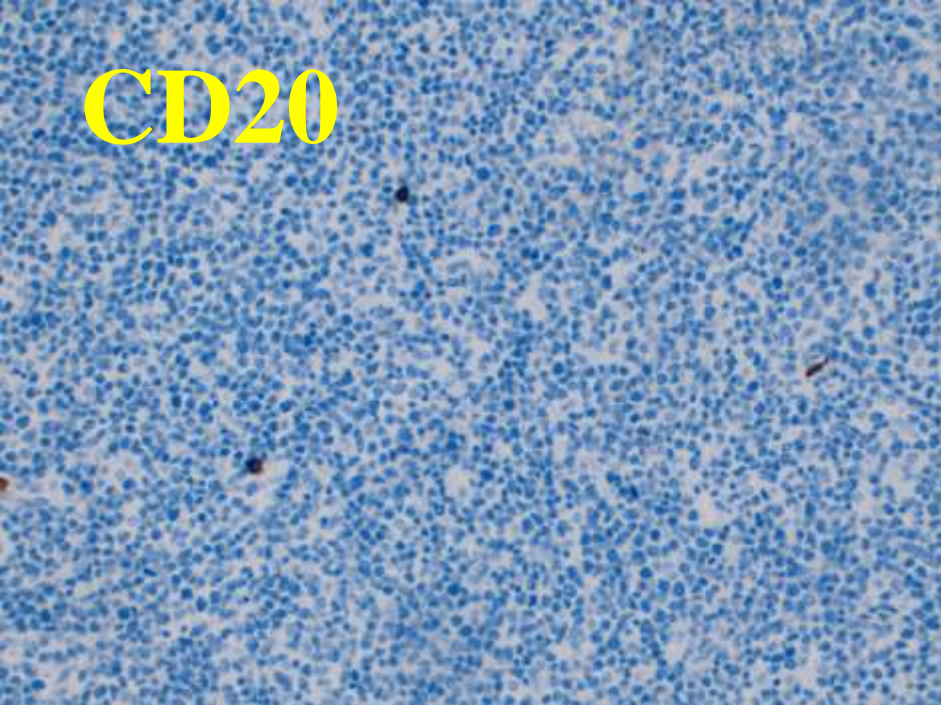
Table 3
Histologic Results and Statistical Correlations*

Histologic Criteria	AML						P		
	All Cases (n = 173)	All (n = 113)	Types 1 and 2 (n = 21)	Types 4 and 5 (n = 63)	CMML (n = 19)	RA (n = 18)	AML/CMML	AML Types 1-2/4-5	CMML/RA
Diffuse pattern	97 (56.1)	63 (55.8)	9 (43)	39 (62)	7 (37)	10 (56)	.12	.13	.3
Nodular pattern	90 (52.0)	61 (54.0)	12 (57)	31 (49)	12 (63)	12 (67)	.5	.5	.8
Single file cells	31 (17.9)	24 (21.2)	2 (10)	16 (25)	3 (16)	1 (6)	.8	.2	.6
Tumor cell density							.07	.011	.7
1 (weak)	20	25 (22.1)	10 (48)	10 (16)	2 (11)	2 (11)			
2 (medium)	53	55 (48.7)	8 (38)	34 (54)	15 (79)	12 (67)			
3 (dense)	27	33 (29.2)	3 (14)	19 (30)	2 (11)	4 (22)			
Tumor cell size							.6	.033	.9
Small	17 (9.8)	11 (9.9)	4 (19)	3 (5)	1 (5)	1 (6)			
Medium	88 (50.8)	62 (54.9)	9 (43)	37 (59)	9 (47)	9 (50)			
Large	17 (9.8)	9 (8.0)	1 (5)	7 (11)	2 (11)	2 (11)			
Small and medium	21 (12.1)	16 (14.2)	6 (29)	6 (10)	2 (11)	0 (0)			
Medium and large	30 (17.3)	15 (13.3)	1 (5)	10 (16)	5 (26)	6 (33)			
Kidney-shaped cells	12 (6.9)	5 (4.4)	0 (0)	4 (6)	3 (16)	3 (17)	.091	.6	1
Mitoses (>3/10 fields x400)	34 (19.7)	20 (17.7)	2 (10)	15 (24)	4 (21)	3 (17)	.8	.2	1
Apoptotic bodies	55 (31.8)	34 (30.1)	4 (19)	21 (33)	6 (32)	7 (39)	1	.2	.6
Inflammatory background	76 (43.9)	37 (32.7)	9 (43)	16 (25)	9 (47)	10 (56)	.023	.17	.4
Inflammatory background components									
Lymphocytes		31/50 (62)	8/13 (62)	14/23 (61)	8/10 (80)	6/10 (60)	.5	1	.6
Plasma cells		4/47 (9)	1/12 (8)	1/22 (5)	3/10 (30)	1/10 (10)	.095	1	.6
Neutrophils		7/47 (15)	3/12 (25)	2/22 (9)	2/10 (20)	4/10 (40)	.7	.3	.6
Eosinophils		2/47 (4)	1/12 (8)	1/22 (5)	2/10 (20)	1/10 (10)	.14	1	1
Mast cells		58/75 (77)	8/13 (62)	31/40 (78)	15/16 (94)	10/13 (77)	.18	.3	.3

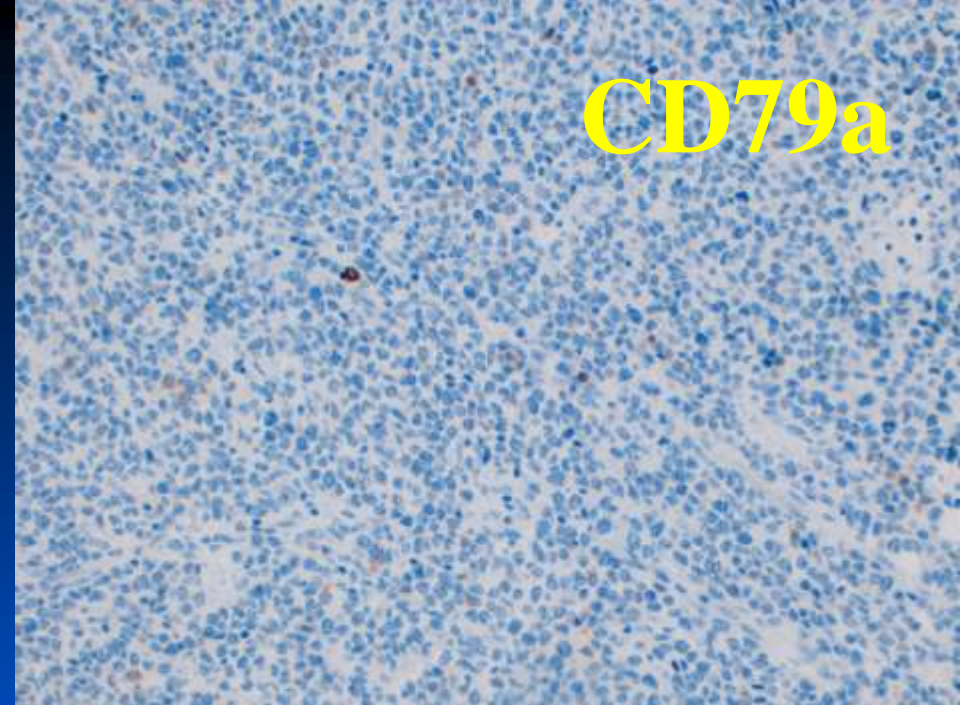
AML, acute myeloid leukemia; CMML, chronic myelomonocytic leukemia; RA, refractory anemia.

* Data are given as number (percentage) or number/total (percentage).

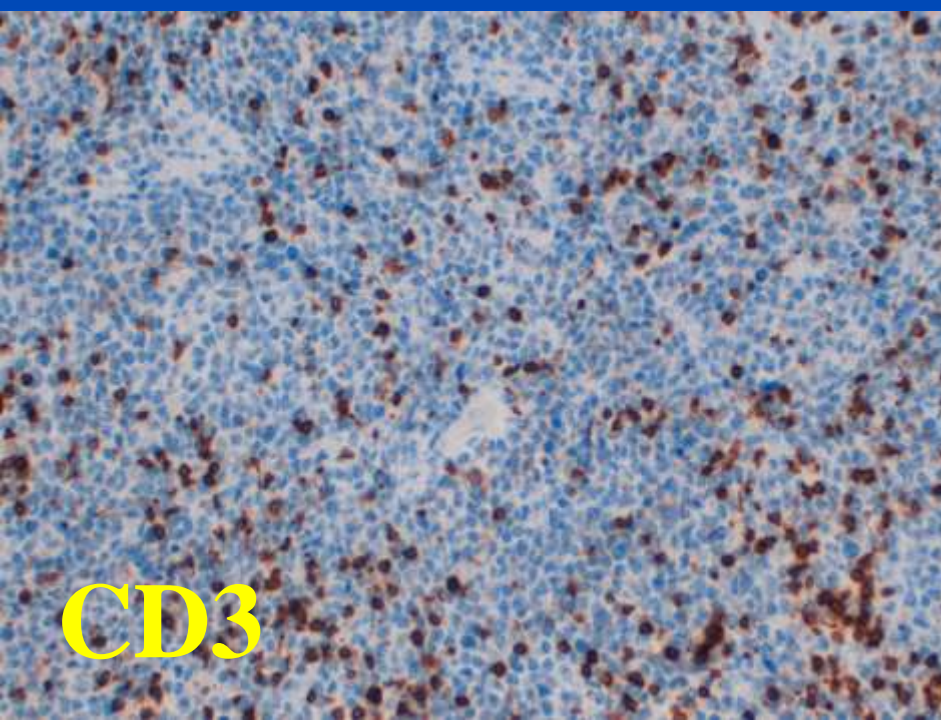
CD20



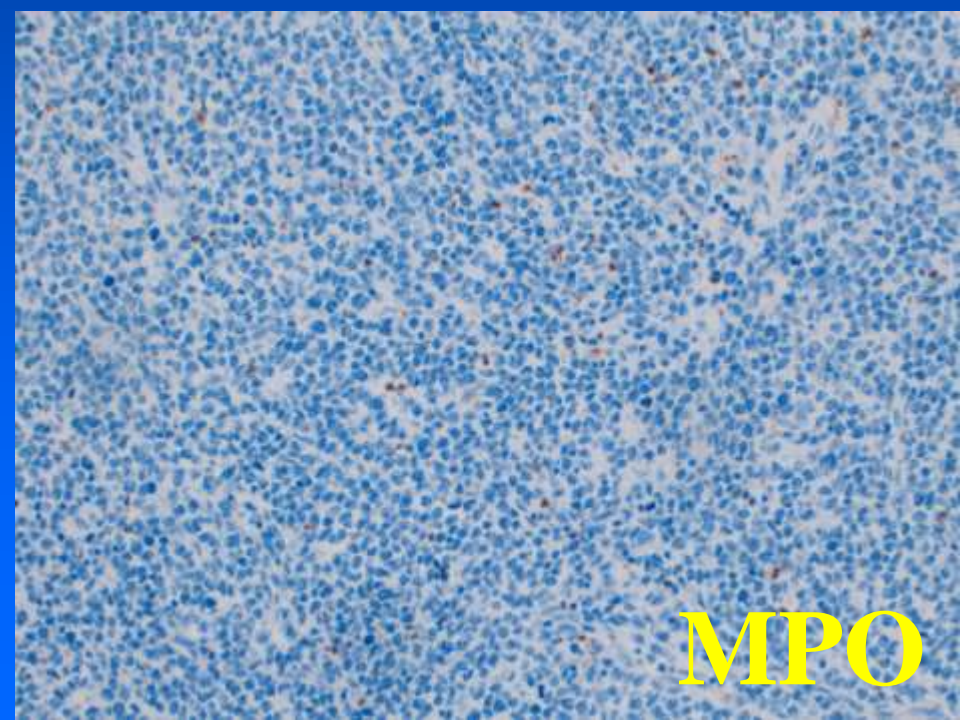
CD79a

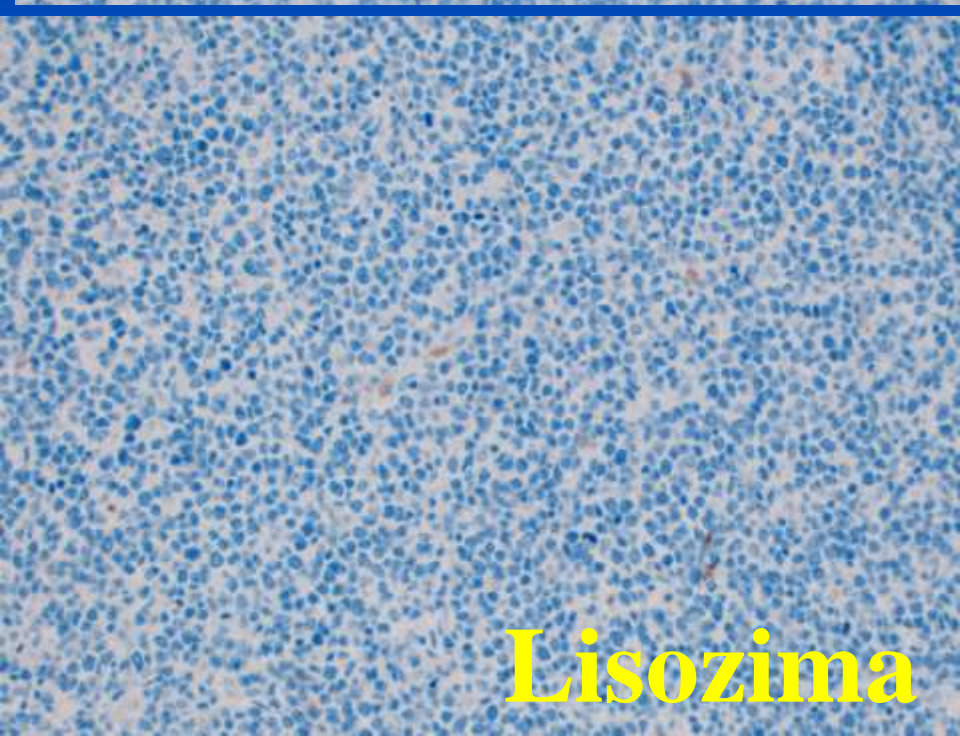
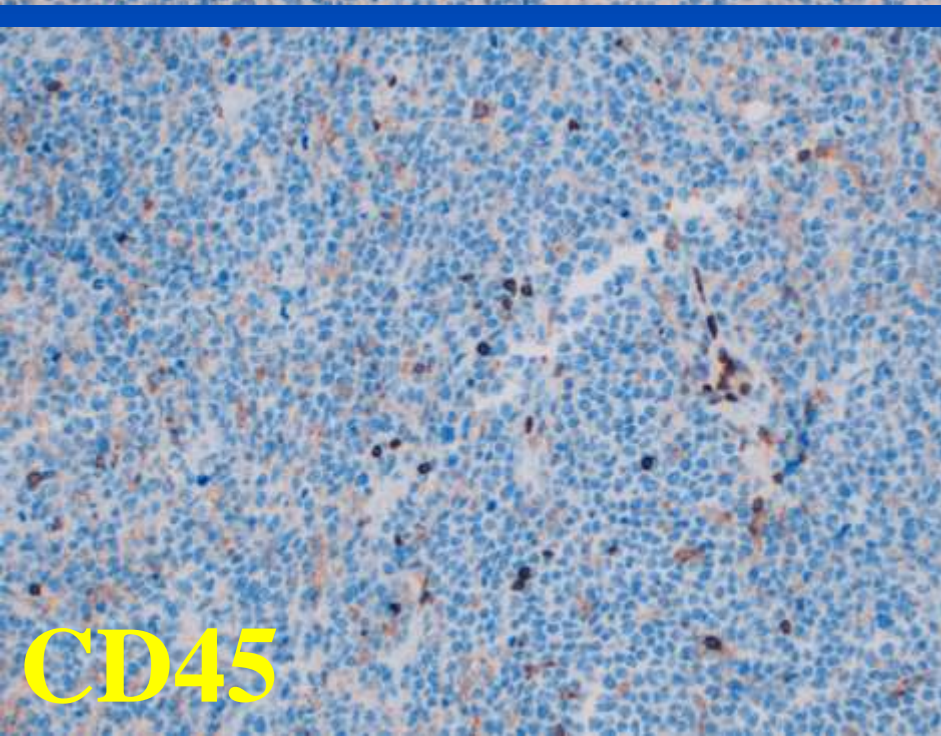
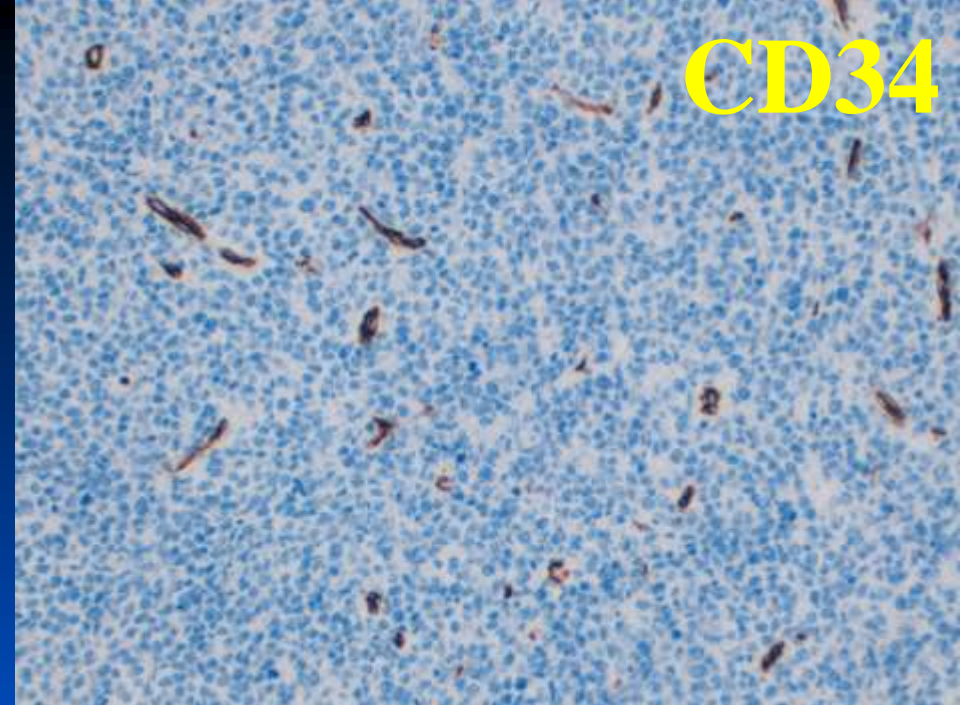
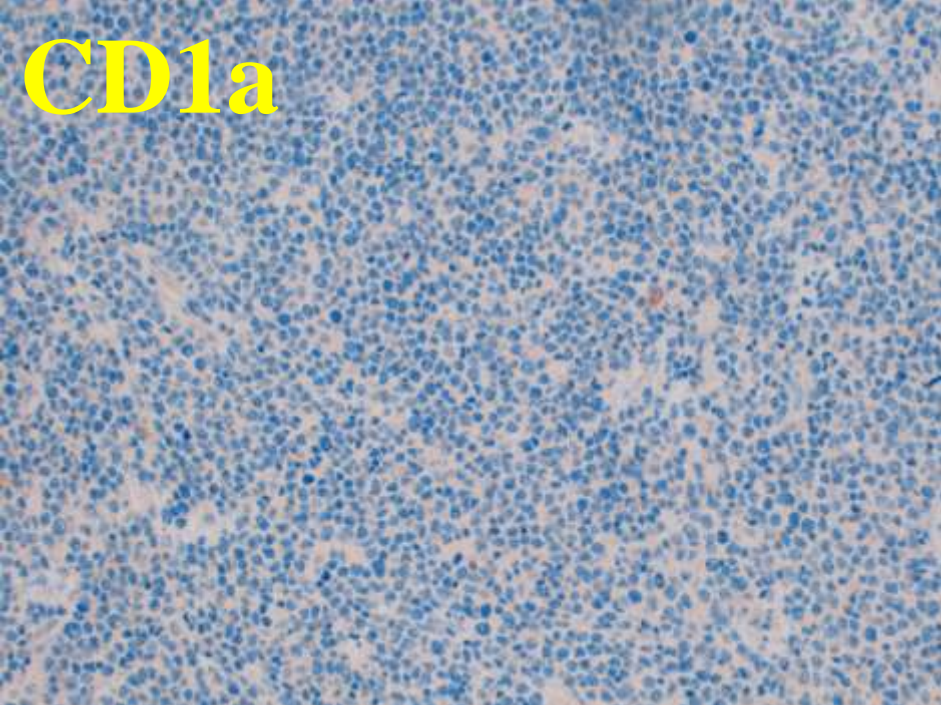


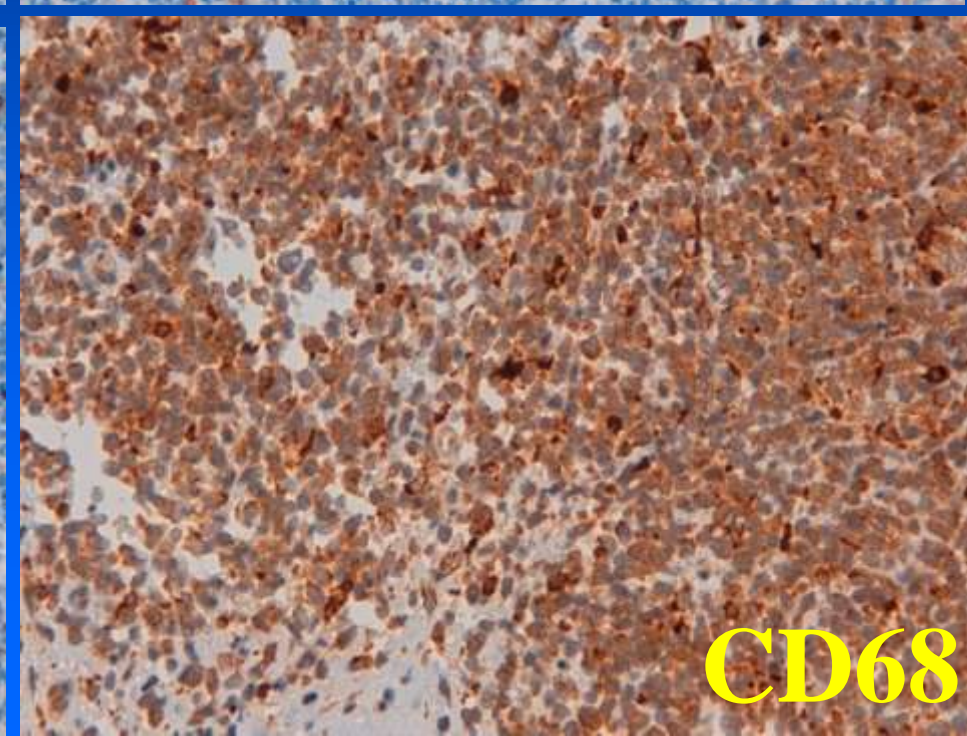
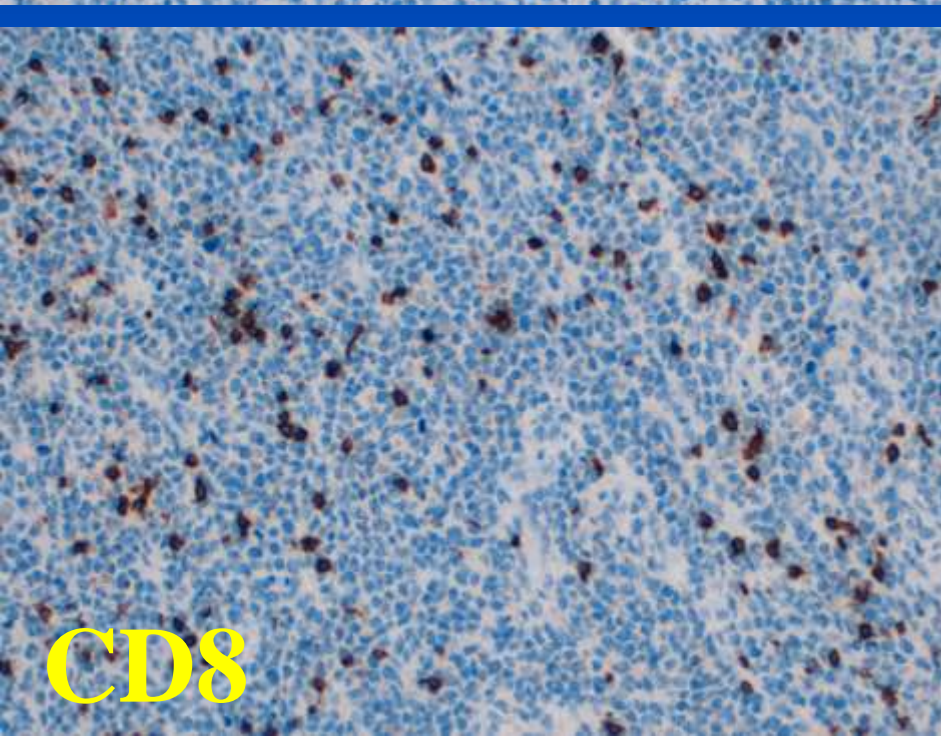
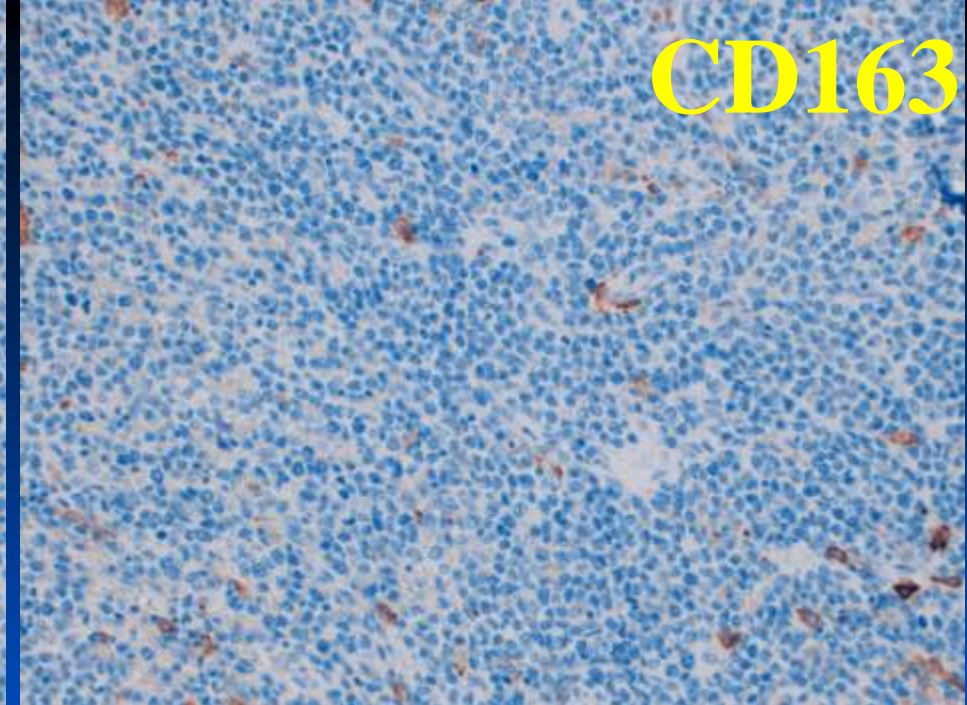
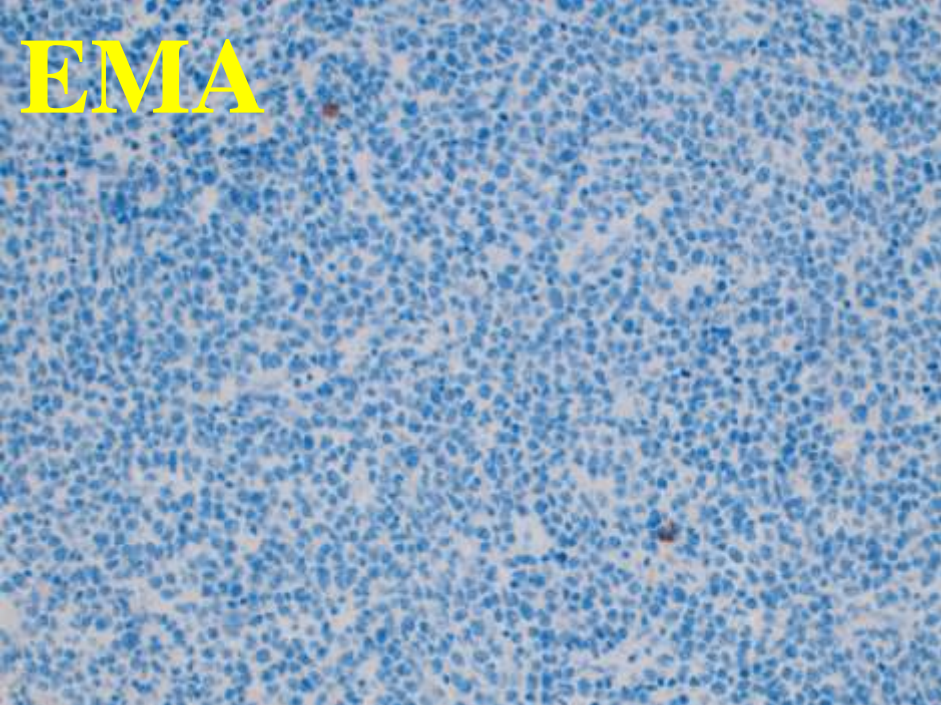
CD3



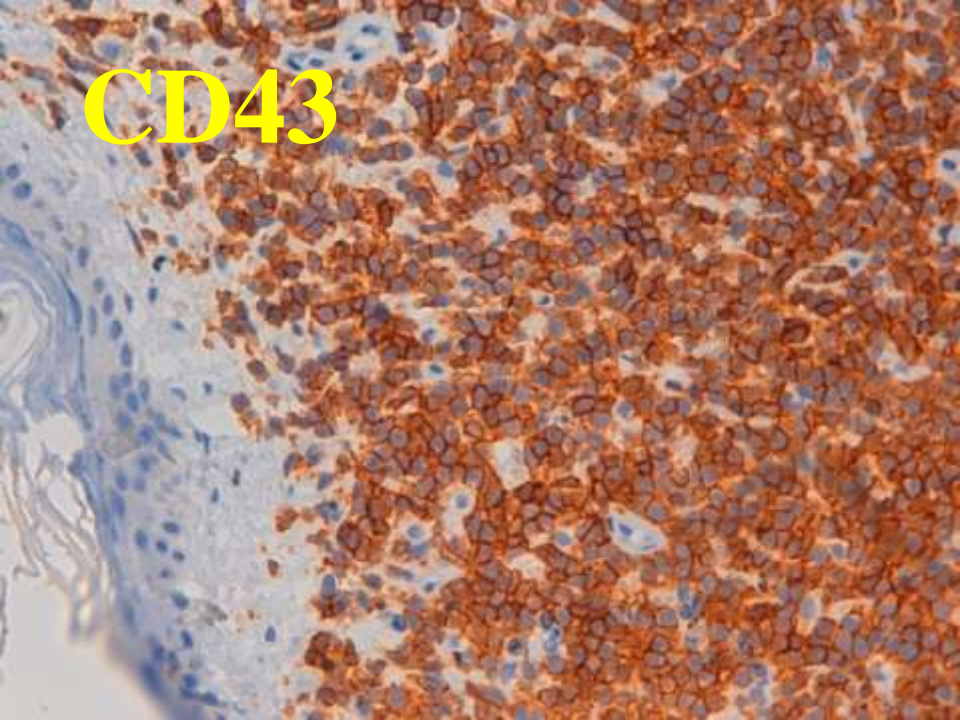
MPO



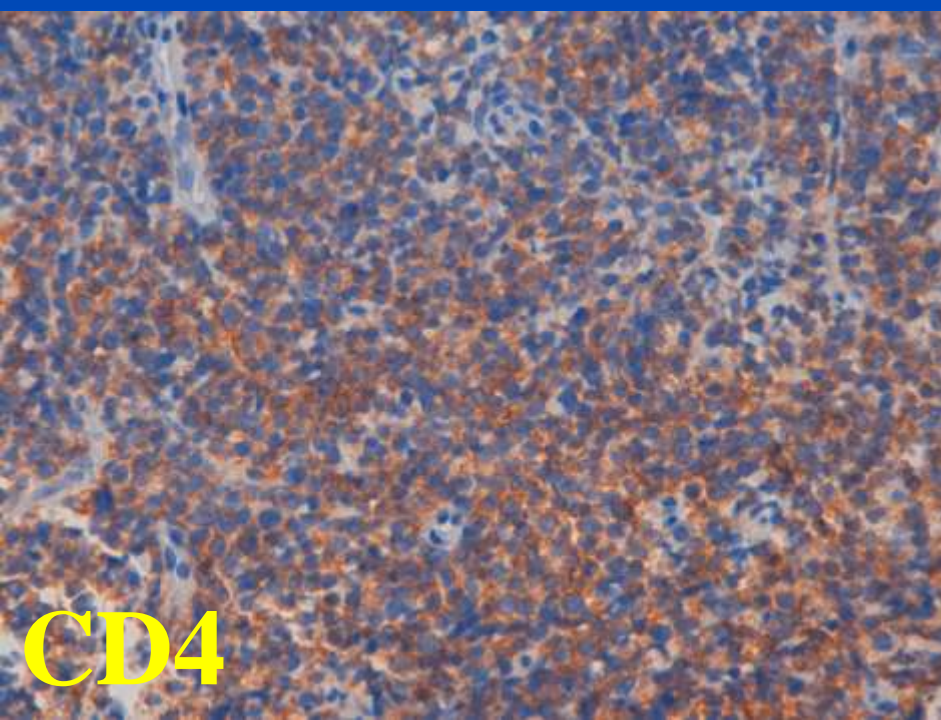
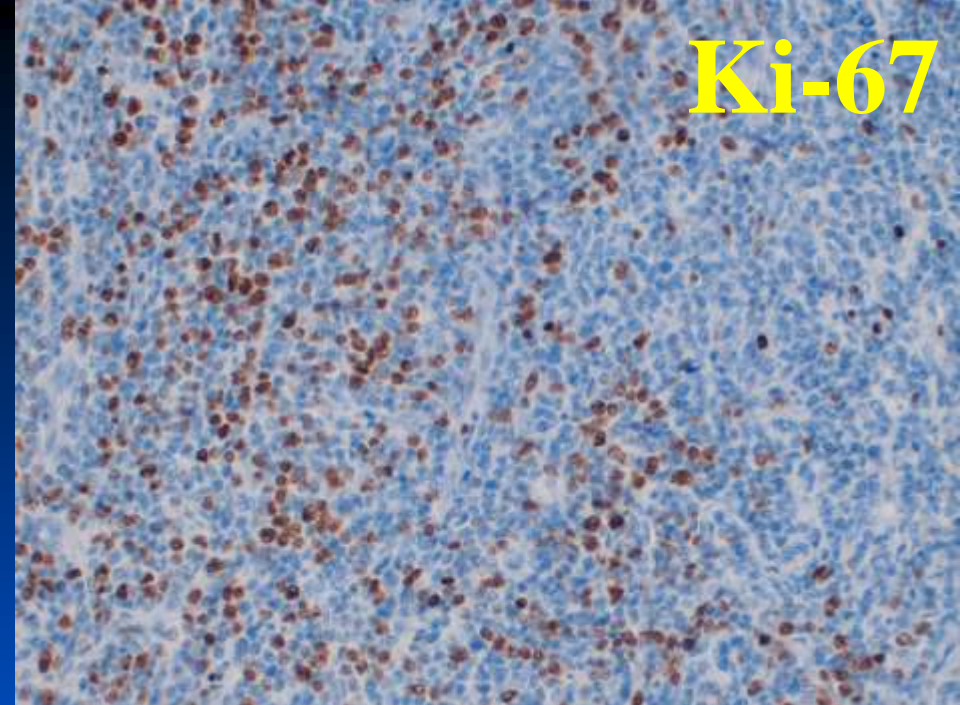




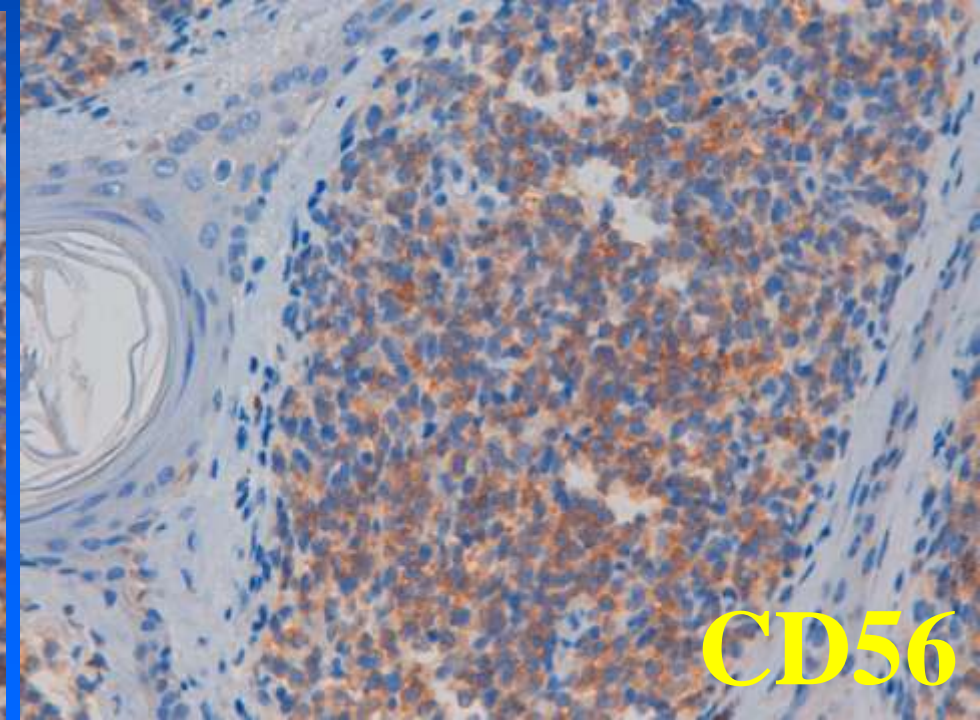
CD43



Ki-67



CD4



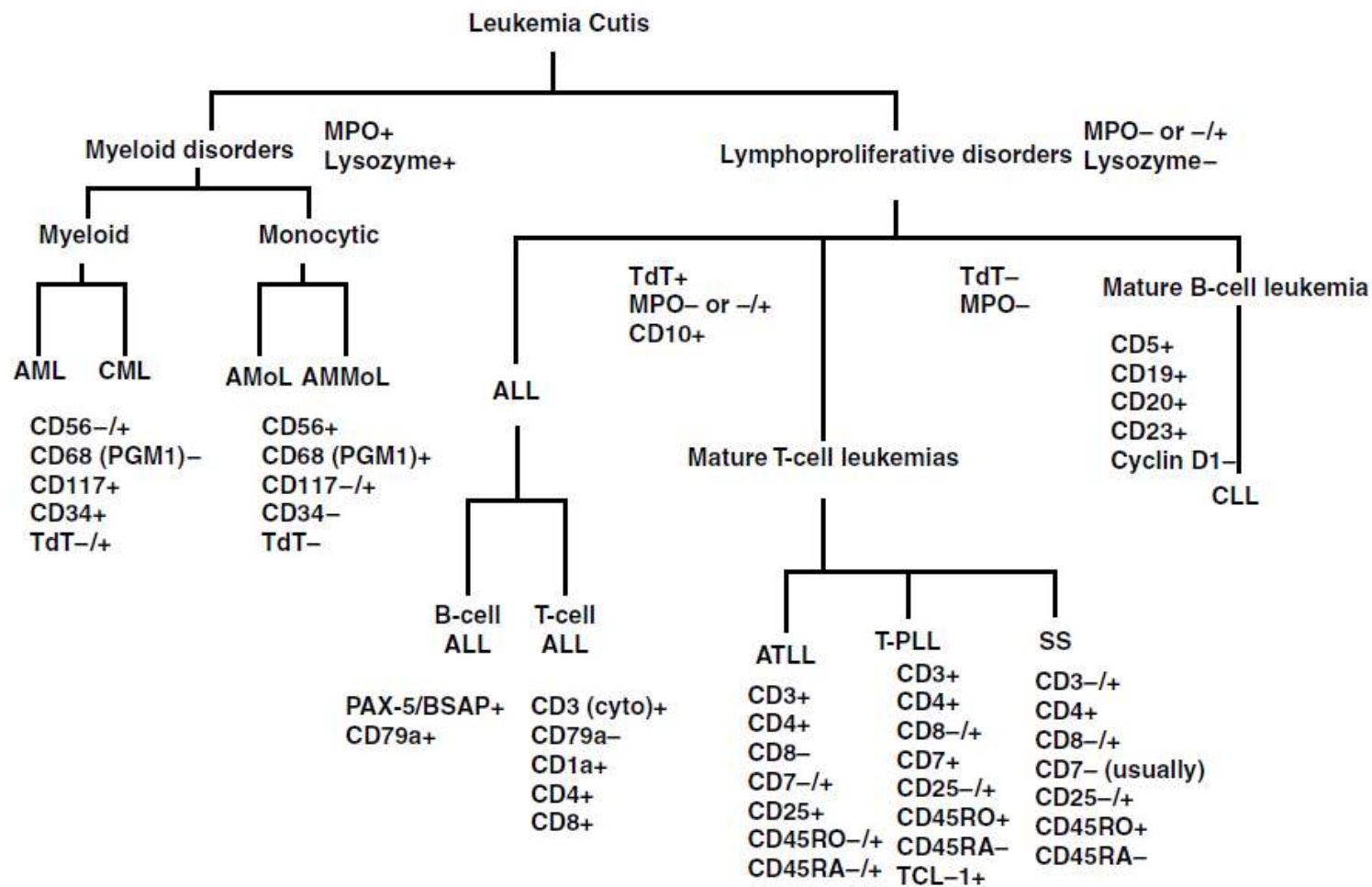
CD56

Inmunofenotipo

- **CD45-, CD20-, CD79a-, CD3-, CD30-, EMA-, CD138-, ALK-1-.**
- **CD8-, TdT-, MPO-, CD1a, S-100, CD21-, CD117-**
- **CD43+, CD68+, CD4+, CD56+**
- **Ki-67% 40%**

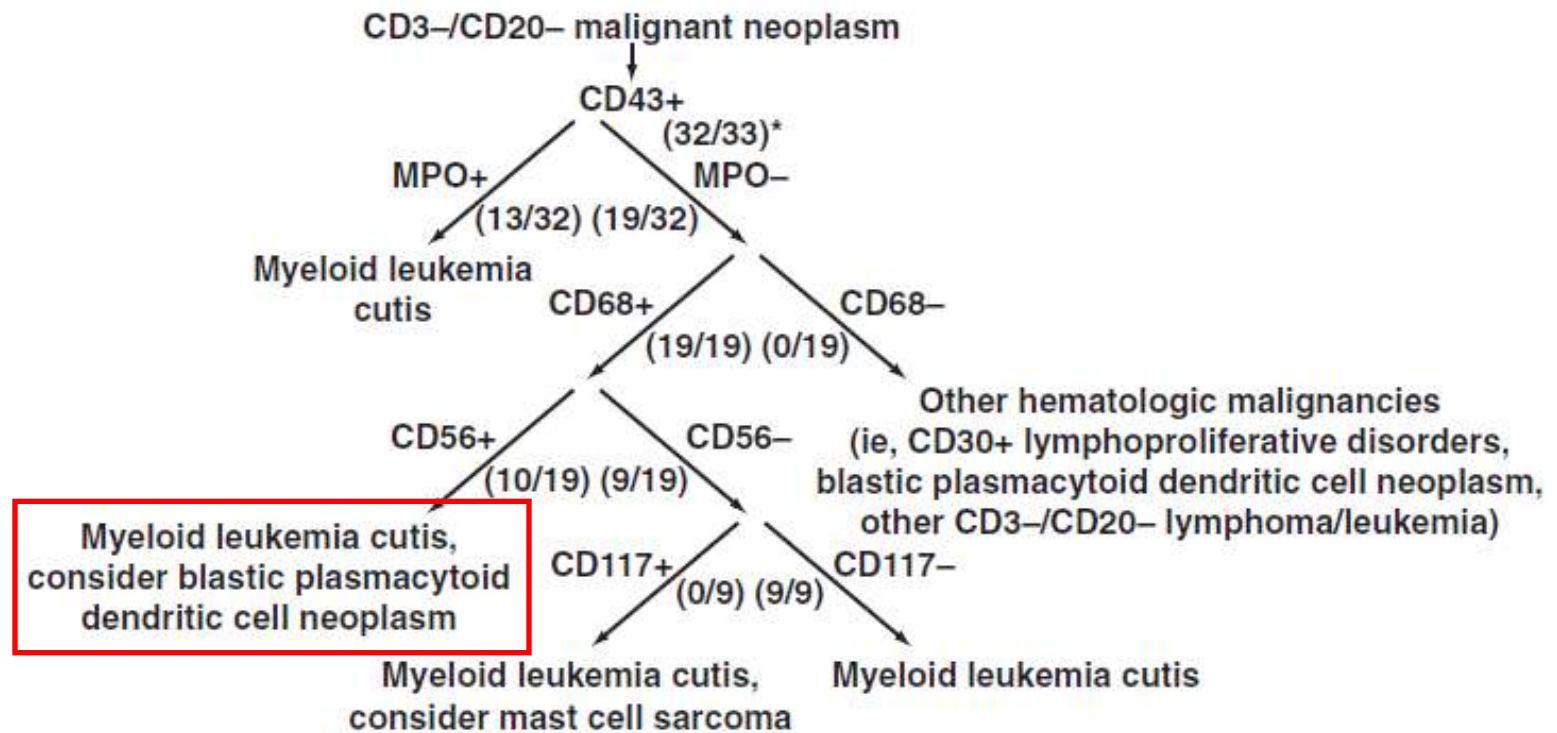
Leukemia Cutis

Jeong Hee Cho-Vega, MD, PhD,¹ L. Jeffrey Medeiros, MD,² Victor G. Prieto, MD, PhD,³ and Francisco Vega, MD, PhD²



An Updated Approach to the Diagnosis of Myeloid Leukemia Cutis

Danielle M. P. Cronin, MD,¹ Tracy I. George, MD,¹ and Uma N. Sundram, MD, PhD^{1,2}

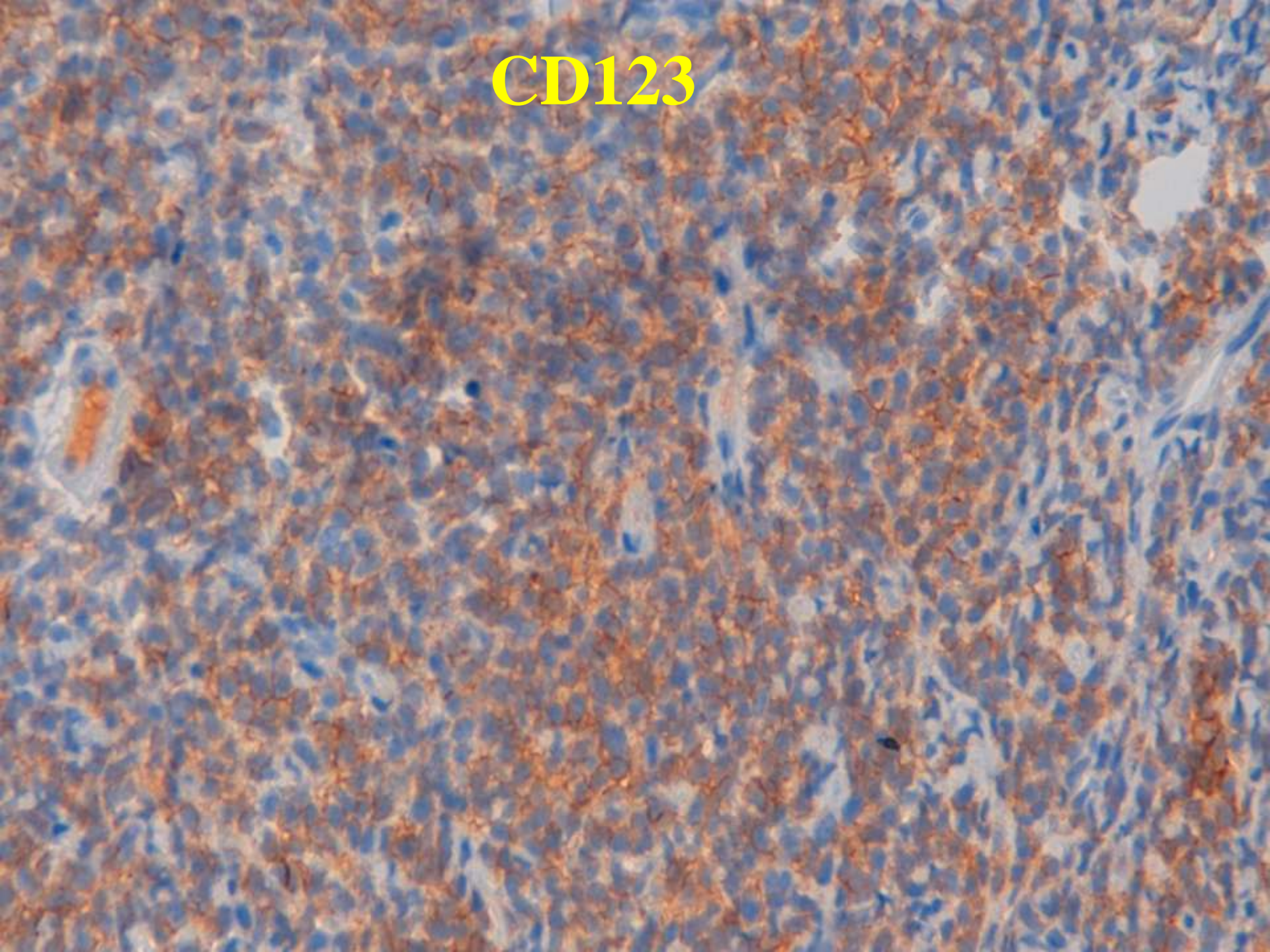


Diagnóstico

Neoplasia hematológica CD4+ CD56+

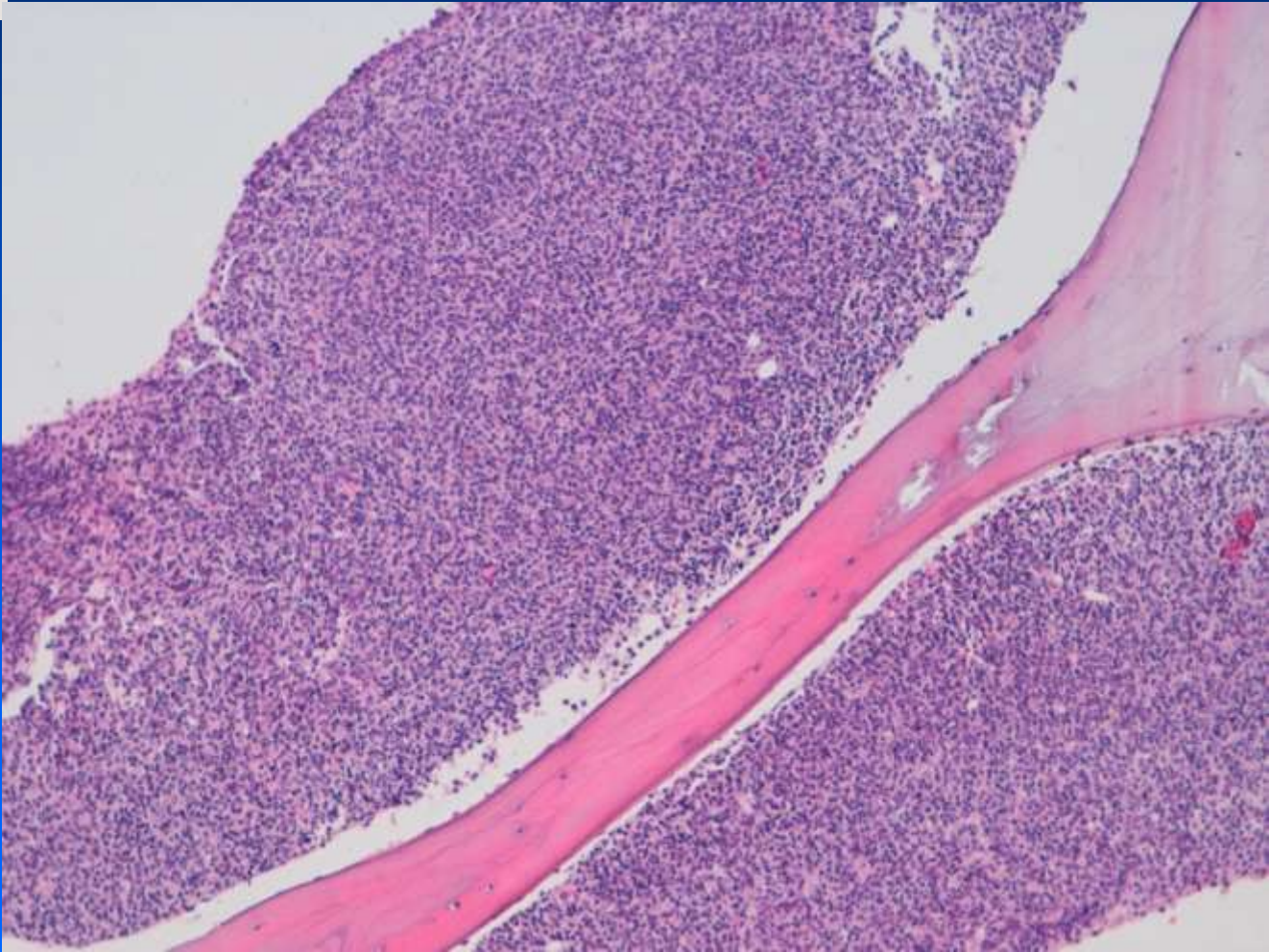
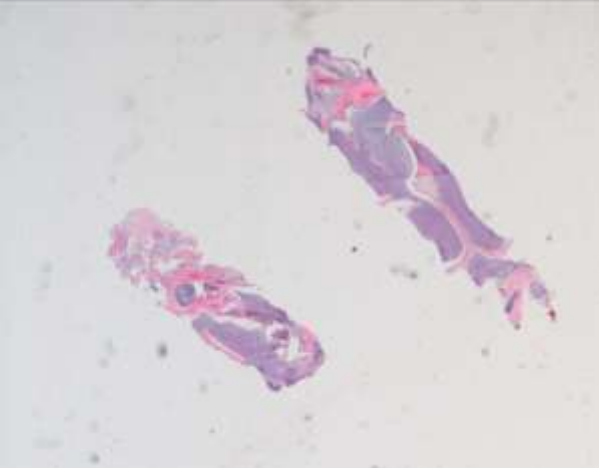
- . Leucemias mieloides agudas**
- . Leucemia de células dendríticas
plasmocitoides blásticas**

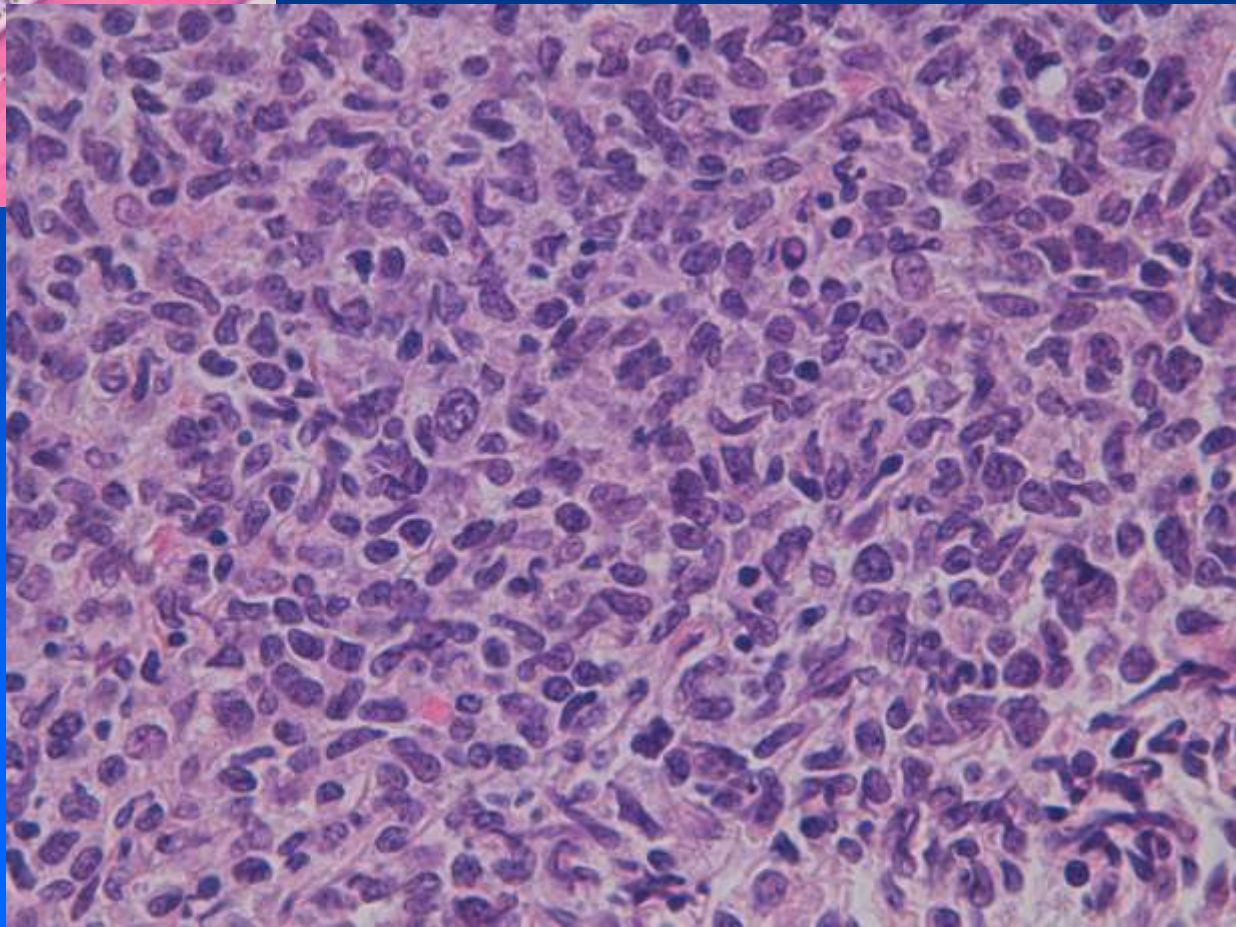
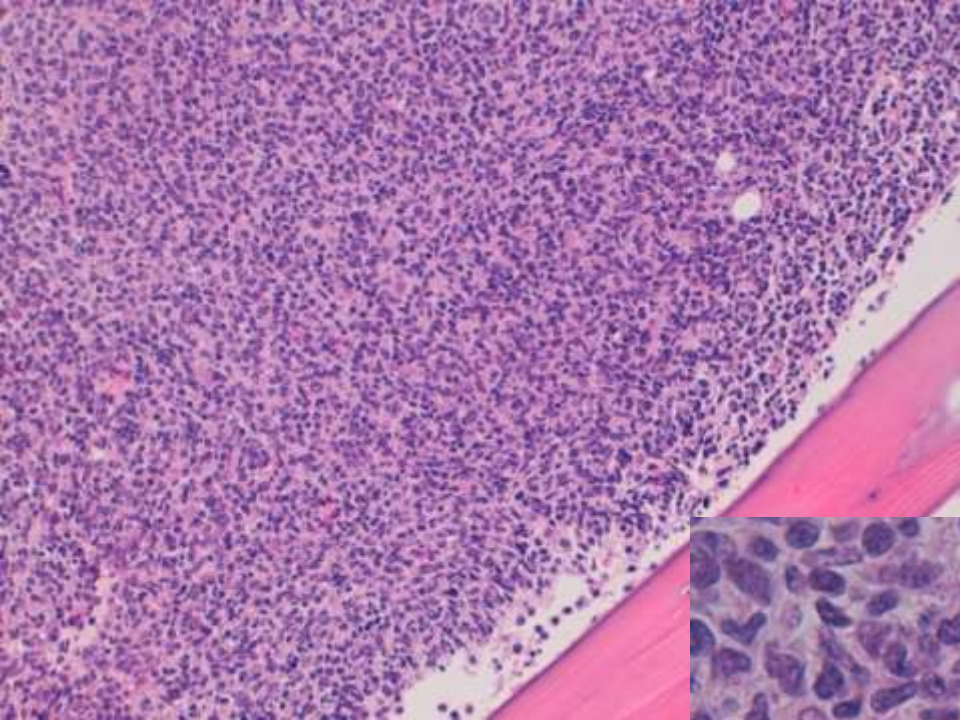
CD123



Diagnóstico

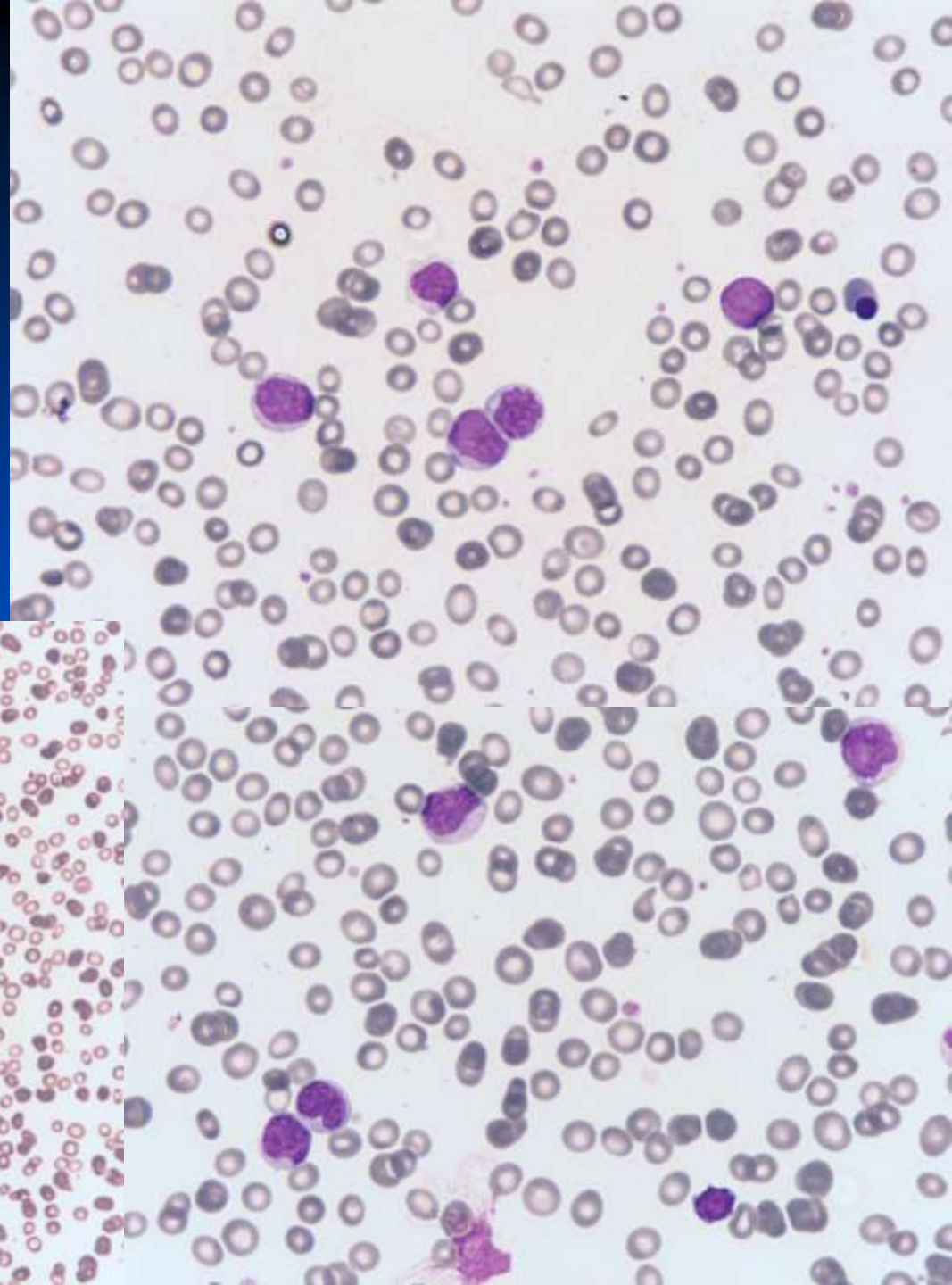
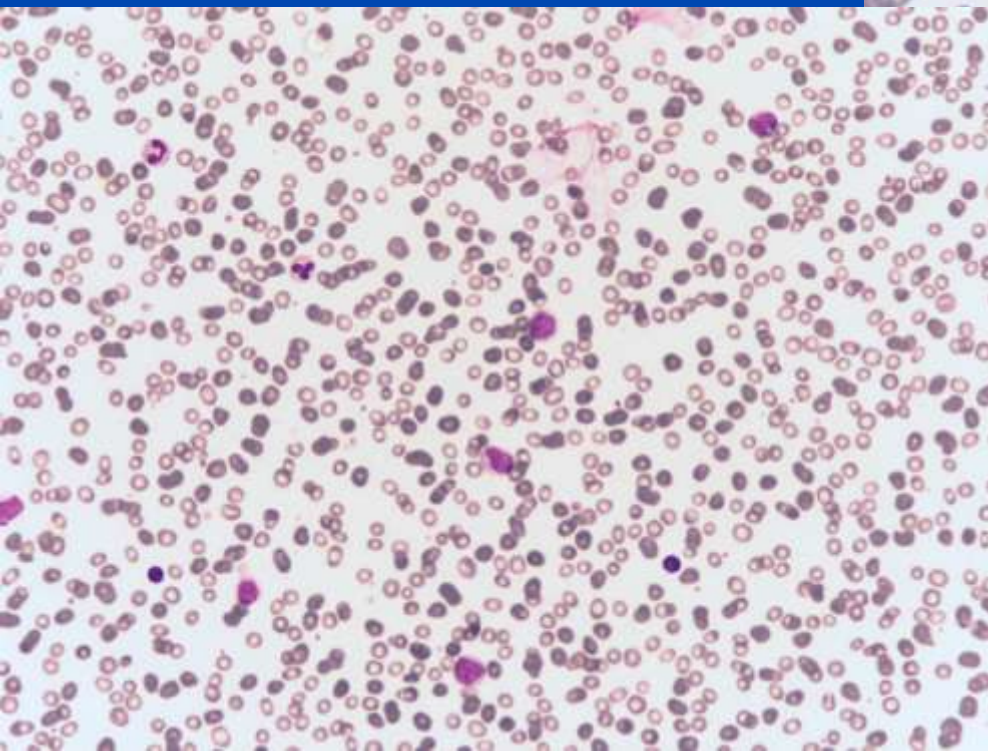
**Neoplasia de células dendríticas
plasmocitoides blásticas**



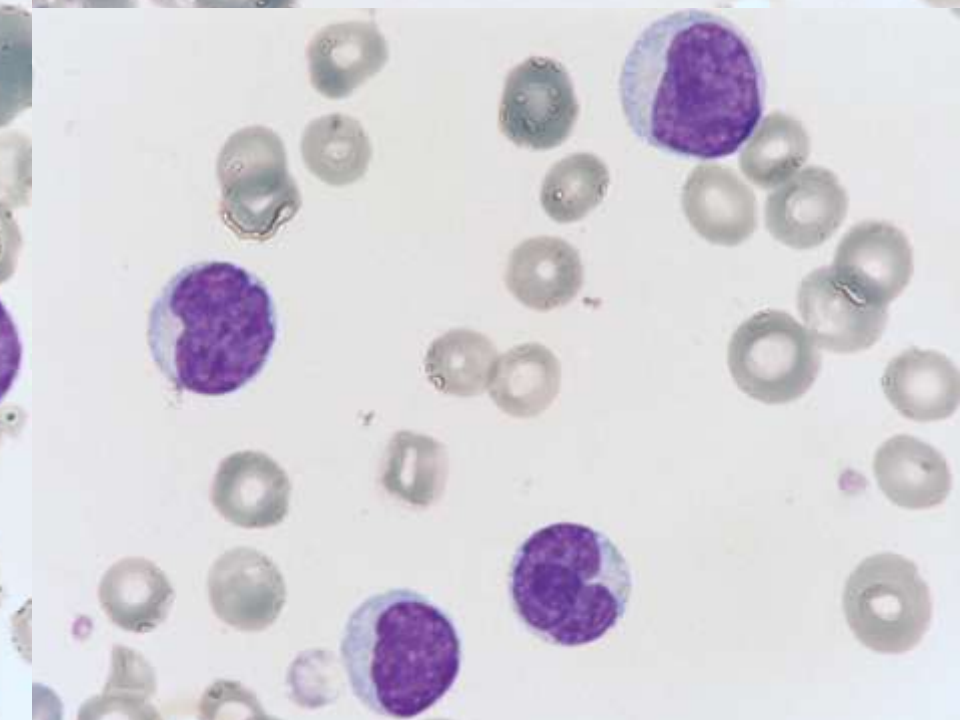
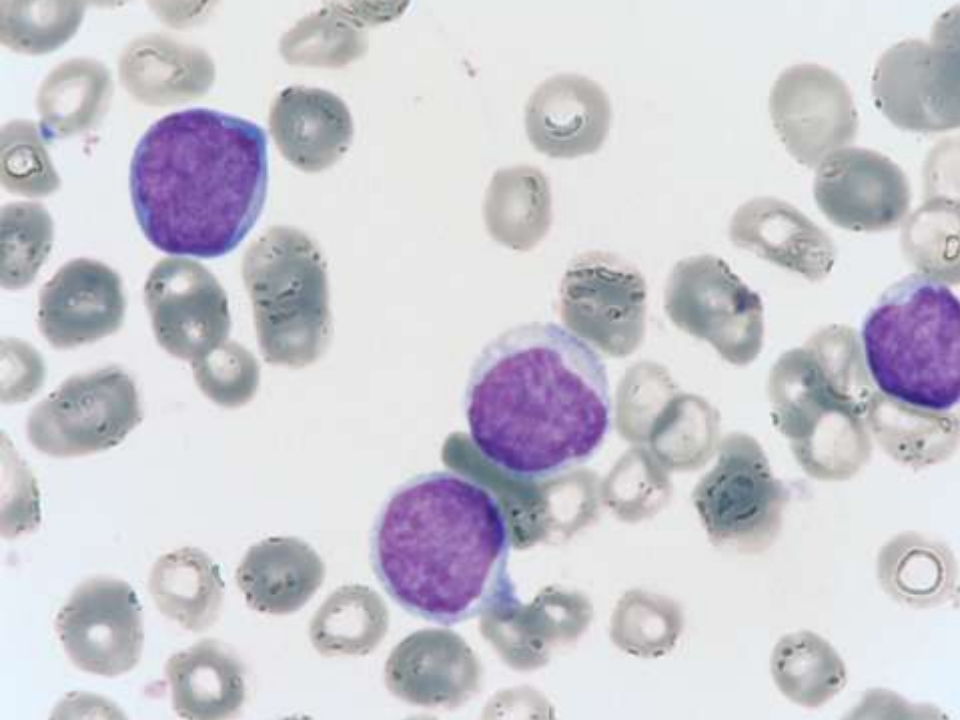
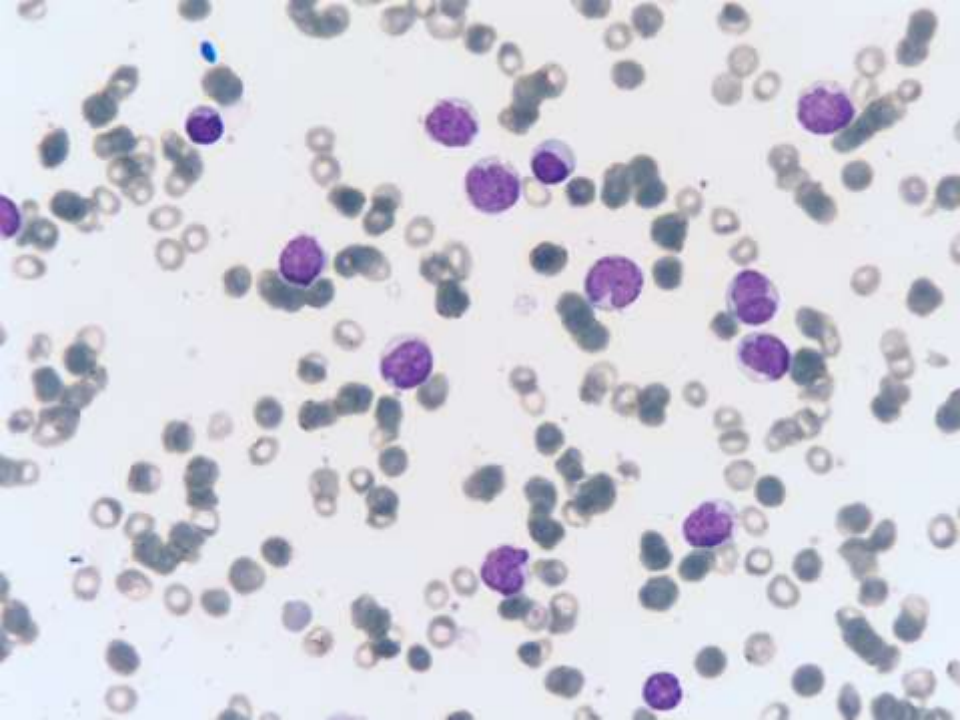


Morfología de sp:

- células de aspecto monocitoide con rasgos de inmadurez

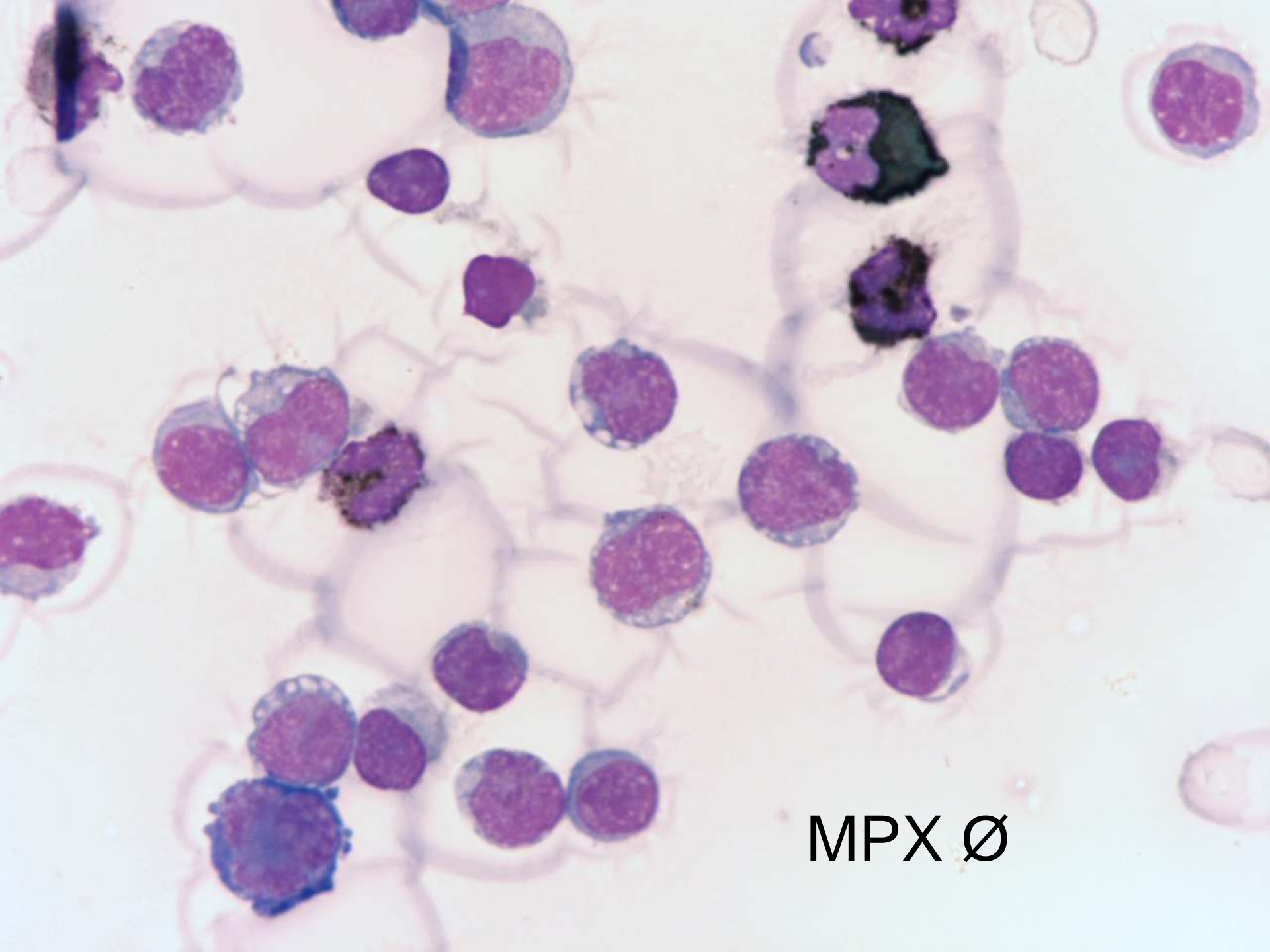


Aspirado de MO

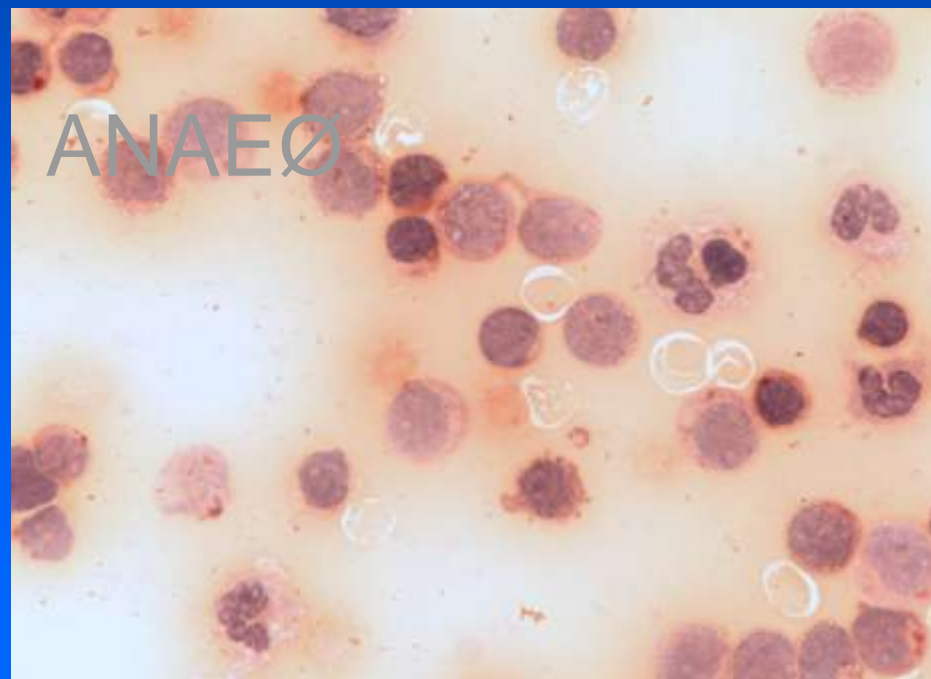
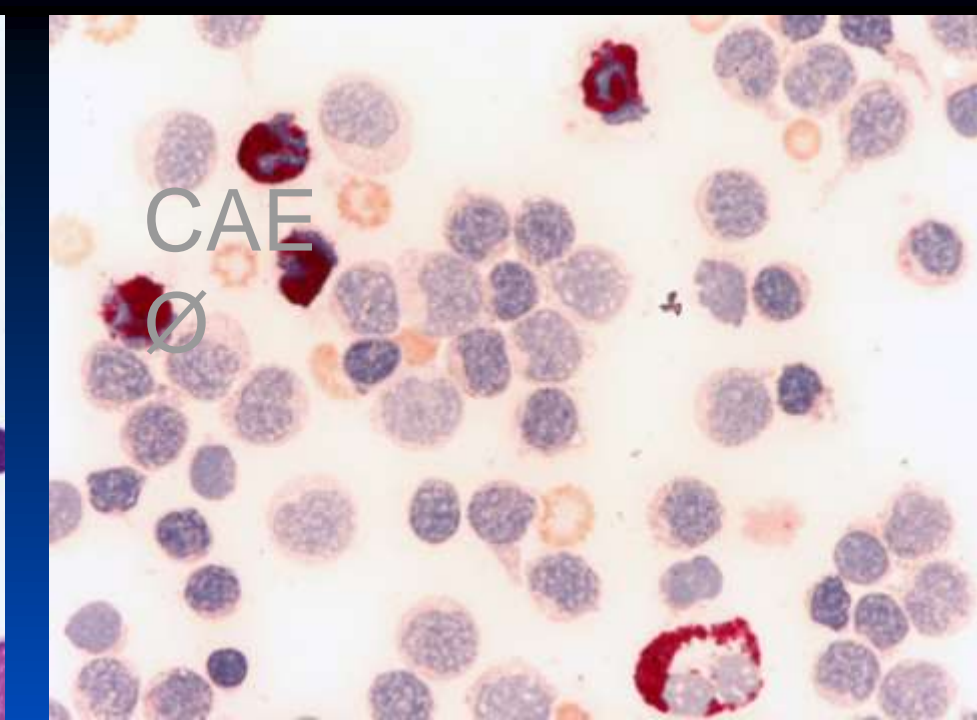
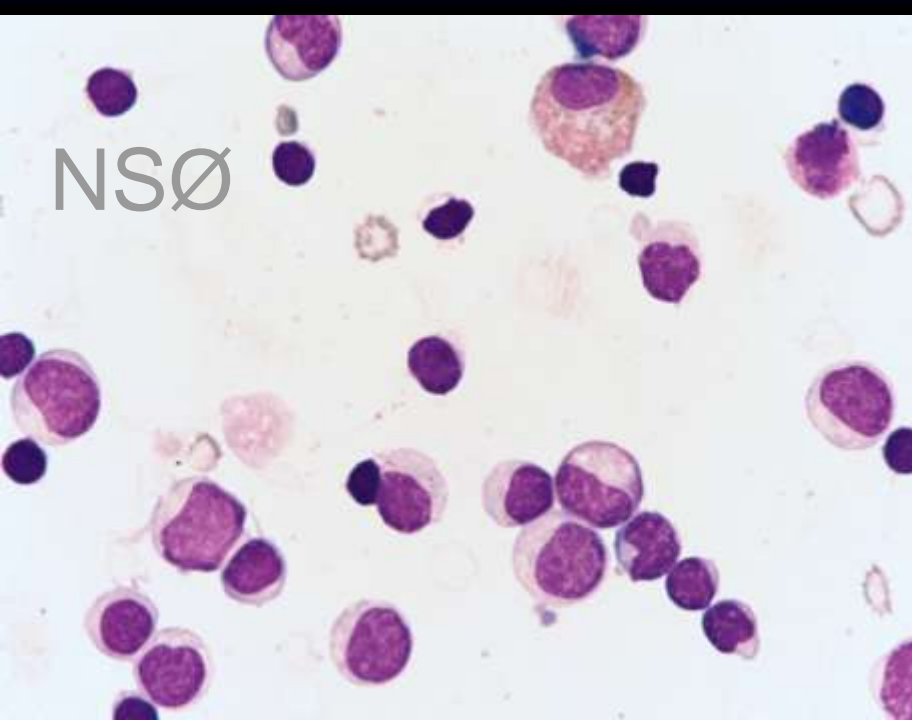


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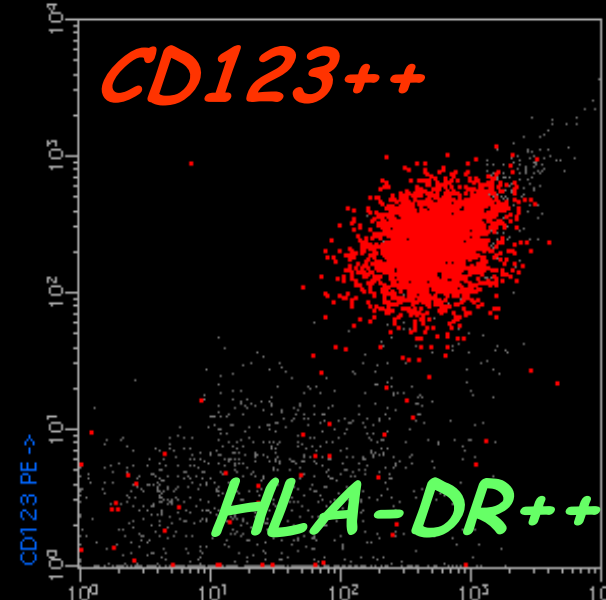
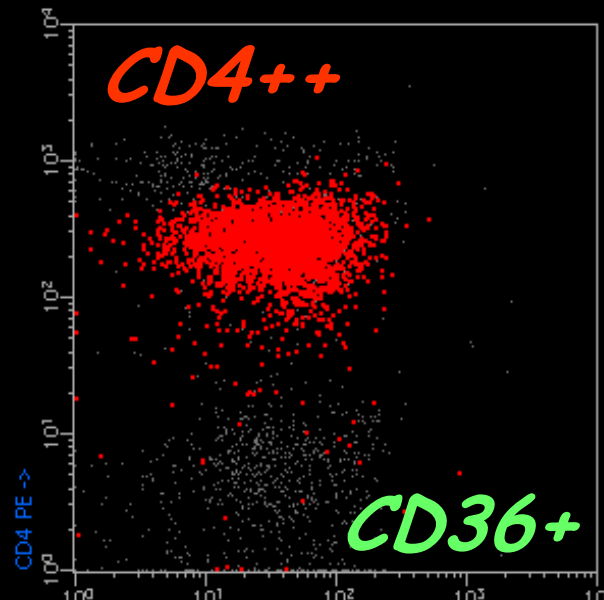
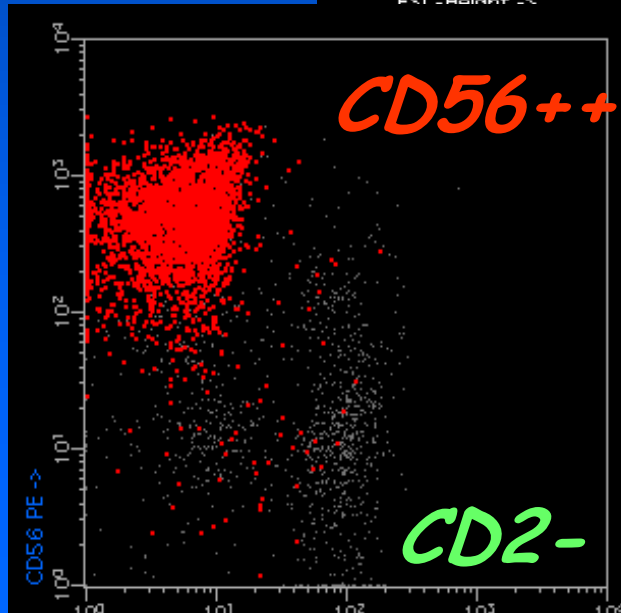
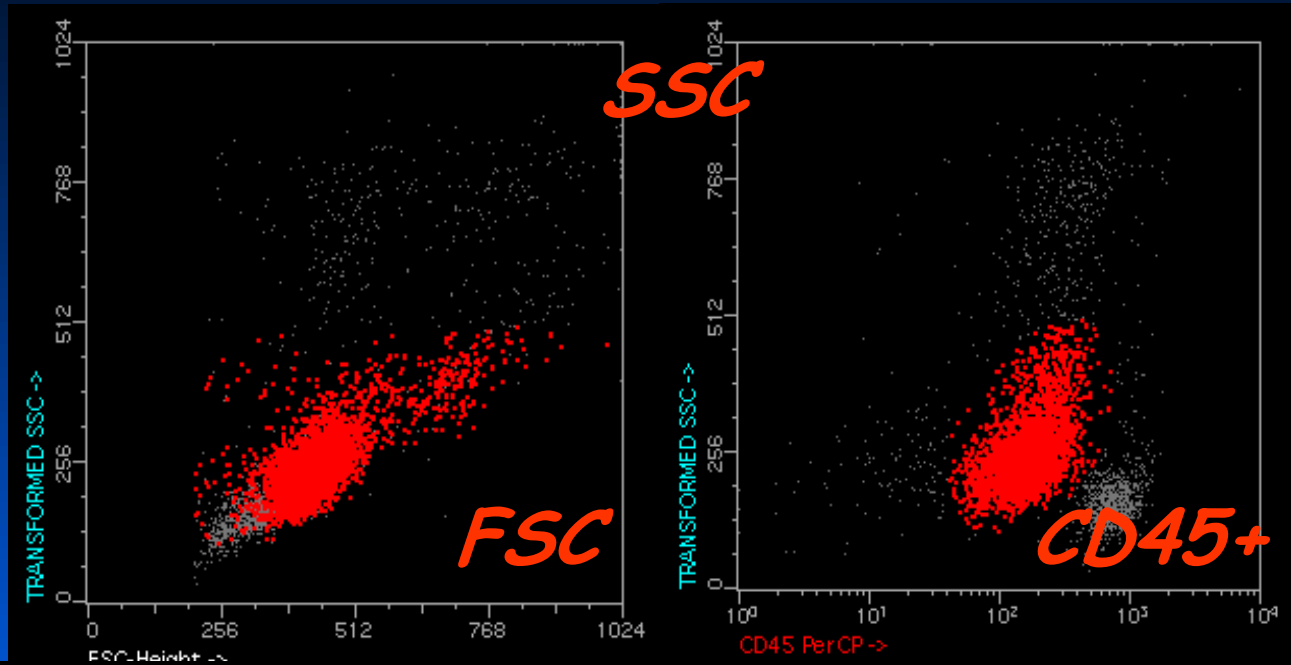




MPX Ø



Citometría de flujo



Inmunofenotipo MO

Positivos:

- CD123
- CD7, CD4, CD43
- CD56
- HLA-DR, CD38
- CD36, 7.1, CD45RA, CD59

Negativos:

- MPO, LISOZIMA, CD33, CD13, CD117, CD11b, CD65, CD15, CD64, CD14 (Línea mieloide)
- CD3cit, CD1, CD2, CD8 (Línea T)
- CD79a, CD19, CD22 (Línea B)
- CD16, CD57, CD11c (NK)
- TdT, CD34 (Inmaduros)
- CD45RO, CD55

Biología molecular y citogenética

- Ausencia de reordenación de Ig-JH y TCR
- Cuantificación de ADN:
 - Índice de ADN: 1
 - G0/G1: 99.5
 - S+G2/M: 0.5 } Bajo grado de proliferación
- Ausencia de aneuploidías.
- 11q23 no alterado (0/200 cel)

TAC

- Adenopatías

- . mediastínicas
- . paratraqueales
- . subcarinales
- . paraaórticas izquierdas de hasta 2,5 cm.
- . axilares bilaterales múltiples de hasta 1,5 cm.
- . retroperitoneales de hasta 2,2 cm.
- . ilíacas bilaterales de hasta 3,1 cm.

- Lesiones hipodensas esplénicas

CD4+/CD56+ Hematodermic Tumor

The Features of an Evolving Entity and Its Relationship to Dendritic Cells

Marco Herling, MD, and Dan Jones, MD, PhD

Table 1

An Evolving Entity: Past and Current Nomenclature of Tumor Types That Overlap With the CD4+/CD56+ Hematodermic Tumor

Tumor Type	References
Histiocyte-associated hematologic malignancy	Gattei et al ¹
CD4+/CD56+ acute monoblastic leukemia	Tauchi et al ²
Acute agranular CD4+ NK-cell leukemia	Brody et al ³
Cutaneous agranular CD2-/CD4+/CD56+ lymphoma	Kameoka et al ⁴
Myelomonocytic precursor cell-related lymphoma	Bagot et al ⁵
Primary cutaneous CD4+/CD56+ hematolymphoid neoplasm	Petrella et al ⁶
Agranular CD4+/CD56+ blastic NK leukemia/lymphoma	Kimura et al ⁷
Blastic NK-cell lymphoma (WHO)	Chan et al, ⁸ DiGiuseppe et al, ⁹ Bayerl et al, ¹⁰ and Falcao et al ¹¹
(Lympho)blastoid NK-leukemia/lymphoma	Estalilla et al, ¹² Ginarte et al, ¹³ and Knudsen et al ¹⁴
DC2 precursor acute leukemia	Chaperot et al ¹⁵ and Anargyrou et al ¹⁶
CD56+TdT+ blastic NK-cell tumor of skin	Khoury et al ¹⁷
CD4+/CD56+ acute leukemia	Feuillard et al ¹⁸
Agranular CD4+/CD56+ hematodermic tumor	Petrella et al ¹⁹ and Kato et al ²⁰
Early plasmacytoid dendritic cell leukemia/lymphoma	Jacob et al ²¹ and Giagounidis et al ²²
DC2-related CD4+/CD56+ blastic tumor of skin	Herling et al ²³
Closely related tumors with unclear single-entity status	
Plasmacytoid T-cell lymphoma	Prasthofer et al ²⁴
Plasmacytoid monocytes associated with myeloid disorders	Vermi et al ²⁵

DC2, a subset of dendritic cells; NK, natural killer; TdT, terminal deoxynucleotidyl transferase; WHO, World Health Organization.

CLASIFICACION CLINICA DE LOS LINFOMAS T/NK (OMS, 2001)

- Formas leucémicas-diseminadas**
- Formas cutáneas**
- Otras formas extranodales**
- Nodales**
- Neoplasia de incierto origen y grado de diferenciación**
 - * Linfoma NK blástico**

CLASIFICACION EORTC-OMS DE LOS LINFOMAS PRIMITIVOS CUTANEOS -2005-

Table 1 WHO-EORTC classification of cutaneous lymphomas with primary cutaneous manifestations

Cutaneous T-cell and NK-cell lymphomas
Mycosis fungoides
MF variants and subtypes
Folliculotropic MF
Pagetoid reticulosis
Granulomatous slack skin
Sézary syndrome
Adult T-cell leukemia/lymphoma
Primary cutaneous CD30+ lymphoproliferative disorders
Primary cutaneous anaplastic large cell lymphoma
Lymphomatoid papulosis
Subcutaneous panniculitis-like T-cell lymphoma
Extranodal NK/T-cell lymphoma, nasal type
Primary cutaneous peripheral T-cell lymphoma, unspecified
Primary cutaneous aggressive epidermotropic CD8+ T-cell lymphoma (provisional)
Cutaneous γ/δ T-cell lymphoma (provisional)
Primary cutaneous CD4+ small/medium-sized pleomorphic T-cell lymphoma (provisional)
Cutaneous B-cell lymphomas
Primary cutaneous marginal zone B-cell lymphoma
Primary cutaneous follicle center lymphoma
Primary cutaneous diffuse large B-cell lymphoma, leg-type
Primary cutaneous diffuse large B-cell lymphoma, other
Intravascular large B-cell lymphoma
Precursor hematologic neoplasm
CD4+/CD56+ hematodermic neoplasm (blastic NK-cell lymphoma)

OMS, 2008

Table 1. Acute Myeloid Leukemia (AML) and Related Precursor Neoplasm

AML with recurrent genetic abnormalities

AML with t(8;21)(q22;q22); RUNX1-RUNX1T1

AML with inv(16)(p13.1q22) or t(16;16)(p13.1;q22); CBFB-MYH11

Acute promyelocytic leukemia with t(15;17)(q22;q12); PML-RARA

AML with t(9;11)(p22;q23); MLLT3-MLL

AML with t(6;9)(p23;q34); DEK-NUP214

AML with inv(3)(q21q26.2) or t(3;3)(q21;q26.2); RPN1-EVI1

AML with mutated NPM1*

AML with mutated CEBPA*

AML with myelodysplasia-related changes

Therapy-related myeloid neoplasms

Myeloid sarcoma

Myeloid proliferations related to Down syndrome

Transient abnormal myelopoiesis

Myeloid leukemia associated with Down syndrome

Blastic plasmacytoid dendritic cell neoplasm

*Provisional entities.

Células dendríticas plasmocitoides

- Son presentadora de antígenos (CPA):
 - inician la respuesta inmune primaria de las células T.
 - activación linfocitos B.
 - inmunidad natural (NK, macrófagos, células NK-T, eosinófilos).
 - tolerancia inmunológica.
- Origen mieloide vs linfoide.
- Células inmaduras>> activación>> migración a tejidos linfoides (maduración)>> respuesta inmune.

Plasmacytoid dendritic cell leukaemia/lymphoma: towards a well defined entity?

Francine Garnache-Ottou,^{1,2} Jean Feuillard³ and Philippe Saas^{1,2}

¹EFS BFC, Haematology and Immunology Laboratory, Besançon, France; ²INSERM U645, Besançon, France; University of Franche-Comte, Besançon, France; IFR133, Besançon, France, and ³CHU Dupuytren, Haematology Laboratory, Limoges, France

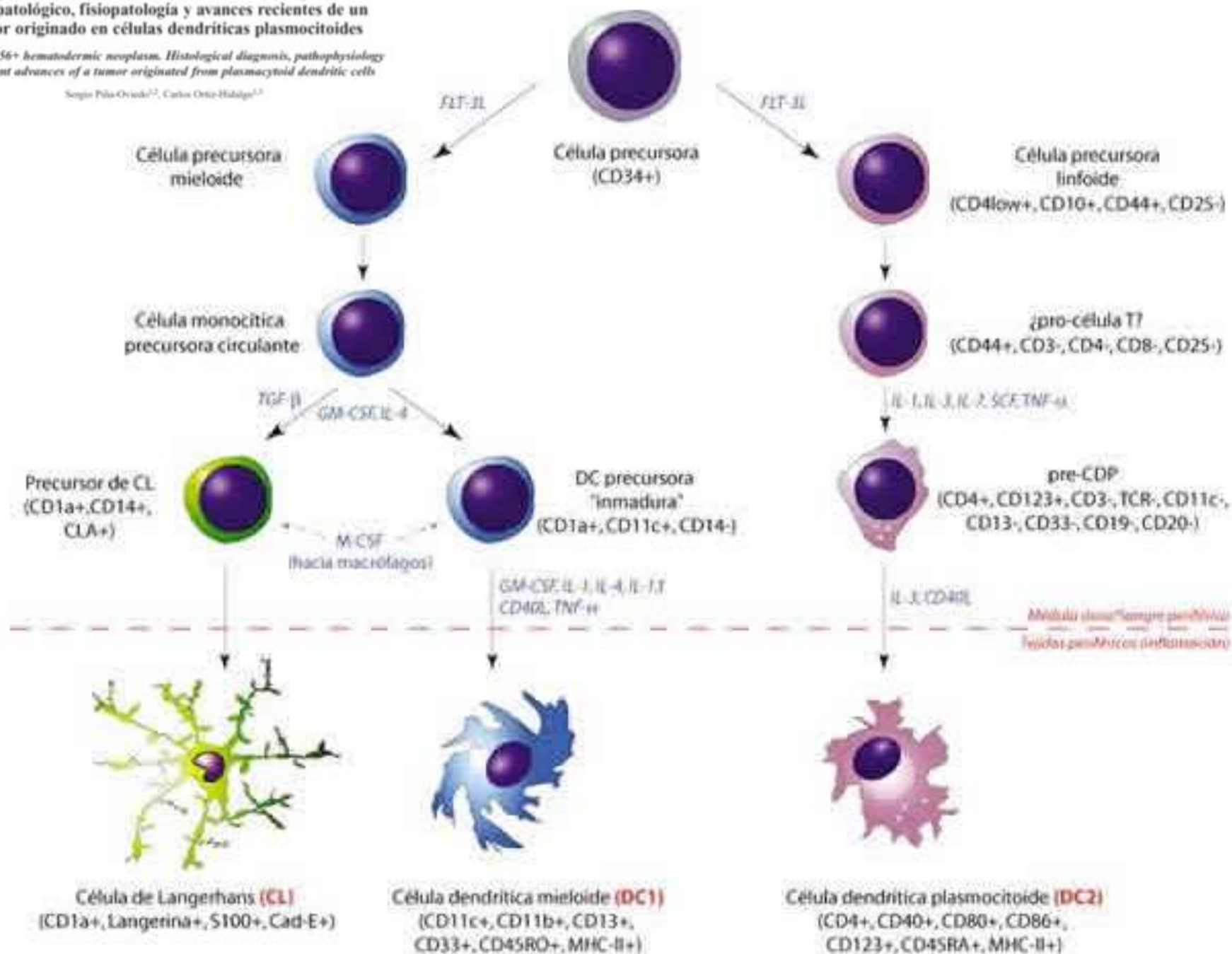
Table I. Arguments in favour of the ontogeny origin of plasmacytoid dendritic cell leukaemia.

	Arguments in favour of a	
	Lymphoid origin	Myeloid origin
Marker expression	Lymphoid markers: pre-T α , lambda-like, Ig-related genes, Spi-B, CD115– (Briere <i>et al</i> , 2002; Rissoan <i>et al</i> , 2002)	Myeloid markers: CD36, CD68, ILT3, CD11c, CD13, CD33 (see text)
Clonogenic culture: generation of pDC from	A cord blood progenitor expressing CD34 and CD7 but lacking CD38. This progenitor generated B cells and NK cells but not myeloid or erythroid cells (Hao <i>et al</i> , 2001)	A myeloid progenitor expressing CD34 and CD115 (Olweus <i>et al</i> , 1997)
Experimental data	Common blockage of T, B cell and pDC, but not myeloid, differentiation with Id-2 and Id-3 (Spits <i>et al</i> , 2000)	A murine pDC subset present in the bone marrow and expressing <i>CD115</i> mRNA (Pelayo <i>et al</i> , 2005)
Data obtained from pDCL	Expression of TCL1, a proto-oncogene involved in lymphoid malignancies (Herling <i>et al</i> , 2003; Petrella <i>et al</i> , 2004a)	Transformation of pDCL in CMML and AML (Khoury <i>et al</i> , 2002; Herling <i>et al</i> , 2003) Myelodysplastic features in BM myeloid cells of pDCL patients or a history of myelodysplastic syndrome before the diagnosis of pDCL (Feuillard <i>et al</i> , 2002; Khoury <i>et al</i> , 2002; Kazakov <i>et al</i> , 2003)

Neoplasia hematodérmica CD4+/CD56+. Diagnóstico histopatológico, fisiopatología y avances recientes de un tumor originado en células dendríticas plasmocitoides

CD4+/CD56+ hematodermic neoplasm. Histological diagnosis, pathophysiology and recent advances of a tumor originated from plasmacytoid dendritic cells

Sergio Páez-Oviedo^{1,2}, Carlos Ortiz-Huámpal^{1,2}

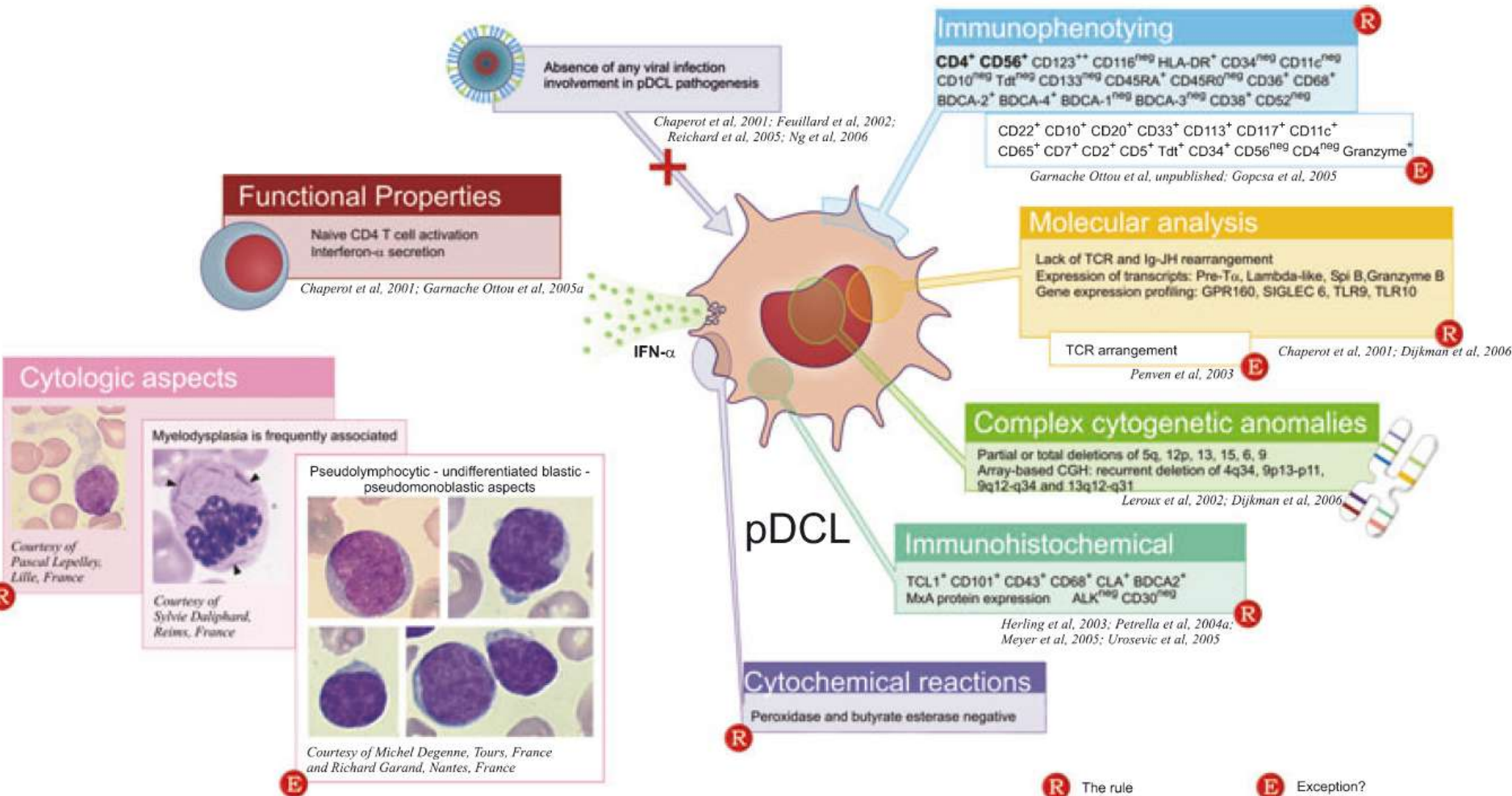


Plasmacytoid dendritic cell leukaemia/lymphoma: towards a well defined entity?

British Journal of Haematology, 136, 539-548

Francine Garnache-Ottou,^{1,2} Jean Feuillard³ and Philippe Saas^{1,2}

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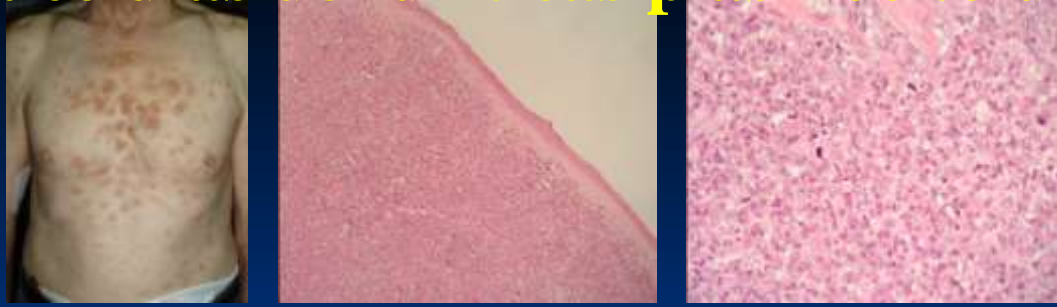
Neoplasia células dendríticas plasmocitoides blásticas

- Incidencia:
 - <1% de las leucemias agudas.
 - 0'7% de los linfomas cutáneos.
- Hombres 3:1 mujeres.
- Edad media 70 años.

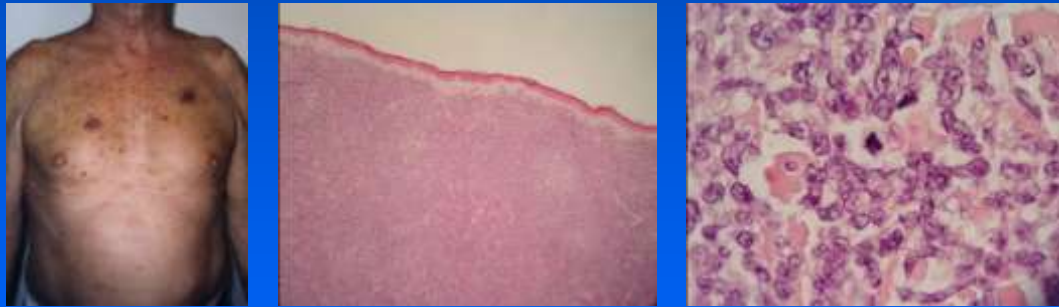
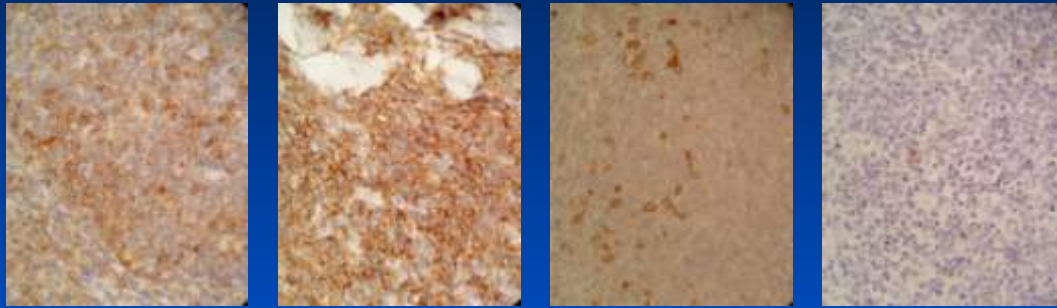
Clínica

- Presentación: linfoma cutáneo/leucemia aguda.
- Lesiones cutáneas difusas o localizadas como clínica inicial (90%) con afectación posterior de otros órganos (m.o, gg.linfáticos, pulmones, riñón, bazo...).
- Pápulas, tumefacción, nódulos, hiperpigmentación.
- Estado clínico del paciente al diagnóstico aceptable.
- Anemia-neutropenia (30%) y trombopenia (60%). Afectación m.o >80%. Hiperleucocitosis infrecuente.

Neoplasia células dendríticas plasmocitoides blásticas



Caso 1



Caso 1



Tratamiento y pronóstico

- Presentan una **respuesta precoz** con la quimioterapia (RC:78%).
- La **recaída** es también **precoz y rápidamente fatal** en pocos meses.
- La quimioterapia intensiva de leucemia mieloide o linfoide no ha demostrado prolongar la supervivencia.
- La quimioterapia seguida de trasplante autólogo todavía no ha sido probado.
- El trasplante alogénico es el único tratamiento curativo.
- Se debe hacer profilaxis de SNC en todos los pacientes.

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Article Published in the Author Account of

Brunangelo Falini

New Classification of Acute Myeloid Leukemia and Precursor-related Neoplasms: Changes and Unsolved Issues

Published on October 2, 2010

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Recognition of BPDC is of great clinical importance since patients respond poorly to conventional chemotherapy. Initial response is invariably followed by relapse involving skin alone or skin plus other sites. Long-lasting remission was occasionally achieved only after allogeneic stem cell transplantation (Assaf *et al.*, 2007). Prognosis in pediatric patients appears more favorable, even without allogeneic stem cell transplantation (Jegalian *et al.*, 2009b).

Diagnóstico

Table 4

Immunohistochemical Profile of Myeloid Leukemia Cutis*

Antibody	All Cases	Acute Monocytic Leukemia	AML With MRC
CD43	32/33 (97)	5/5 (100)	7/7 (100)
CD68	31/33 (94)	5/5 (100)	7/7 (100)
MPO	14/33 (42)	1/5 (20)	1/7 (14)
CD56	14/30 (47)	2/5 (40)	5/7 (71)
CD163	7/28 (25)	3/5 (60)	1/6 (17)
CD117 (total)	3/30 (10)	0/5 (0)	1/6 (17)
CD34 (total)	2/31 (6)	1/5 (20)	1/7 (14)
CD20	0/33 (0)	0/5 (0)	0/7 (0)
CD3	0/33 (0)	0/5 (0)	0/7 (0)

AML, acute myeloid leukemia; MPO, myeloperoxidase; MRC, myelodysplasia-related changes.

Table 4
Immunohistochemical Results and Statistical Correlations*

Antibody	All Cases (n = 173)	AML				RA (n = 18)	P	
		All (n = 113)	Types 1 and 2 (n = 21)	Types 4 and 5 (n = 63)	CMML (n = 19)		AML/CMML	AML Types 1-2/4-5
CD68	148/152 (97.4)	93/95 (98)	17/18 (94)	53/54 (98)	17/19 (94)	17/17 (100)	.4	.3
CD163	49/95 (52)	30/62 (48)	3/12 (25)	22/37 (59)	6/9 (67)	9/13 (69)	.5	.038
CD14	38/108 (35.2)	24/74 (32)	1/10 (10)	19/44 (43)	3/8 (37)	8/14 (57)	1	.072
CD4	77/126 (61.1)	49/79 (62)	6/13 (46)	29/44 (66)	14/18 (78)	5/14 (36)	.2	.2
MPO	95/152 (62.5)	60/98 (61)	13/17 (76)	32/55 (58)	9/18 (50)	11/16 (69)	.4	.17
CD33	66/71 (93)	66/51 (93)	10/14 (71)	40/40 (100)	12/16 (75)	13/14 (93)	.055	.003
CD117	36/120 (30.0)	22/76 (29)	6/14 (43)	11/40 (27)	3/14 (21)	4/15 (27)	.7	.3
CD34	7/147 (4.8)	5/92 (5)	0/15 (0)	1/51 (2)	2/17 (12)	0/18 (0)	.3	1
CD56	22/119 (18.5)	14/72 (19)	1/13 (8)	6/40 (15)	3/17 (18)	1/14 (7)	1	.7
MIB-1							.2	.8
<5%	41/115 (35.7)	28/74 (38)	6/14 (43)	15/42 (36)	6/14 (43)	4/15 (27)		
5%-33%	40/74 (54)	58/74 (78)	7/14 (50)	24/42 (57)	5/14 (36)	9/15 (60)		
34%-66%	5/115 (4.3)	1/74 (1)	0/14 (0)	1/42 (2)	1/14 (7)	2/15 (13)		
>67%	7/115 (6.1)	7/74 (9)	1/14 (7)	2/42 (5)	2/14 (14)	0/15 (0)		
CD123	11/123 (8.7)	5/80 (6)	0/13 (0)	3/46 (7)	5/17 (29)	1/13 (8)	.011	1
CD303	4/124 (3.2)	1/81 (1)	0/13 (0)	1/48 (2)	2/16 (13)	1/14 (7)	.077	1

AML, acute myeloid leukemia; CMML, chronic myelomonocytic leukemia; MPO, myeloperoxidase; RA, refractory anemia.

* Data are given as number positive/number tested (percentage).

Immunohistochemical analysis is an essential tool in the diagnosis of MLC. Several algorithms in the literature^{5,39} have emphasized the role of CD68 and MPO. The present study shows that CD33 is an additional interesting tool in the diagnosis of MCL, but overall it shows that PDC markers such as CD123 are necessary in the panel.

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An Updated Approach to the Diagnosis of Myeloid Leukemia Cutis

Danielle M. P. Cronin, MD,¹ Tracy I. George, MD,¹ and Uma N. Sundram, MD, PhD^{1,2}

Table 5
Comparison of Cutaneous Immunohistochemical Expression With Bone Marrow Flow Cytometric Phenotype

Case No.	Cutaneous Immunohistochemical Profile					Flow Cytometric Expression Profile*
	MPO	CD34	CD56	CD68	CD117	
2	-	-	-	+	-	HLA-DR+, partial CD14+, CD33+, CD56+ , CD64+
3	-	-	+	+	-	MPO+ , CD33>CD13, CD56+ , CD64+, CD65w+
8	-	-	+	+	-	HLA-DR+, weak MPO , CD14+, CD33>CD13, CD34+ , CD56+ , CD64+
12	+	-	ND	-	+	HLA-DR+, CD13+, CD33+, CD34+ , CD117+
16	-	+	-	+	-	HLA-DR+, CD13-, CD15+, CD33+, CD34+ , CD56+ , CD64+
19	-	-	-	+	-	Weak MPO , CD13+, CD15+, CD33+, CD34+ , CD64+
21	+	-	-	+	+	HLA-DR+, MPO+ , CD15+, CD13>CD33, CD34+ , CD64+, CD117+
22	+	-	-	+	-	HLA-DR-, MPO+ , CD13+, CD33+, CD34- , weak CD64, CD117+
24	-	-	-	+	-	MPO+ , CD13+, CD15+, CD33+, CD34+ , CD117+
25	+	-	-	+	-	HLA-DR+, MPO+ , CD13+, CD15+, CD33+, CD34- , CD64+, CD117+
27	+	-	-	+	-	MPO+ , CD13+, CD15+, CD56+ , CD33+, weak CD34 , CD117+
31	+	-	+	+	-	MPO+ , CD15+, CD33+, CD34- , CD56+ , weak CD64, CD117+
33	+	-	+	+	-	MPO+ , CD4+, CD11c+, CD13+, CD33+, CD34+ , weak CD64+, CD117+

MPO, myeloperoxidase; ND, not done; +, positive; -, negative.

* Bolded antigens were tested by immunohistochemical and flow cytometric analyses. Three patients with normal findings by bone marrow biopsy had accompanying negative flow cytometric studies. One patient had only very limited flow cytometric data available (data not shown).

CONCLUSIONES

- . La leucemia de células dendríticas plasmocitoides blásticas es una entidad rara pero que debe ser reconocida por los clínicos (dermatólogos) por su alta agresividad biológica y por los patólogos por su dificultad diagnóstica.**
- . En el algoritmo diagnóstico y panel inmunohistoquímico de las leucemias cutis se deben incluir marcadores de dichas células (CD123).**
- . Puede haber discordancia entre el perfil inmunofenotípico entre tejido y citometría de flujo.**

Células dendríticas

Grupo heterogéneo de células, no linfoides, del sistema inmune no-fagocítico.

Se localizan en órganos linfoides y no linfoides

Células dendríticas de los ganglios linfáticos

CD Folicular

CD Interdigitante

CD de Langerhans

CD Histiocítica/fibroblástica

CD plasmocitoide

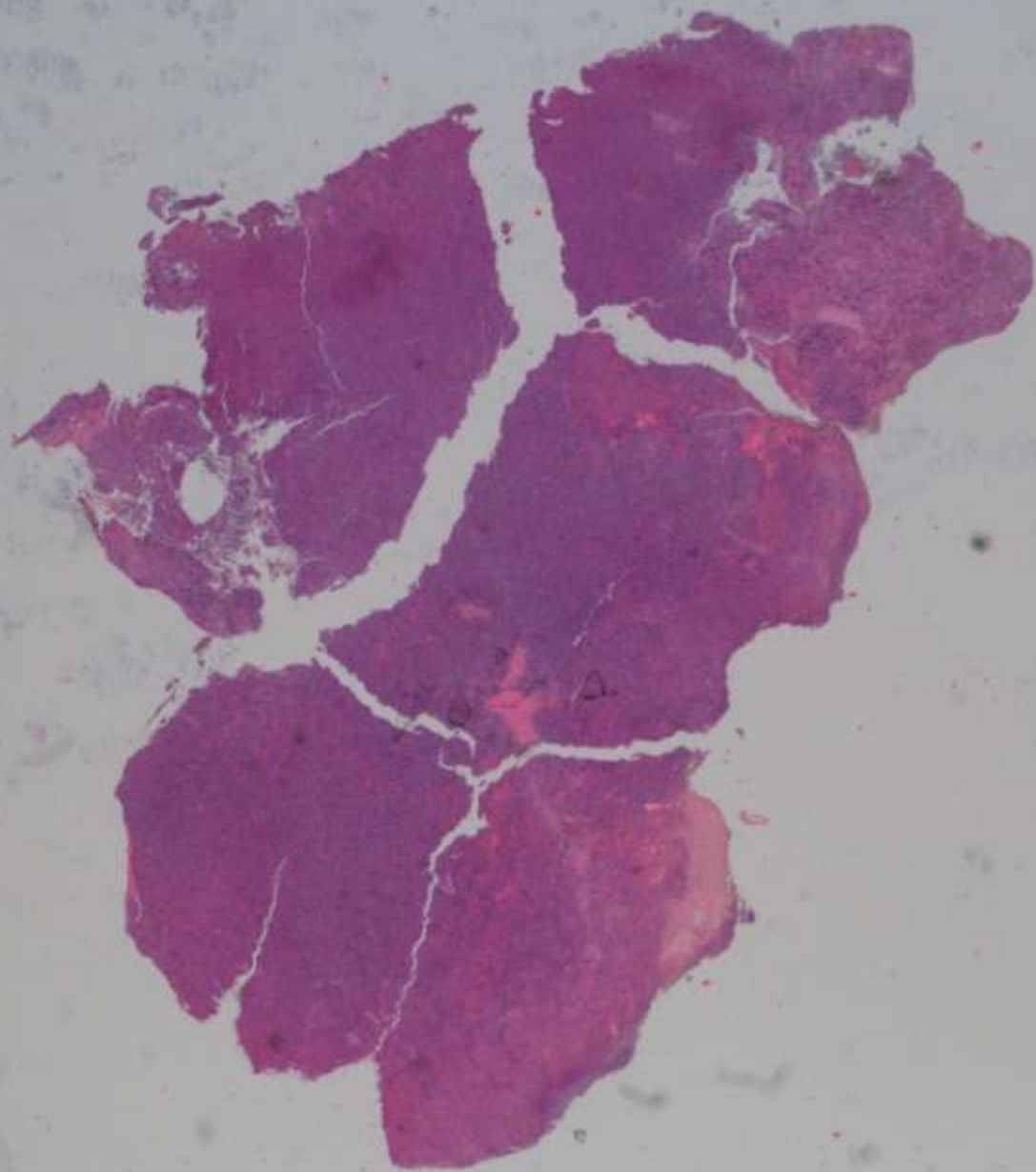
Historia clínica

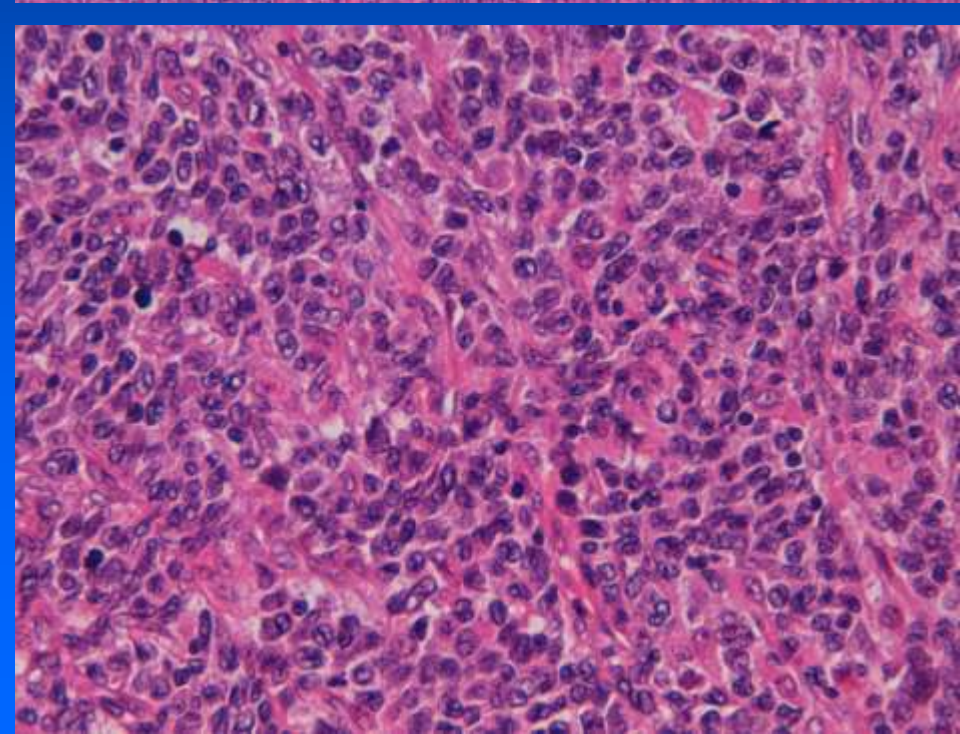
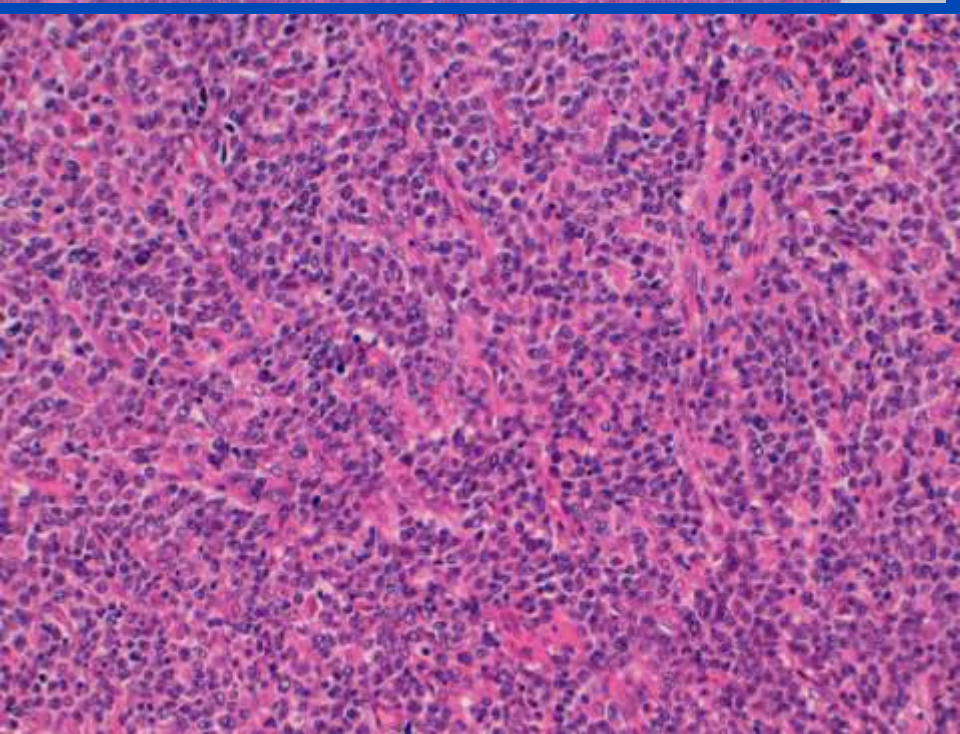
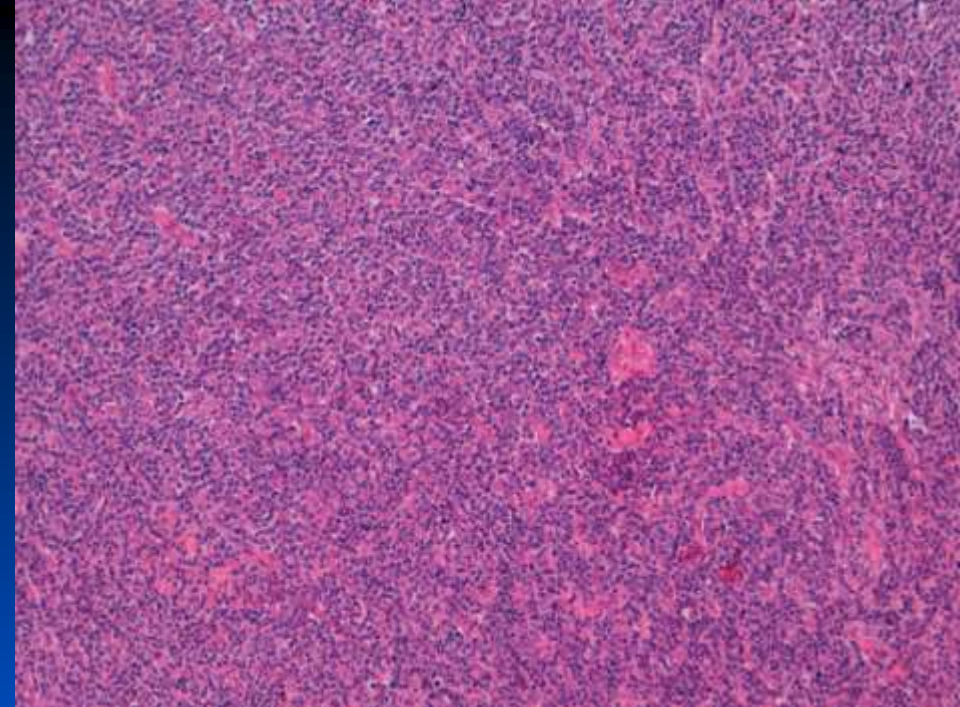
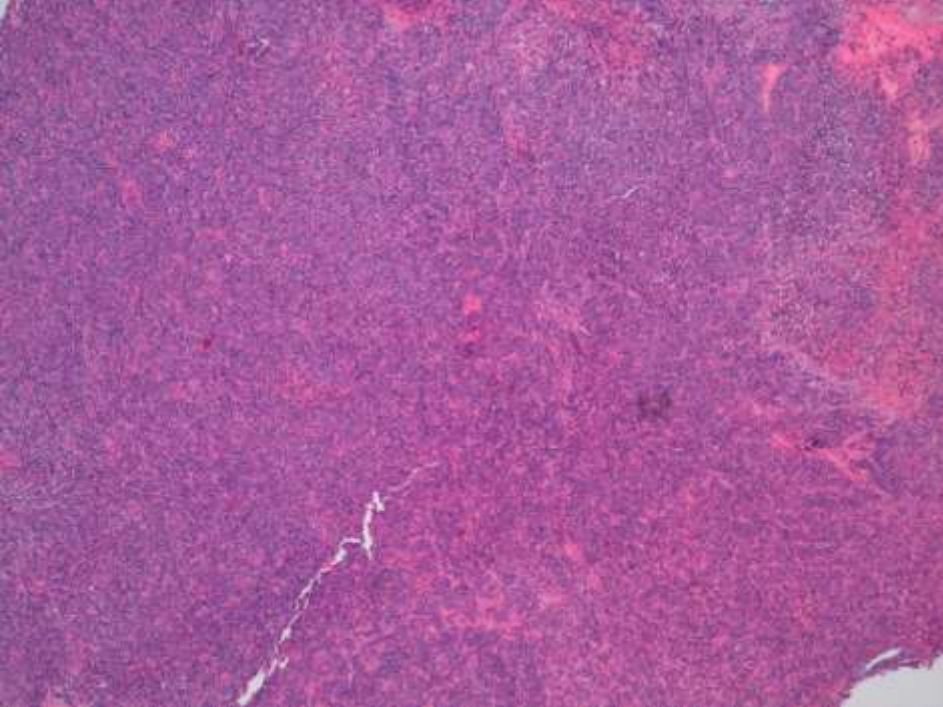
- . Mujer de 76 años con tumoración inguinal de crecimiento progresivo que ulcera la piel**
- . Antecedentes de adenocarcinoma endometrial**

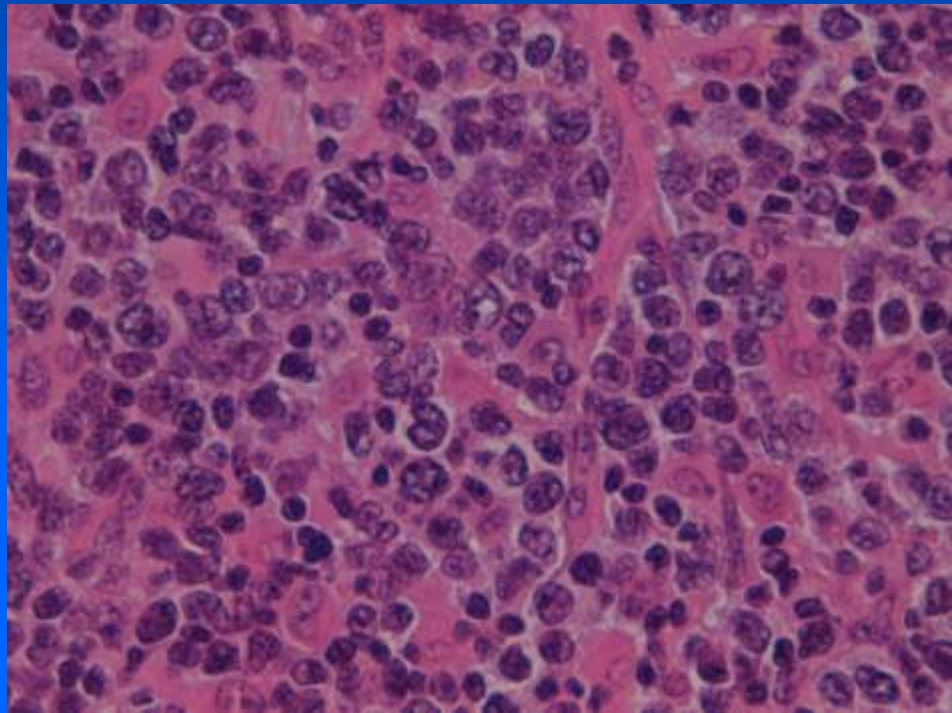
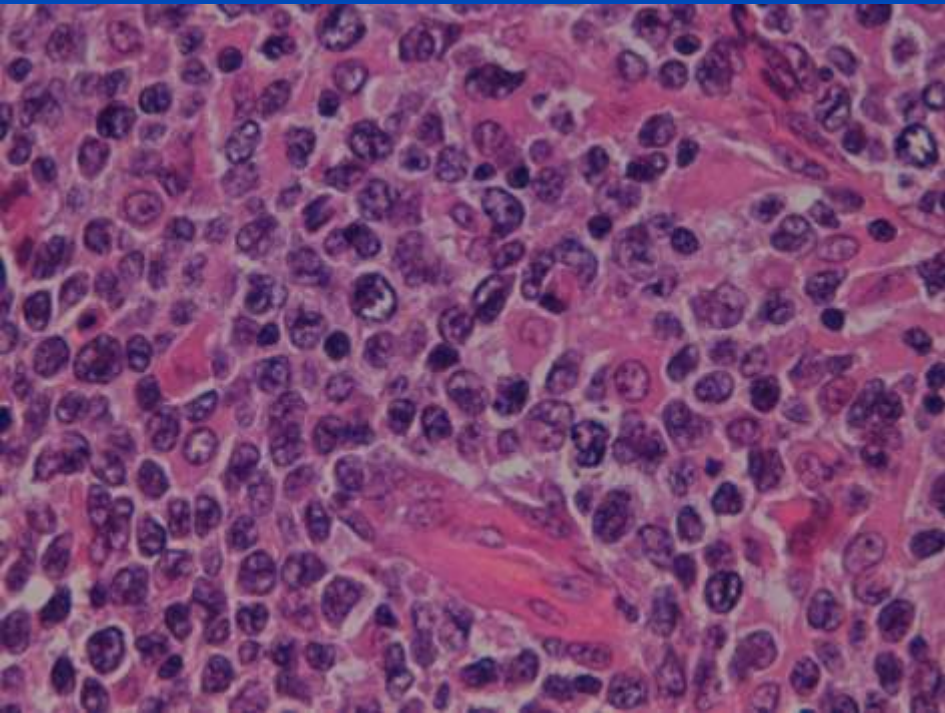
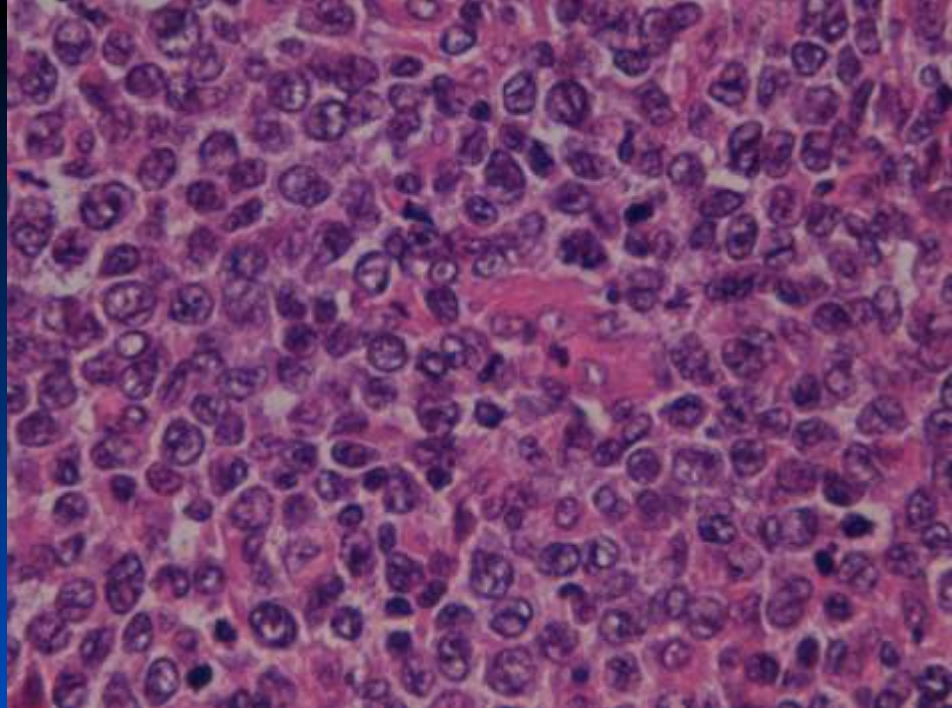
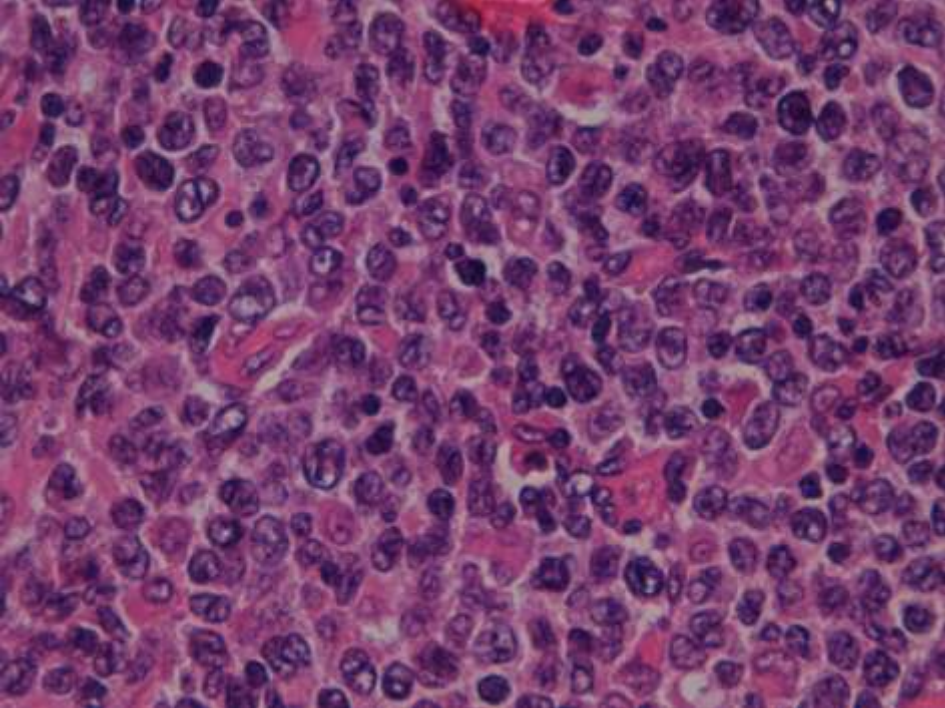


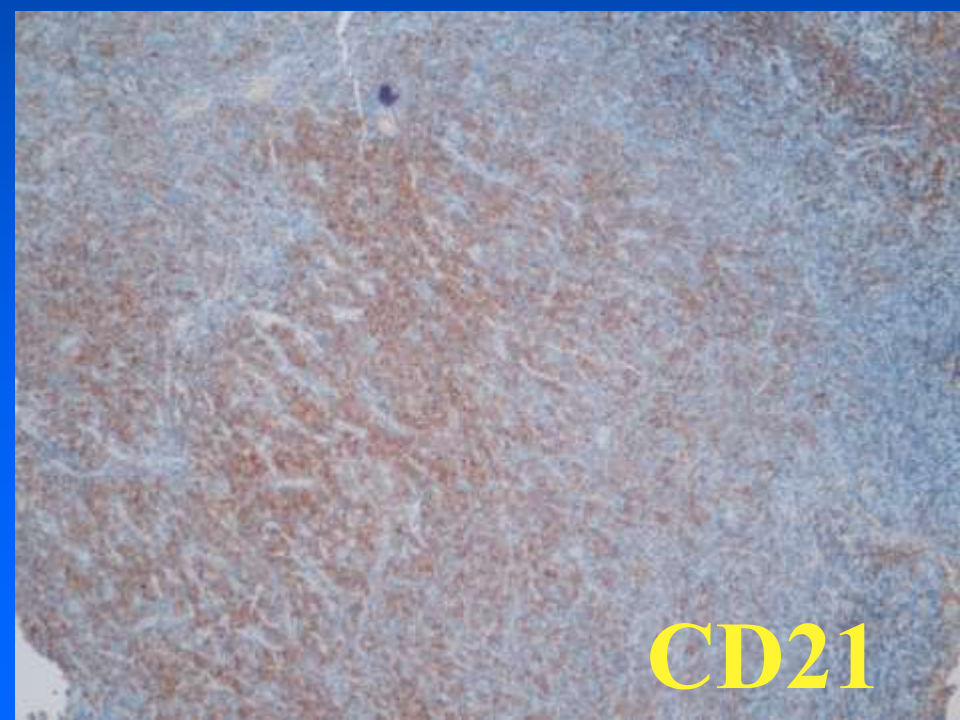
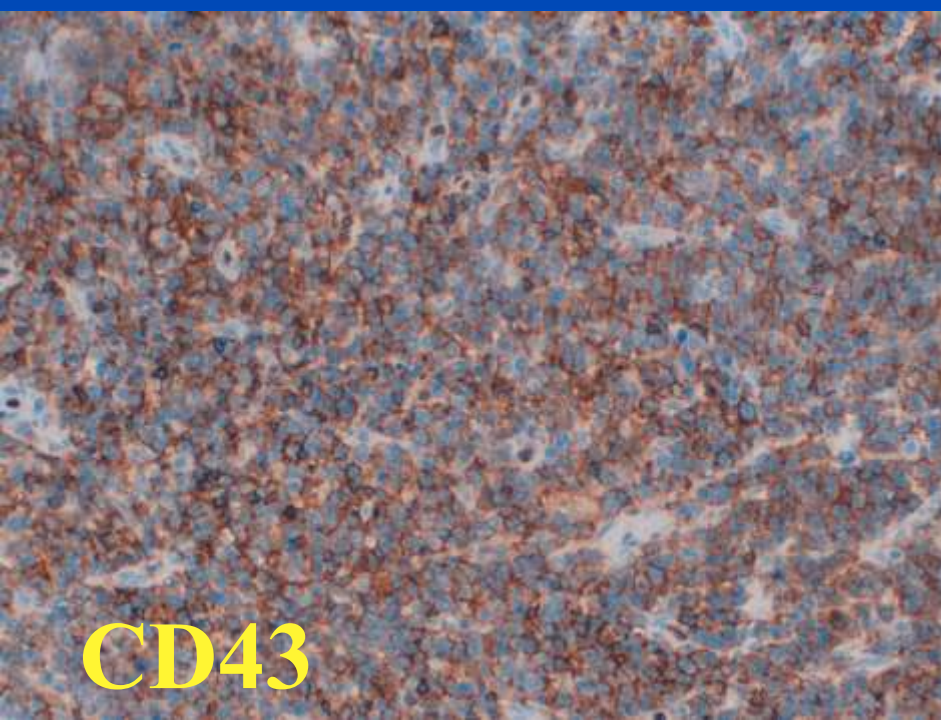
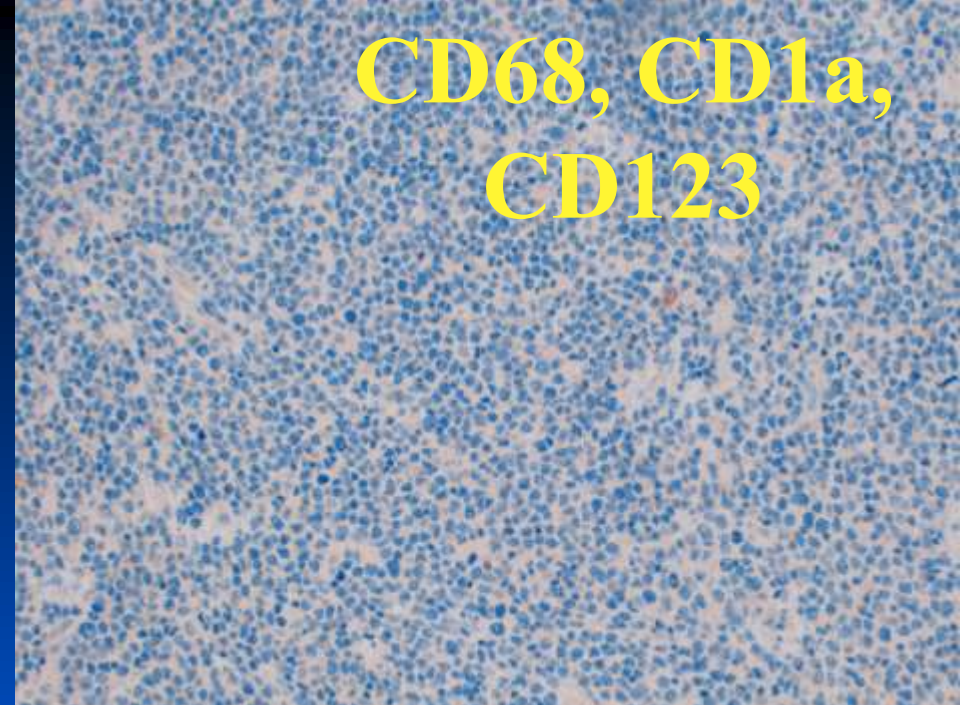
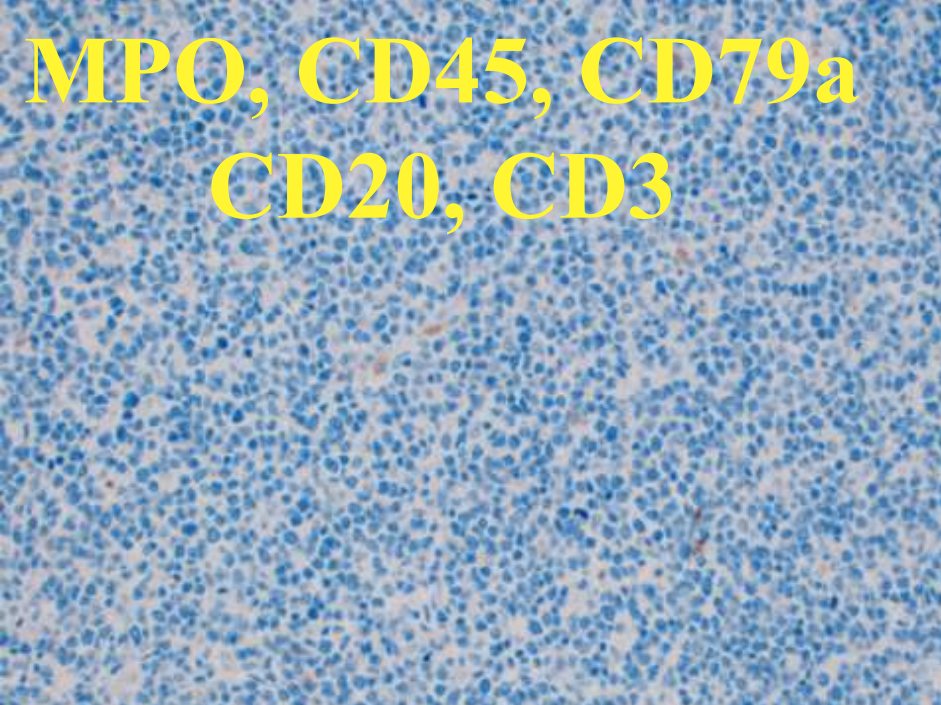
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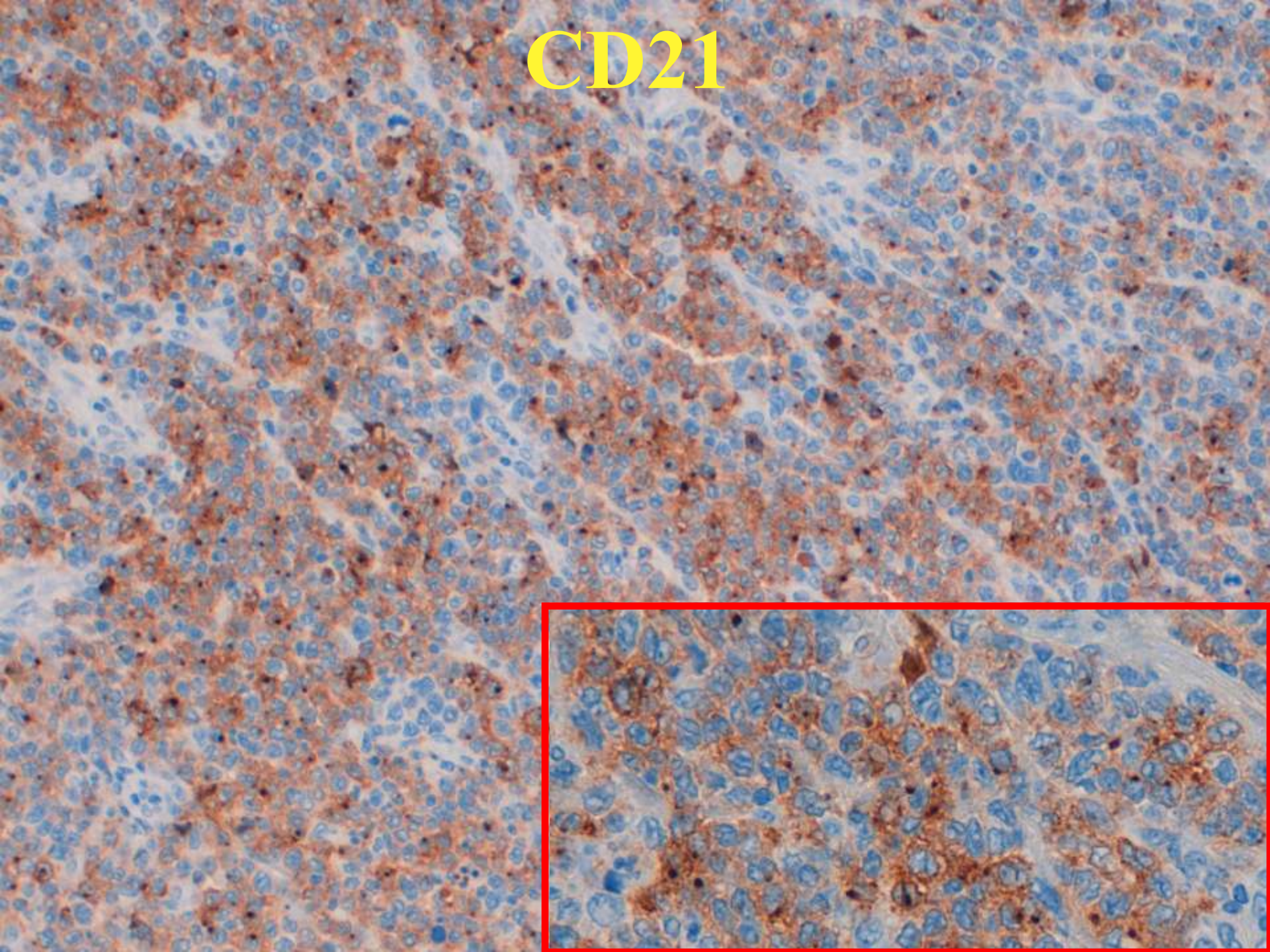








CD21



Diagnóstico

**Sarcoma de células
dendríticas foliculares**

Neoplasias de células dendríticas (International Lymphoma Study Group)

Tumores/sarcomas de CDF

Tumores/sarcomas de CDI

Tumores/sarcomas de CL

Tumor/sarcoma de CDF

- Patrón variable: arremolinado, fascicular, perlado, difuso, folicular-like o trabecular.**
- Células ovoides o poligonales (mono, bi o multinucleadas).**
- Citoplasma eosinófilo, ocasionalmente espumoso o vacuolizado, con bordes mal definidos.**
- Núcleos de forma variada (indentado, cerebriforme, ovoide o polilobulado) con nucléolo pequeño o mediano)**
- ME: prolongaciones numerosas y finas unidas por desmosomas. Ausencia de gránulos de Birbeck.**

Dendritic cell neoplasms: An overview

Sebastien Kairouz, Jana Hashash, Wadih Kabbara, Wassim Mchayleh and Imad A. Tabbara

Department of Internal Medicine, Division of Hematology/Oncology, The George Washington University Medical Center, Washington, DC

Dendritic cell neoplasms are rare tumors that are being recognized with increasing frequency. They were previously classified as lymphomas, sarcomas, or histiocytic neoplasms. The World Health Organization (WHO) classifies dendritic cell neoplasms into five groups: Langerhans' cell histiocytosis, Langerhans' cell sarcoma, Interdigitating dendritic cell sarcoma/tumor, Follicular dendritic cell sarcoma/tumor, and Dendritic cell sarcoma, not specified otherwise (Jaffe, World Health Organization classification of tumors 2001; 273–289). Recently, Pileri et al. provided a comprehensive immunohistochemical classification of histiocytic and dendritic cell tumors (Pileri et al., *Histopathology* 2002;59:161–167). In this article, a concise overview regarding the pathological, clinical, and therapeutic aspects of follicular dendritic, interdigitating dendritic, and Langerhans' cell tumors is presented. *Am. J. Hematol.* 82:924–928, 2007. © 2007 Wiley-Liss, Inc.

TABLE I. Characteristics of Dendritic Cell Neoplasms

	Histology	Specific markers	S-100	CD1a
FDCT/S	Desmosomes	R4/23, Ki-M4, Ki-FDC1, CD21, CD23, C vimentin HLA-DR, CD 68, Ki 67, CNA 42, DRC-1, smooth muscle actin, CD 74, Desmoplakin, EMA, CD35, clusterin	Negative, but positive with avidin–biotin complex technique	Negative
IDDC/S	Interdigitating junction	ATPase, HLA-DR	Positive	Negative
LCT/S	Birbek granules	CD 68	Positive	Positive

FDCT/S, Follicular dendritic cell tumor/sarcoma; IDDC/S, Interdigitating dendritic cell tumor/sarcoma; LCT/S, Langerhans' cell tumor/sarcoma.

Células dendríticas de los ganglios linfáticos

- **Morfología, función y ultraestructura característica.**
- **Inmunofenotipo no bien definido: variable en función de estudios sobre tejido o en suspensión.**
- **Origen indeterminado: células estromales o células hematopoyéticas**

Célula dendrítica folicular (CDF)

- Presentadora de antígenos a las células B**
- Proliferación y diferenciación de las células B**
- Forman una red en los centros germinales primarios y secundarios**
- Implicadas en la generación y regulación de la reacción del centro germinal aunque el mecanismo exacto no está totalmente definido.**
- Son células grandes (70-100 μm) con dos núcleos (redondeados, ovales o triangulares) con citoplasma eosinófilo y límites imprecisos. Se relacionan entre sí mediante desmosomas (característico).**

Célula dendrítica folicular (CDF)

CD21 +

CD35 +

R4/23 +

Ki-FDC1p +

Ki-M4 +

HLA-DR variable

S-100 –

CD45 ?

Differential immunophenotypic analysis of dendritic cell tumours

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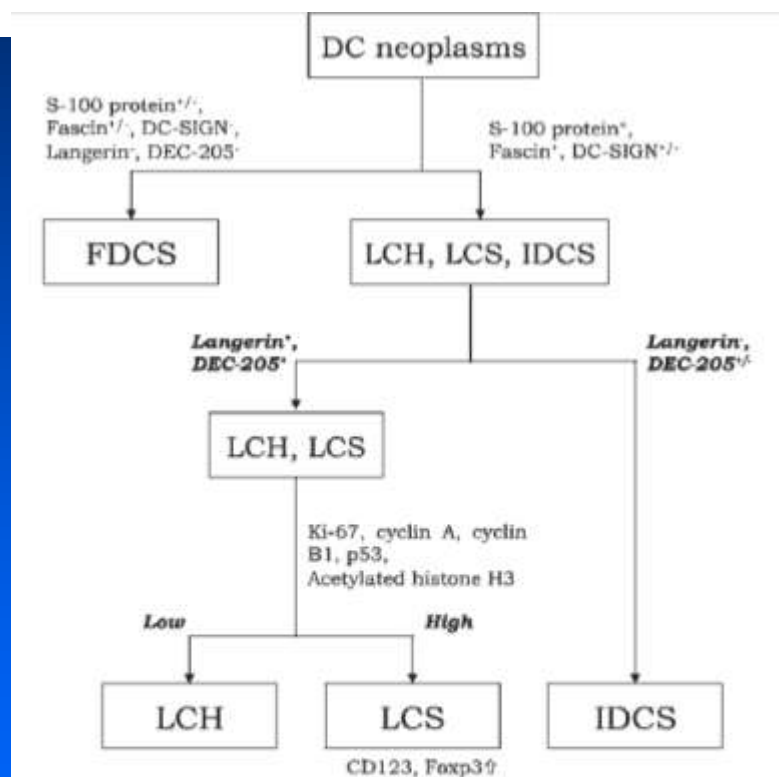


Figure 3 Diagnostic flow chart of dendritic cell neoplasms. Follicular dendritic cell sarcoma is negative for DC-SIGN, Langerin and DEC-205. Langerhans cell tumours and interdigitating cell sarcoma (IDCS) are recognised by S-100 protein⁺, fascin⁺ and DC-SIGN^{+/-}. Langerhans cell histiocytosis (LCH) and Langerhans cell sarcoma (LCS) are distinguished from IDCS by the immunostaining of Langerin and DEC-205. Expression of cell-cycle markers, acetylated histone H3 and p53 is low in LCH, whereas it is high in LCS.

Muchas gracias

