CASOS EN CITOLOGIA DE LIQUIDO CEFALORRAQUÍDEO

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INSTITUTO NACIONAL DE CANCEROLOGÍA

8-10-2025

¿CUÁLES SON LAS INDICACIONES DE PUNCIÓN LUMBAR?

INDICACIONES DIAGNOSTICAS:

- Infecciones del SNC: indicación más frecuente. Se utiliza para diagnosticar meningitis y encefalitis .
- Hemorragia subaracnoidea: si la TAC no es concluyente y persiste la sospecha de sangrado en el cerebro.
- Enfermedades autoinmunes y desmielinizantes: Ayuda a diagnosticar afecciones como la esclerosis múltiple, el síndrome de Guillain-Barré y otras enfermedades inflamatorias.
- Neoplasias (cáncer): Se utiliza para detectar la diseminación de células cancerosas, o en la carcinomatosis meníngea.
- **Demencia**: Ayuda a la investigación de ciertos tipos de demencia, como en el caso de la enfermedad de Alzheimer, analizando biomarcadores específicos en el LCR.
- **Medición de la presión intracraneal:** Sirve para detectar presiones anormalmente altas en el cerebro.

INDICACIONES TERAPÉUTICAS:

- **Reducción de la presión intracraneal:** Para disminuir la presión en casos de hipertensión intracraneal idiopática, también conocida como pseudotumor cerebral.
- **Administración de fármacos:** Permite la inyección de medicamentos directamente en el LCR, incluyendo:
- **Anestesia:** Anestesia raquídea y epidural.
- **Quimioterapia:** Tratamiento intratecal para ciertos tipos de cáncer.
- **Antibióticos:** Para tratar infecciones graves o persistentes del SNC

CITOPATOLOGÍA EN LCR

- Infecciones del SNC: diagnosticar meningitis y encefalitis .
- Enfermedades autoinmunes y desmielinizantes: Ayuda a diagnosticar afecciones como la esclerosis múltiple, el síndrome de Guillain-Barré y otras enfermedades inflamatorias.
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Neuropathology
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Chapter 35

Overview of cerebrospinal fluid cytology

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PROCESAMIENTO

- 1 HORA POSTERIOR A LA PUNCIÓN EN FRESCO
- 2 HORAS MAXIMO A 4 GRADOS CENTIGRADOS
- FIJARLOS CON ALCOHOL AL 96 % O CARBOWAX
- **1 A 10 ML**

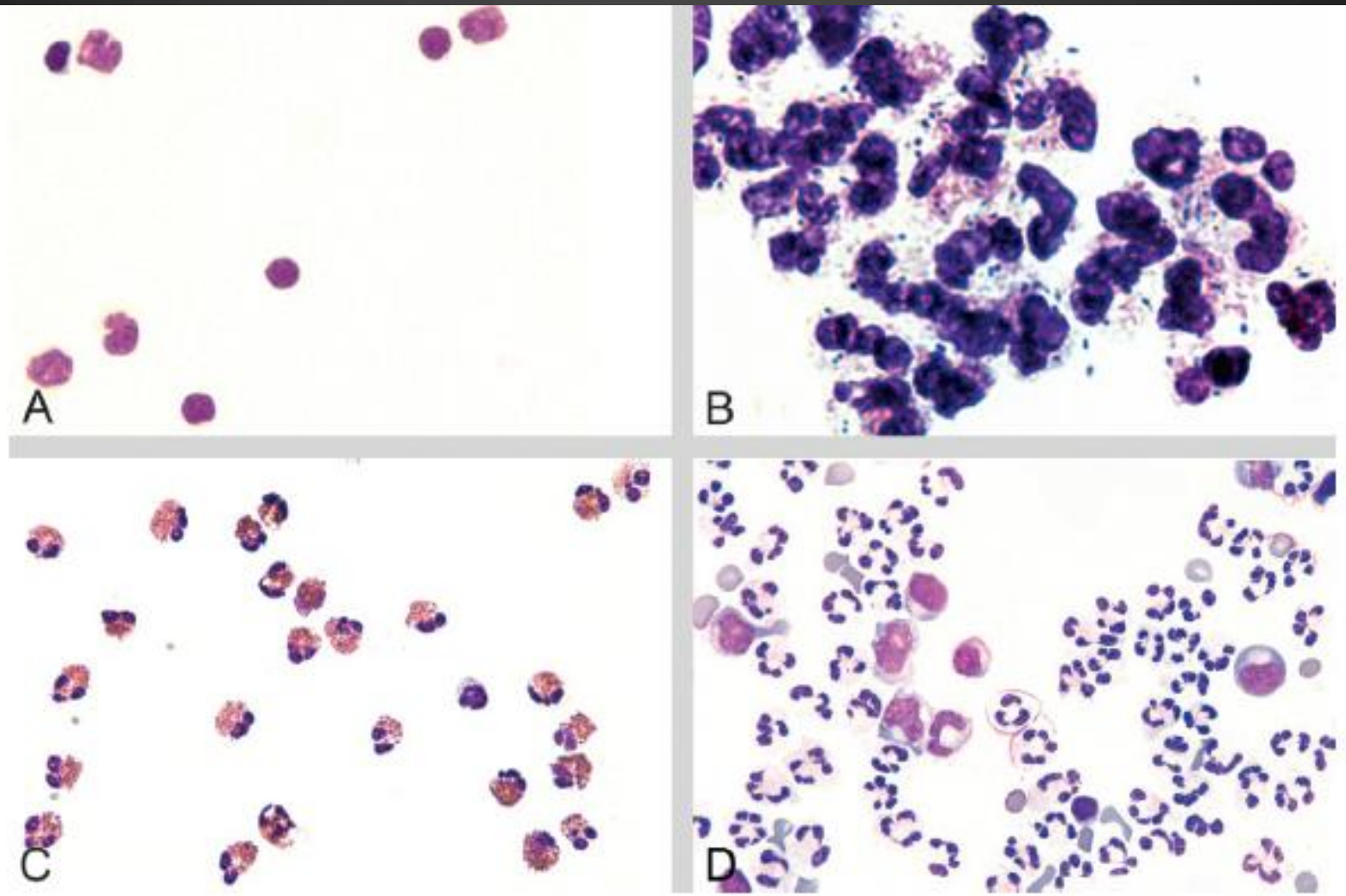
- CENTRIFUGACIÓN.
- TINCIÓN CON GIEMSA / HEMACOLOR
- TINCIÓN CON PAPANICOLAOU
- DOS LAMINILLAS
- TINCIÓN DE GRAM
- ZIEHL- NEELSEN

Table 35.1

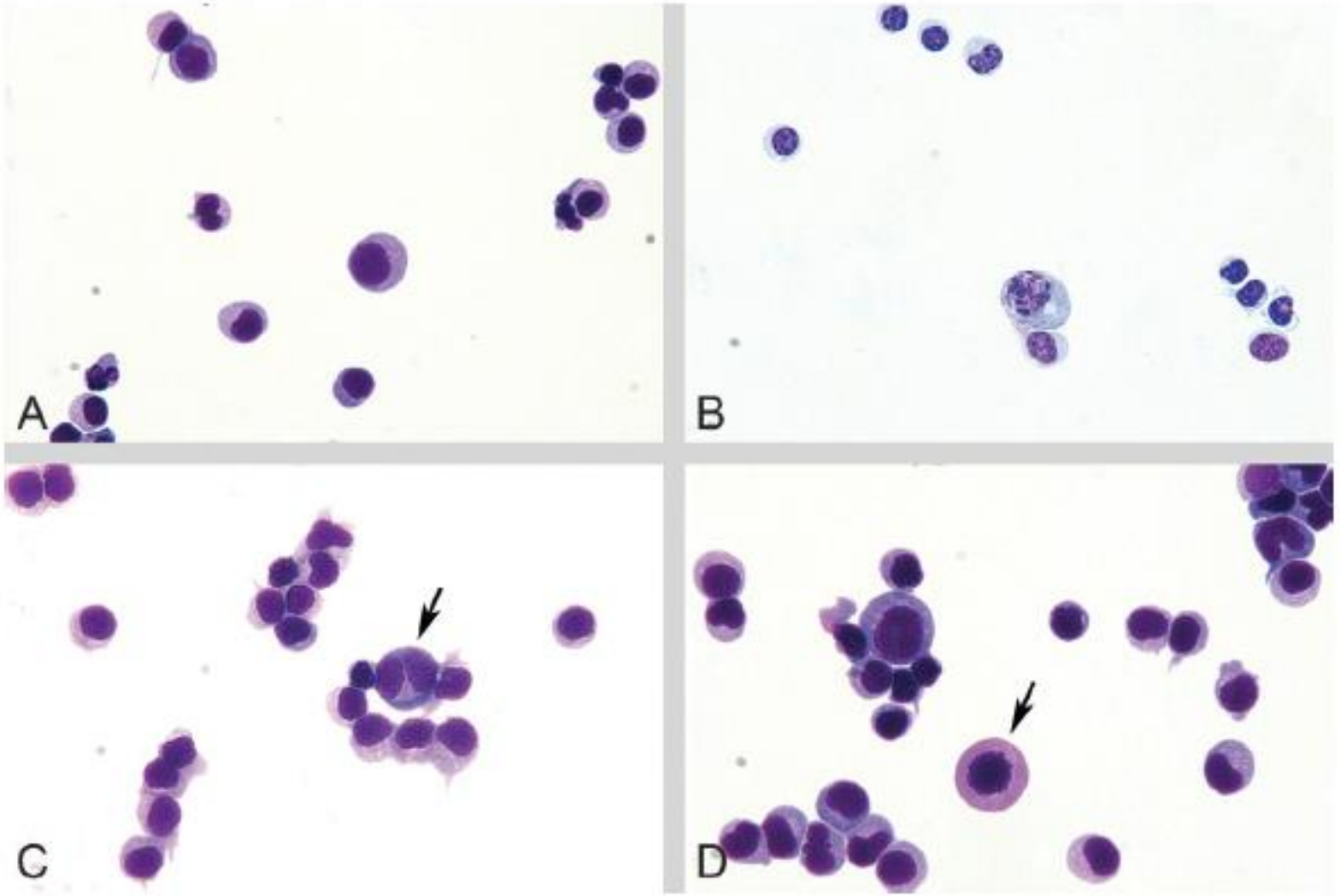
Cerebrospinal fluid conditions with related leukocyte count and differential composition

Condition	Leukocyte count	Cellular composition	Other features
Normal	<5/μL	Lymphocytes and monocytes (ratio 2:1)	–
Viral meningitis	10–100/μL	Lymphocytes, activated lymphocytes, plasma cells	Early phases might feature a neutrophil granulocytic component
Noninfectious, immune-mediated diseases, e.g., multiple sclerosis or acute disseminated encephalomyelitis	10–100/μL	Lymphocytes, plasma cells, macrophages	Signs of lymphocytic activation may be mild whereas macrophages are commonly found
Neurosyphilis	100/μL	Lymphocytes, activated lymphocytes, plasma cells	CSF-VDRL test complements CSF cytology
Neuroborreliosis	20–250/μL	Lymphocytes, activated lymphocytes, plasma cells	Highly activated lymphocytes may even mimic neoplastic cells
Tuberculous meningitis	50–500/μL	In early stages: granulocytes and lymphocytes; later: lymphocytes predominate	Ziehl–Neelsen stain might aid in addition to CSF cultures
Bacterial/purulent meningitis	>250/μL	Predominantly neutrophil granulocytes	Intracellular bacteria can be seen upon MGG and Gram stains but are typically lost early after initiation of antimicrobial therapy

CSF, cerebrospinal fluid; MGG, May–Grunwald–Giemsa; VDRL, Venereal Disease Research Laboratory.



ig. 35.1. Granulocytic syndromes. (**A**) Normal cerebrospinal fluid finding with lymphocytes and monocytes. (**B**) Bacterial eningitis with strong predominance of neutrophil granulocytes with abundant intra- and extracellular bacteria. Note frequent iplo-formations. (**C**) Eosinophilic meningitis with characteristic binucleated eosinophil granulocytes. (**D**) Mixed granulolympho-



35.2. Lymphocytic syndromes. (**A**) A spectrum of smaller to larger lymphocytes is present, including (**B**) plasma cells with acteristic coarse chromatin structure and eccentric cytoplasm. (**C**) Occasionally binucleated plasma cells are found (arrow). Pronounced activation includes exceedingly large forms mimicking lymphomatous cells as well as single mitotic es (arrow).

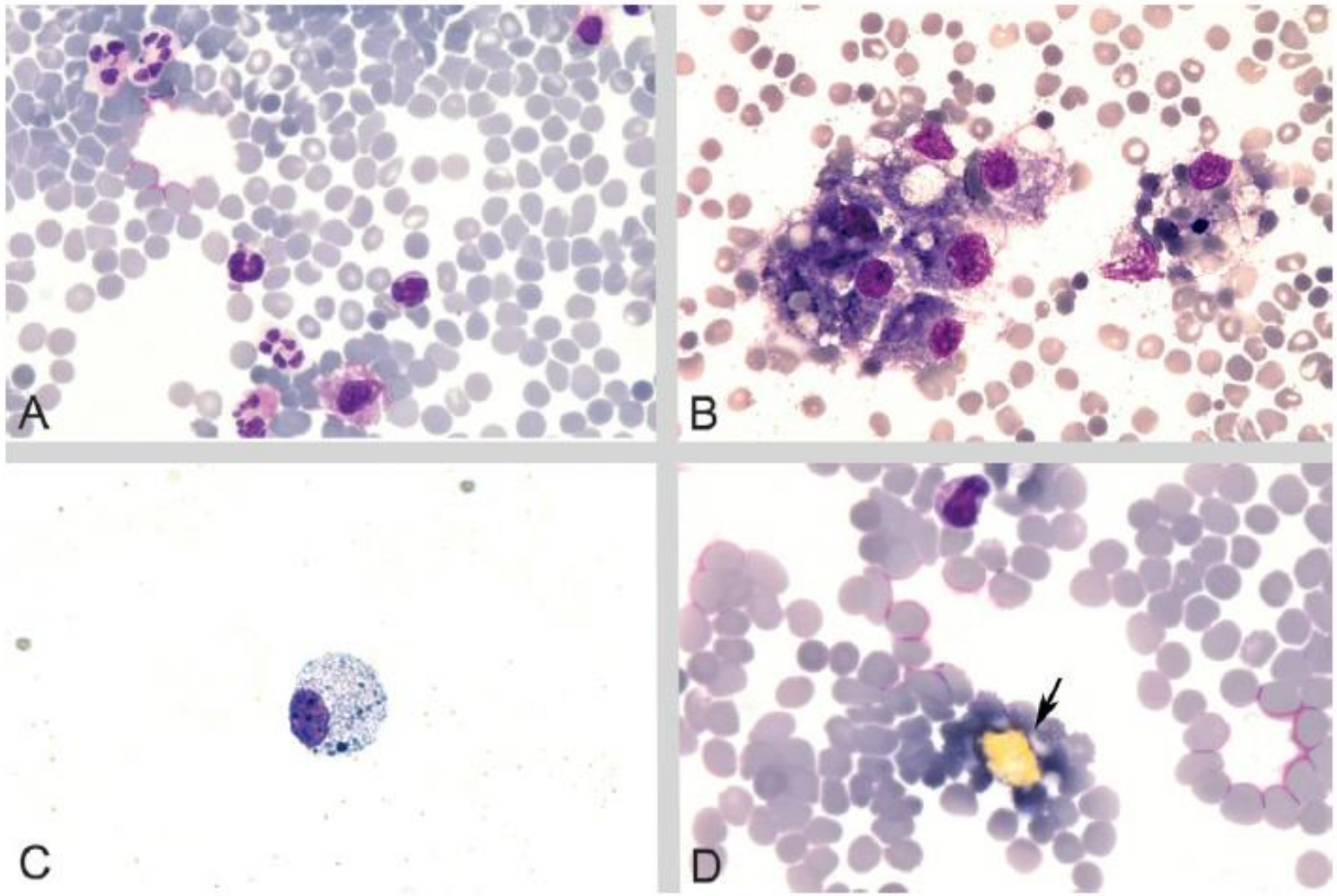
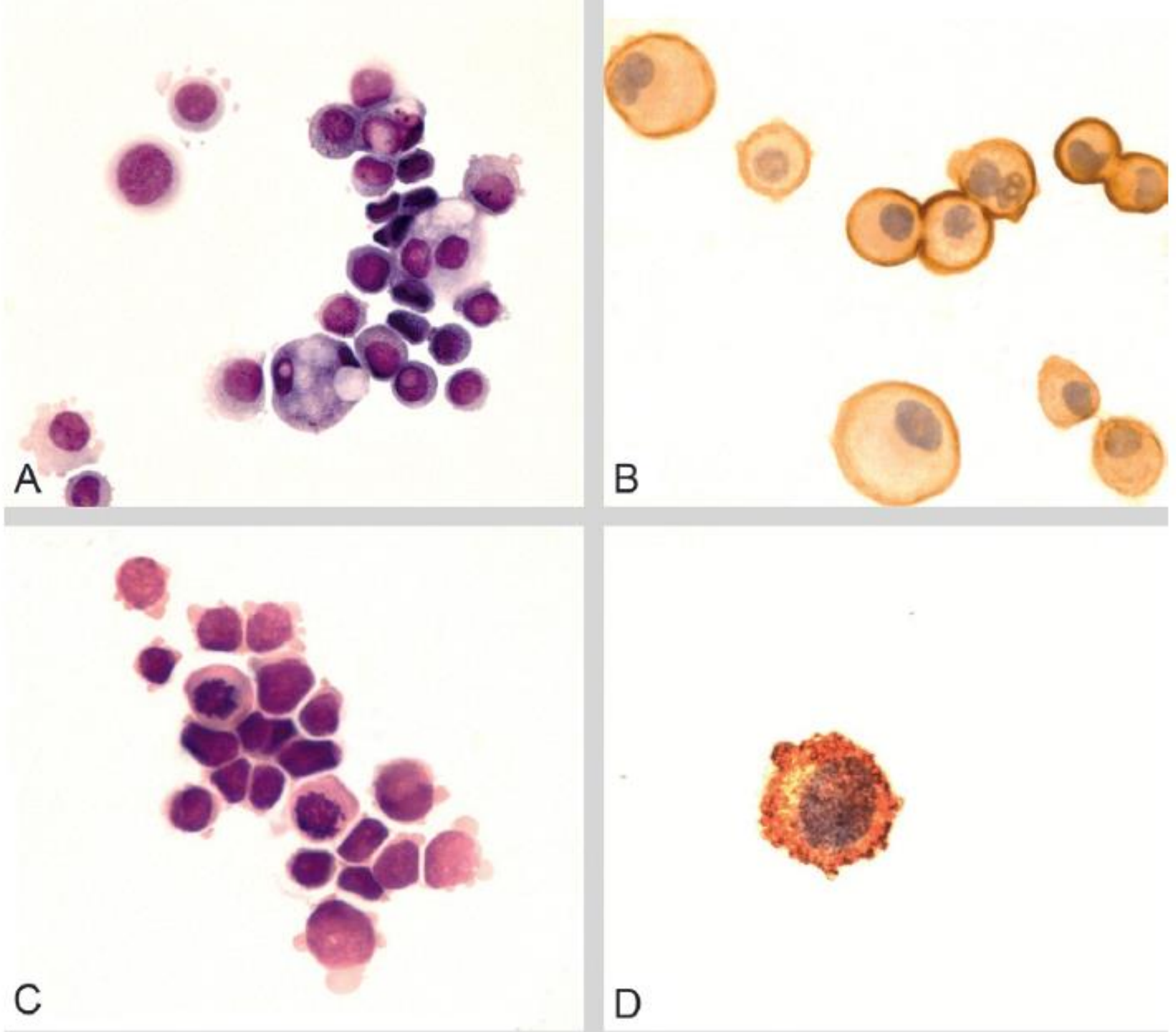
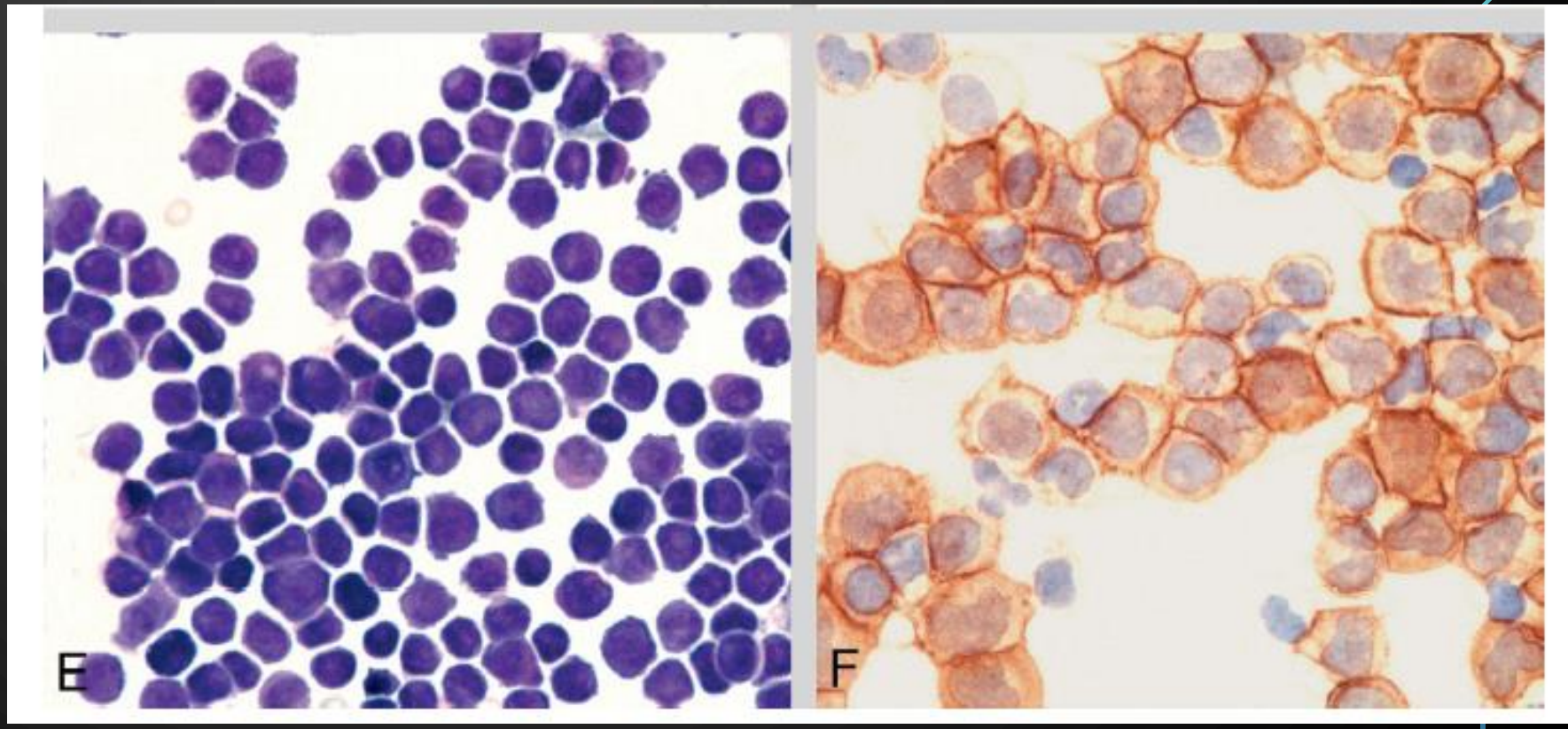


Fig. 35.3. Hemorrhagic conditions. (**A**) Acute blood contamination with densely packed erythrocytes and occasional neutrophil granulocytes. (**B**) Cluster of erythrophages that contain fragments of erythrocytes in their extensively vacuolated cytoplasms. (**C**) A single siderophage displays foamy cytoplasm with bluish hemosiderin particles. (**D**) Yellow hematoidin crystal (arrow) surrounded by erythrocytes.

CARCINOMATOSIS MENINGEA



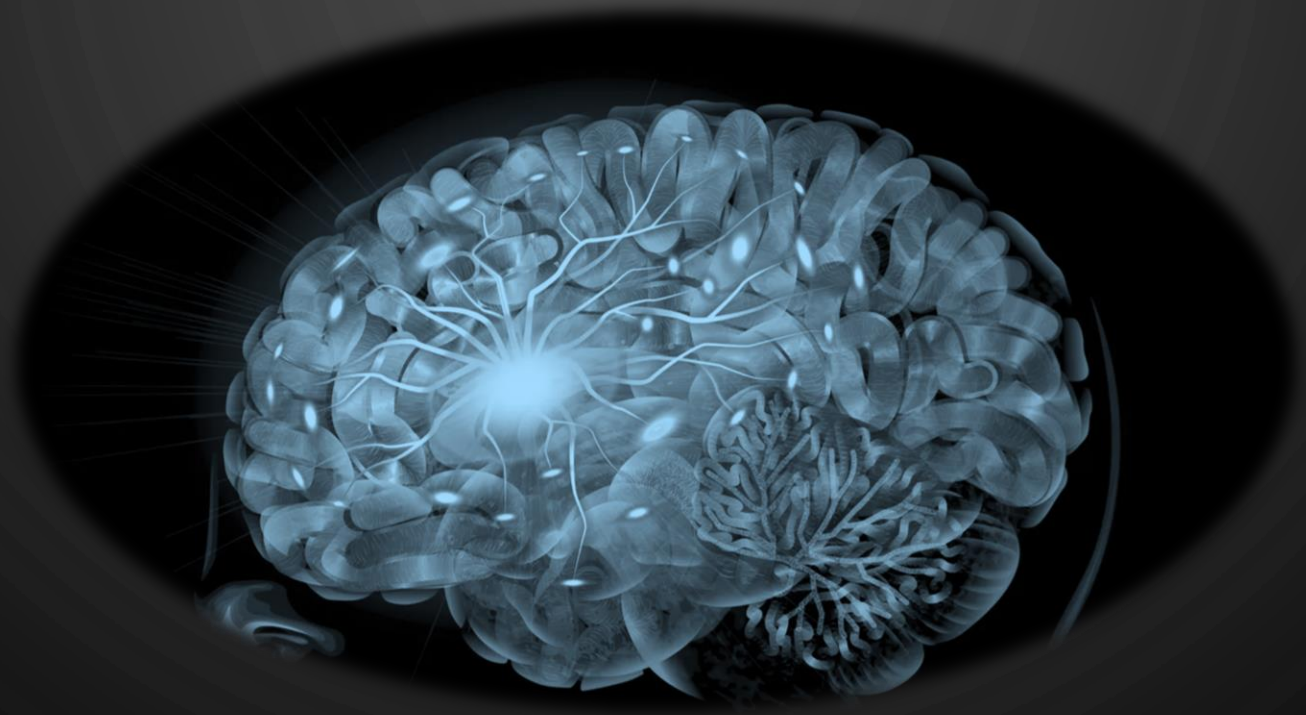
INFILTRACIÓN MENINGEA POR LINFOMA/ LEUCEMIA



TODOS LOS SISTEMA TIENEN UNA ESCALA DE GRISES

EN LCR HAY TAMBIEN ESCALA DE GRISES

¿EXISTE ALGUN SISTEMA PARA EL REPORTE DE CITOLOGÍA DE LÍQUIDO CEFALORRAQUIDEO?



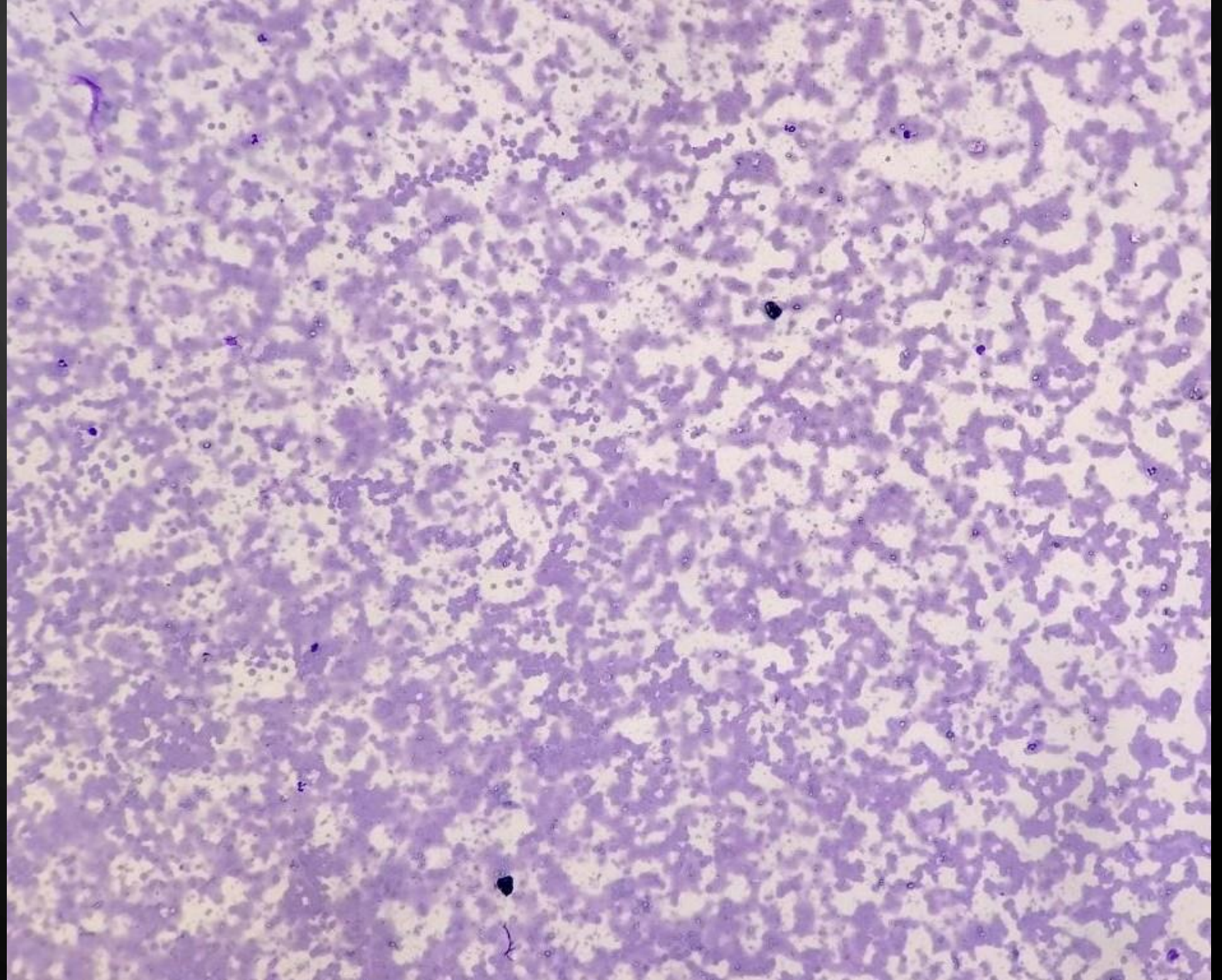
SISTEMA PROPUESTO EN EL INCAN

SISTEMA PROPUESTO EN EL INCAN

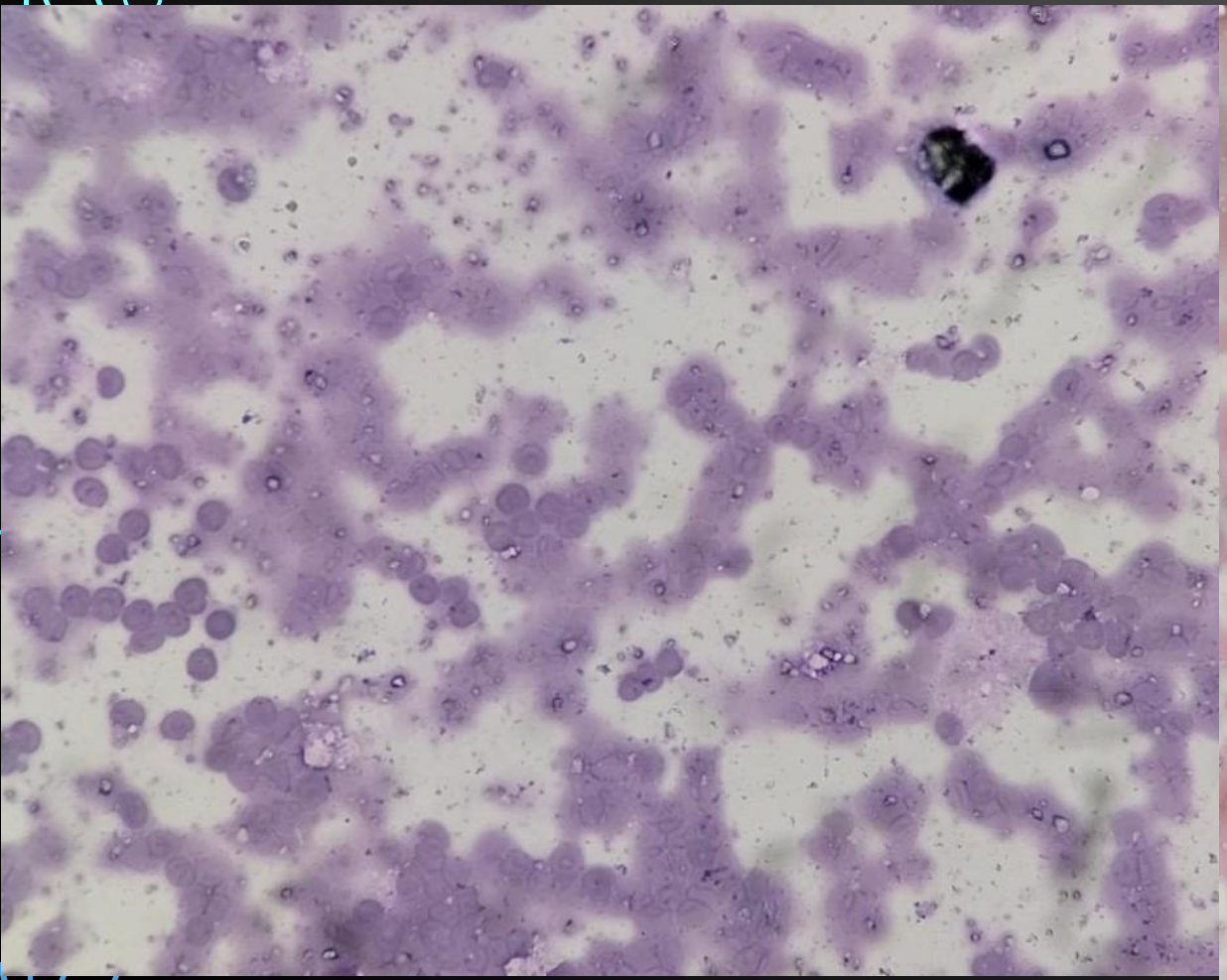
- **INADECUADA =** PUNCIÓN TRAUMÁTICA.
- **NEGATIVA =** INFLAMACIÓN AGUDA, CRÓNICA, SIN INFILTRACIÓN, NORMAL.
- **ATIPICA=** CÉLULAS ATIPICAS???
- **SOSPECHOSA DE MALIGNIDAD=** FALTA CELULARIDAD?
- **MALIGNA=** CARCINOMATOSIS, NEOPLASIA LINFOPROLIFERATIVAS O DEL SNC

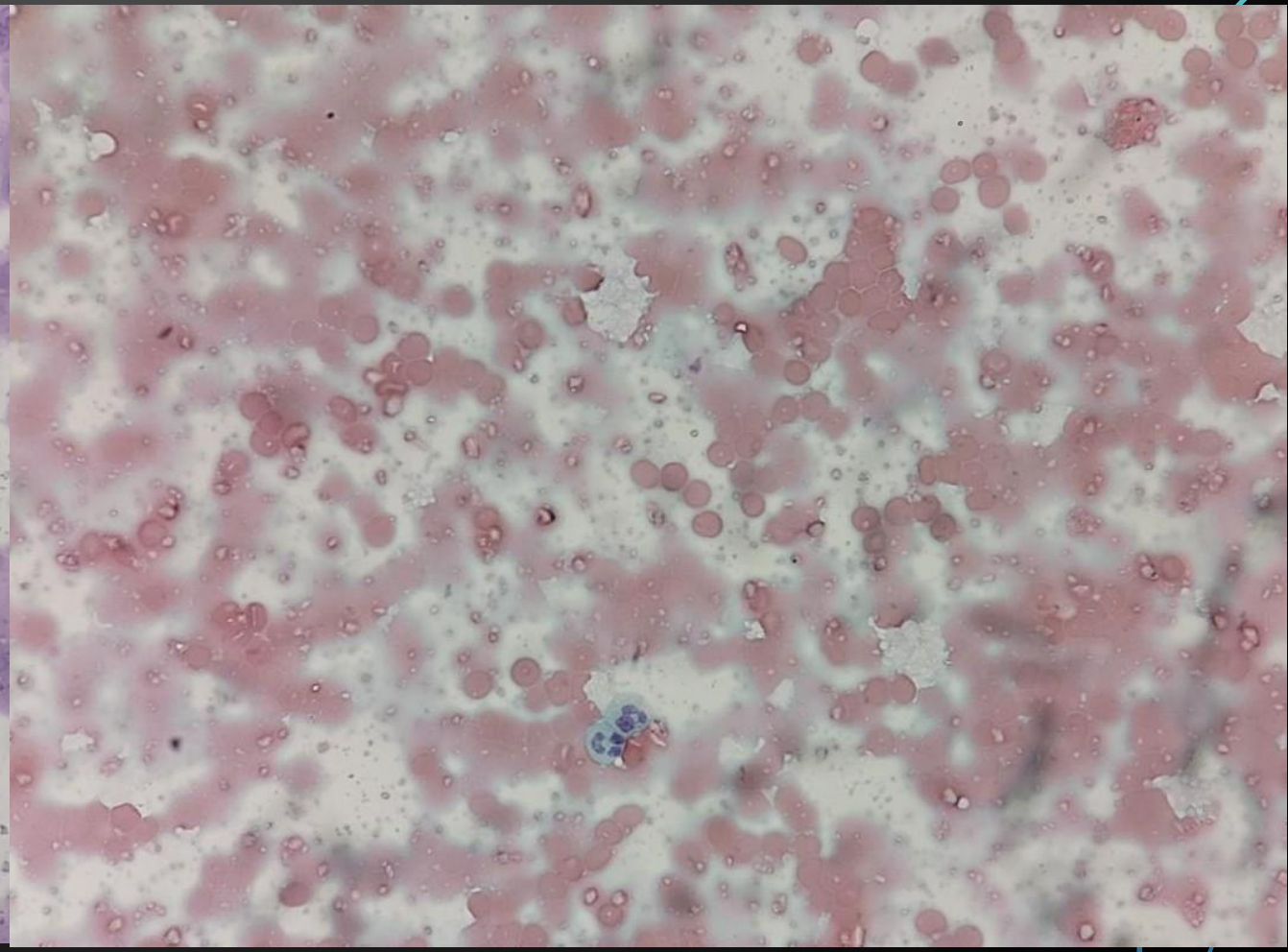
- **INADECUADA** = REPETIR PUNCIÓN
- **NEGATIVA =** CORRELACIÓN CLÍNICA
- **ATIPICA=** CITOMETRIA DE FLUJO O INMUNOCITOQUÍMICA
- **SOSPECHOSA DE MALIGNIDAD:** CITOMETRIA DE FLUJO O INMUNOCITOQUÍMICA
- **MALIGNA=** MANEJO CLÍNICO INDICADO (QT INTRATECAL, RT, ETC)

PUNCIÓN TRAUMÁTICA



PUNCIÓN TRAUMÁTICA



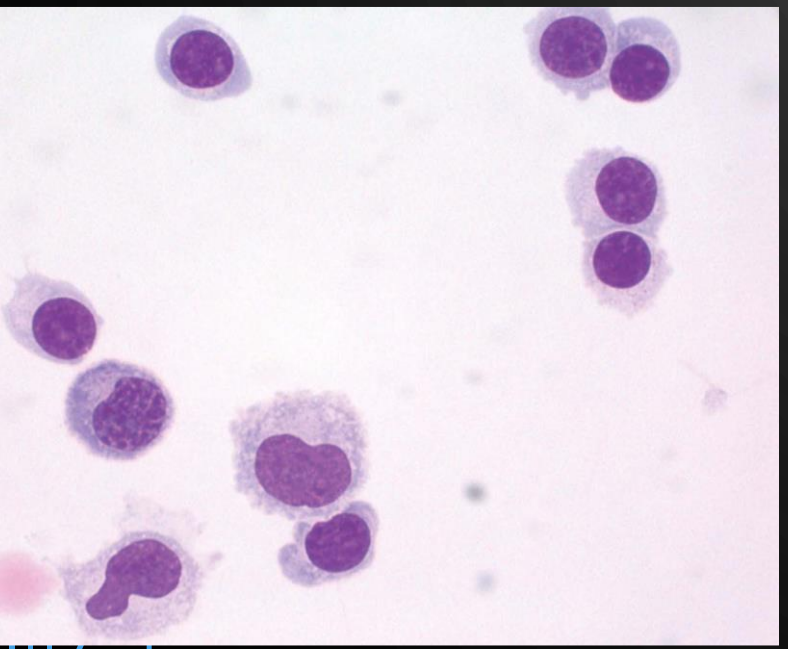


Cerebrospinal Fluid Pleocytosis

Cancer Cytopathology February 25, 2011

Pitfalls and Benefits of Combined Analysis Using Cytomorphology and Flow Cytometry

Martin Bommer, MD[1]; Andreas Nagy, MD[1]; Christine Schöpflin[1]; Sandra Pauls, MD[2]; Mark Ringhoffer, MD[3]; and Mathias Schmid, MD[1]



- BENIGNO
- ATIPICO
- SOSPECHOSO DE MALIGNO
- MALIGNO

DX: SOSPECHOSO

The fresh specimens were processed following standard procedures previously published.[11] All smears were categorized by one of us (M. B.) to be malignant, suspicious, benign, or atypical. The term "malignant" was used only in cases with clear morphologic changes consistent with lymphoma, leukemia, or carcinoma. The term "suspicious" was used for samples with cells that did not meet all criteria for malignancy (see Fig. 1). Samples with elevated cell counts consisting of small lymphocytes, macrophages, and ependymal cells were judged to be reactive pleocytosis and classified as "benign". All samples that could not be classified unambiguously were designated "atypical". Samples with both atypical and suspicious

Pleocitosis: ligero aumento en linfocitos T, monocitos y otros elementos inflamatorios

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ORIGINAL ARTICLE

WILEY

Standardizing a volume benchmark for cerebrospinal fluids for optimal diagnostic accuracy

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2Department of Cytopathology, Weill Cornell Medical College, New York, New York
3Department of Pathology and Laboratory Medicine, Weill Cornell Medicine, New York.

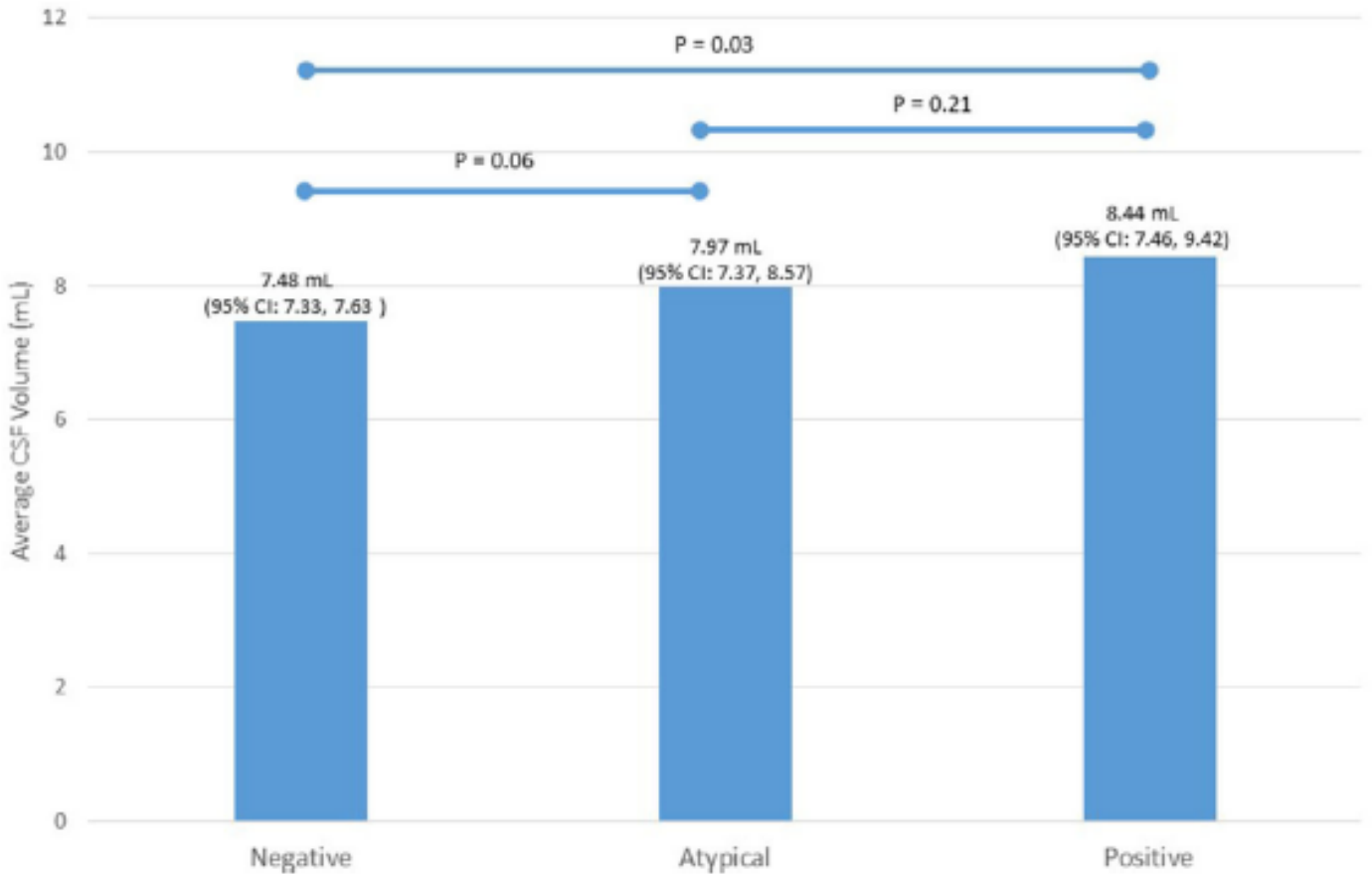
S: 50-60%
E: >95%
FALSOS POSITIVOS Y NEGATIVOS 40%

TABLE 1 Specimen demographics

N	Negative 3711	Atypical 282	Positive 109	Unsatisfactory 12	Overall 4114
Average age (years)	54	57	58	55	54
Age range	2 weeks-94 year	1-90 year	11-83year	14-83year	2 weeks-94 year
Males/females	1990/1721	178/104	58/51	6/4	2233/1881
Average total Volume (mL)	7.48	7.97	8.44	8.42	7.55

VOLUMEN DE LCR COMO ESTANDAR OPTIMO PARA EL DIAGNOSTICO

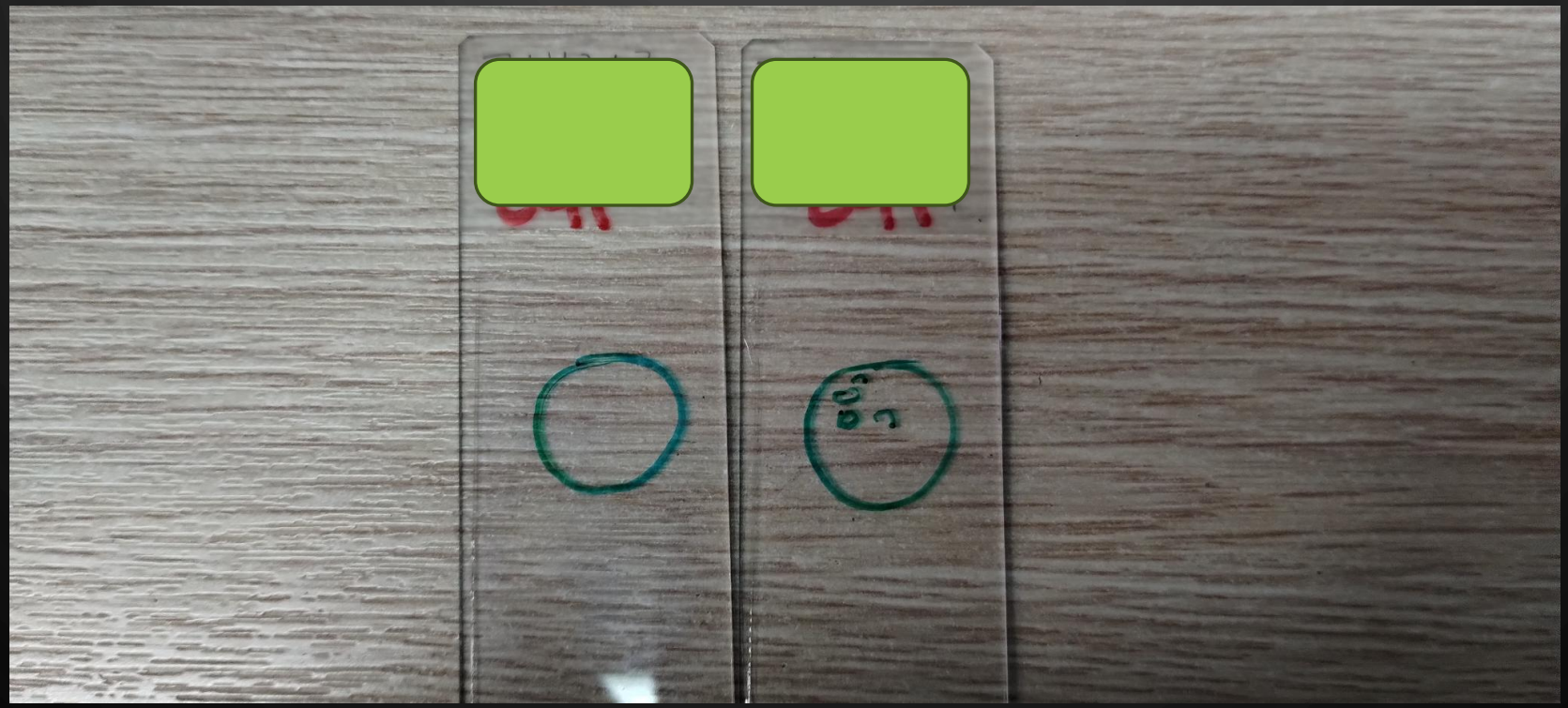
FIGURE 1 Average CSF volumes, 95% confidence interval, with respective *P*-values of specimens determined to be unsatisfactory, acellular, and satisfactory. The average volume for positive samples (8.44 mL) is statistically different from the average volume for negative samples (7.48 mL). However, the atypical average volume (7.97 mL) was not significantly different from the negative and positive average volumes

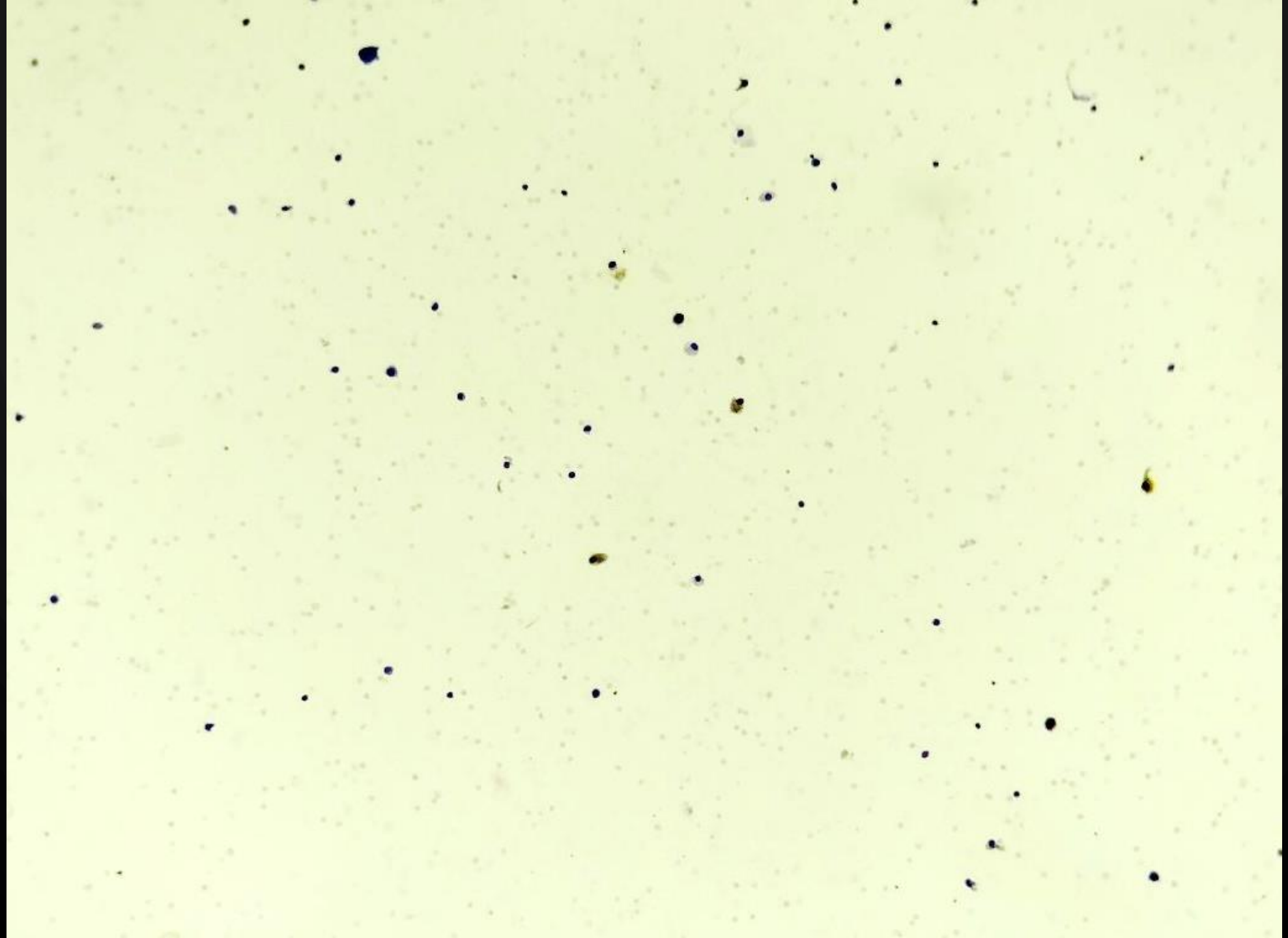


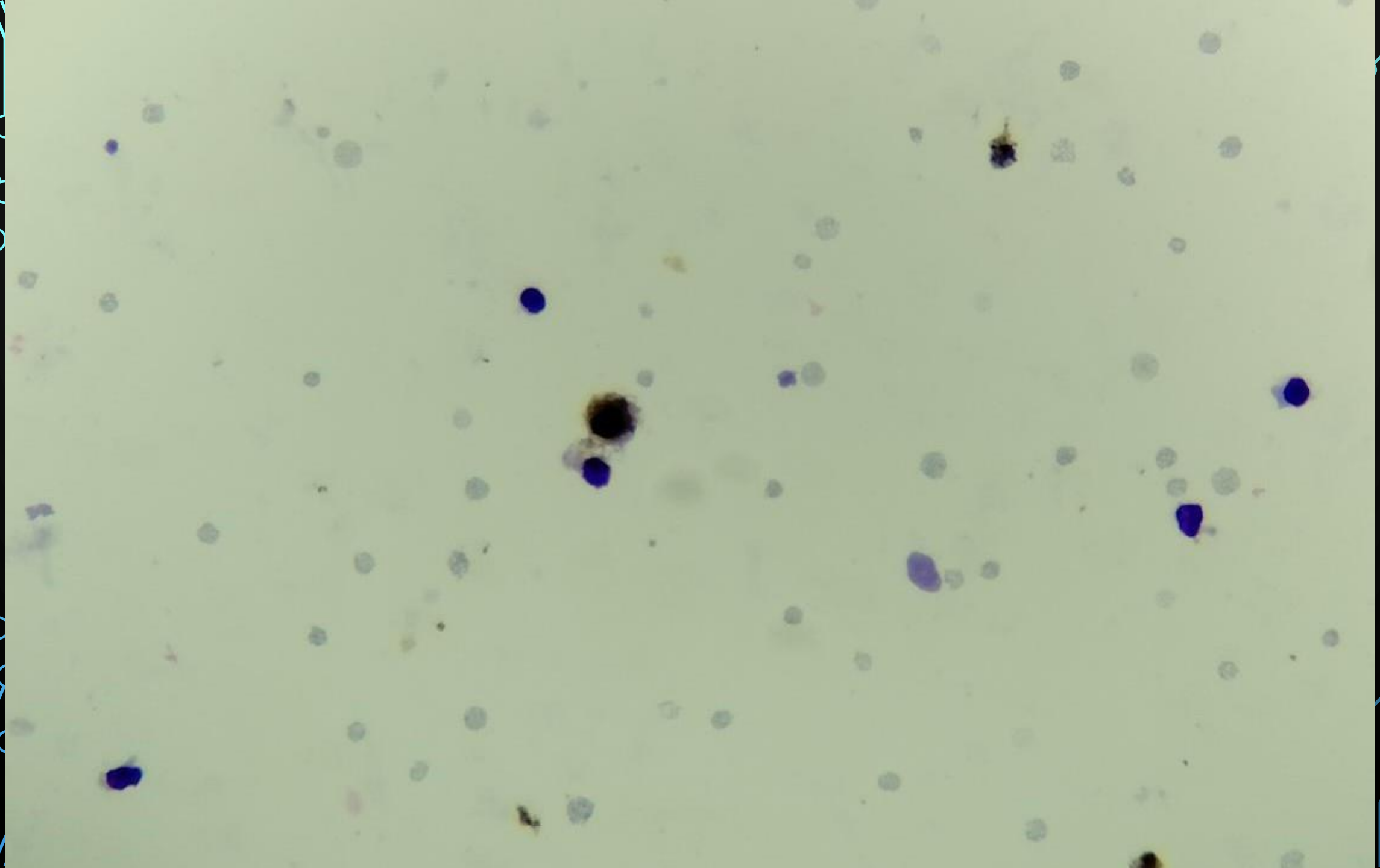
8.4 ml en fresco

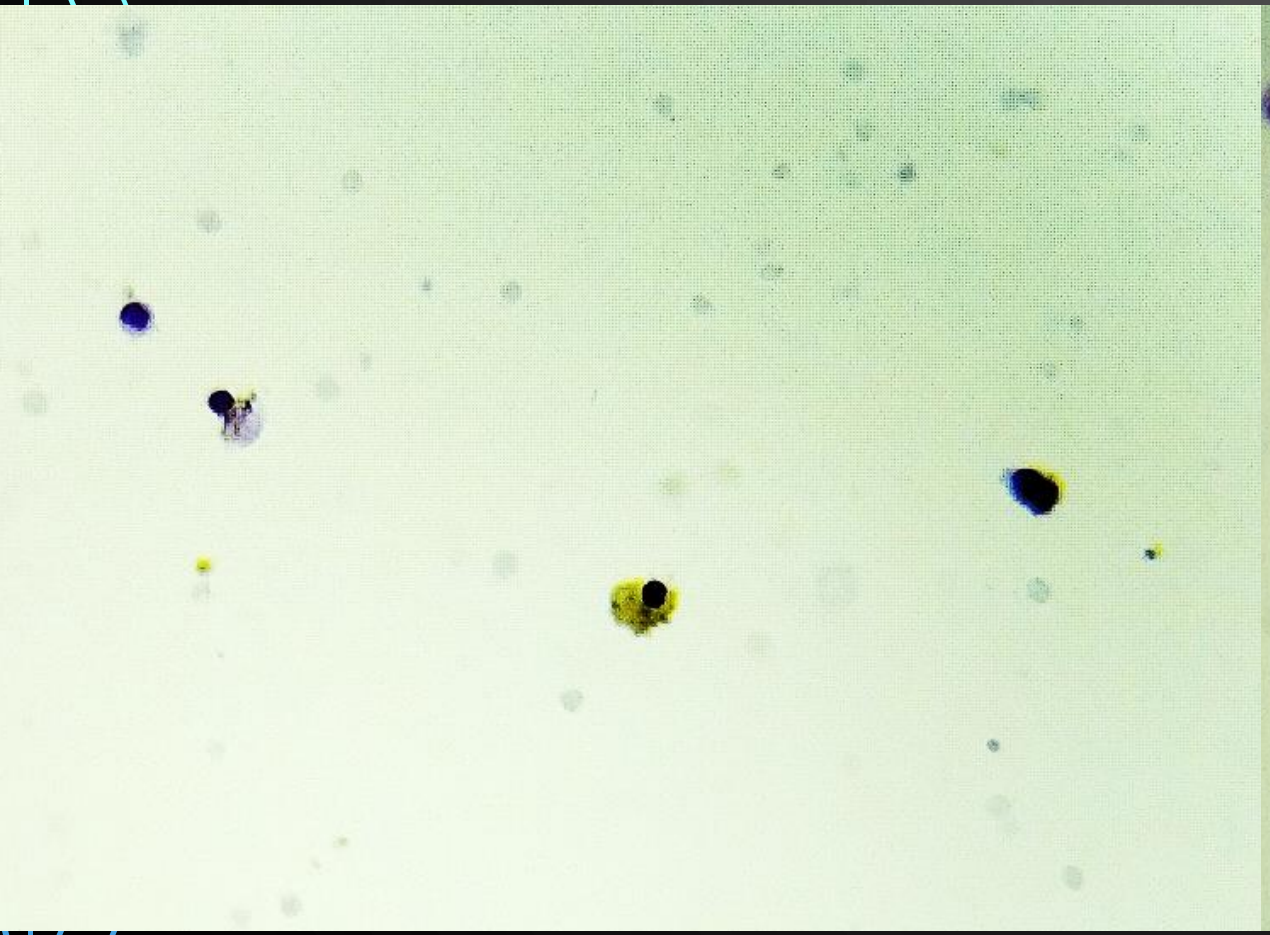
CASOS DE LCR

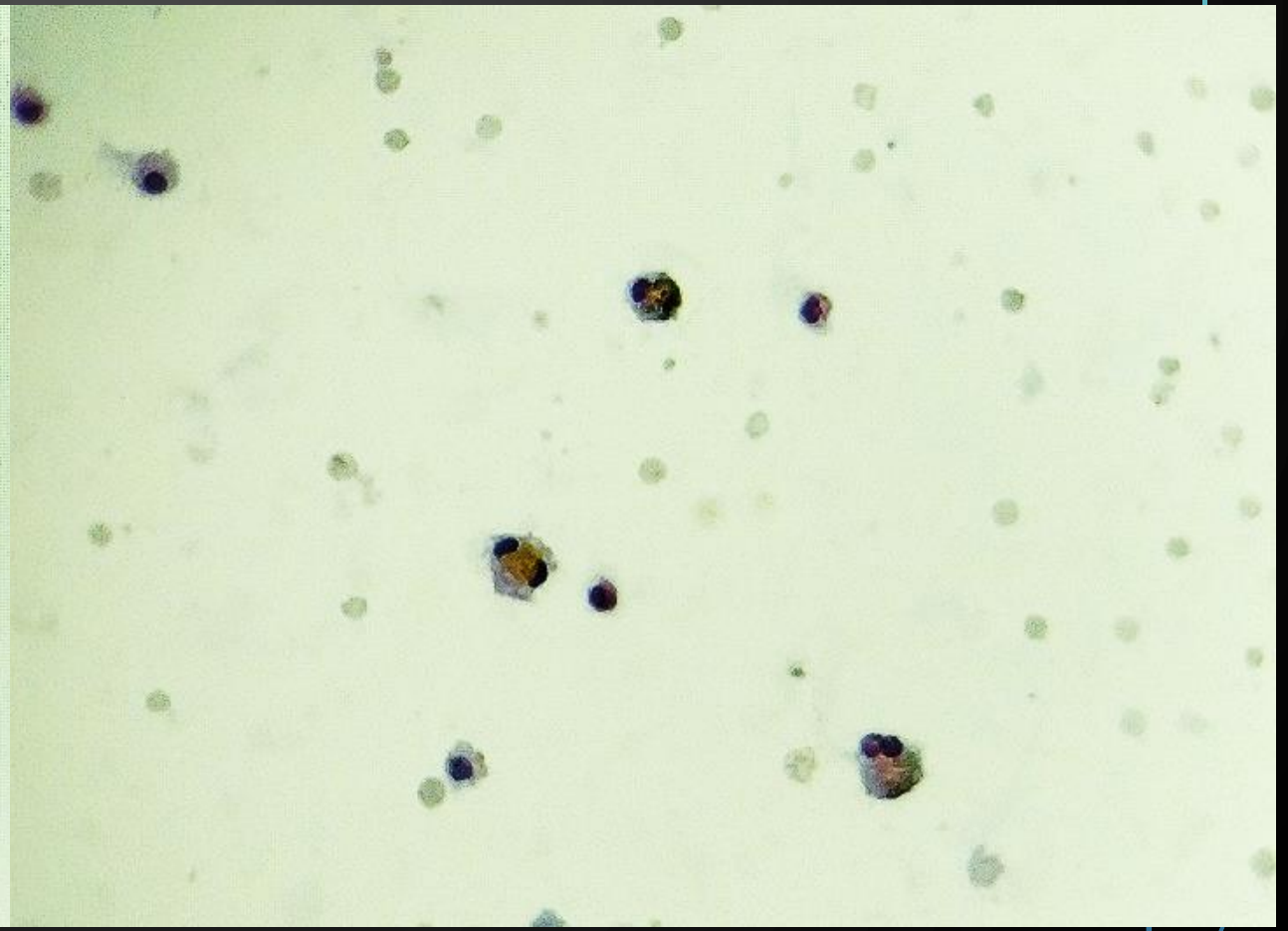
CASO 1. HOMBRE DE 45 AÑOS CON HISTORIA CLÍNICA DE CANCER DE PULMÓN DESDE EL 2021











¿DIAGNÓSTICO?

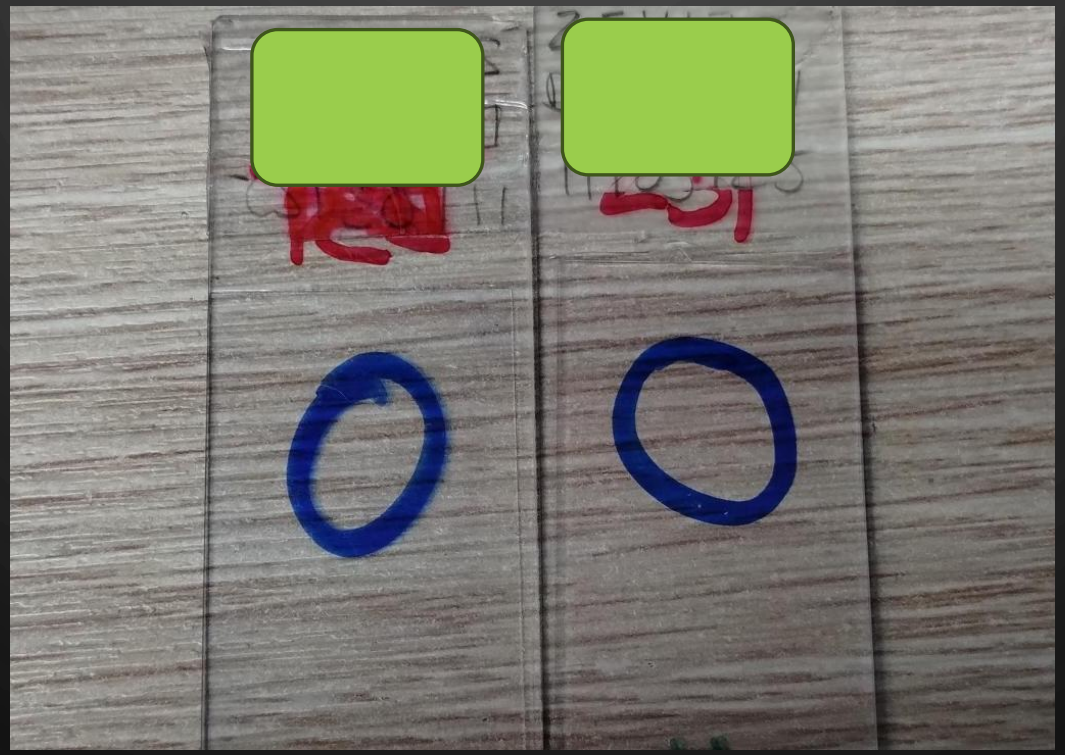
A) NEGATIVO

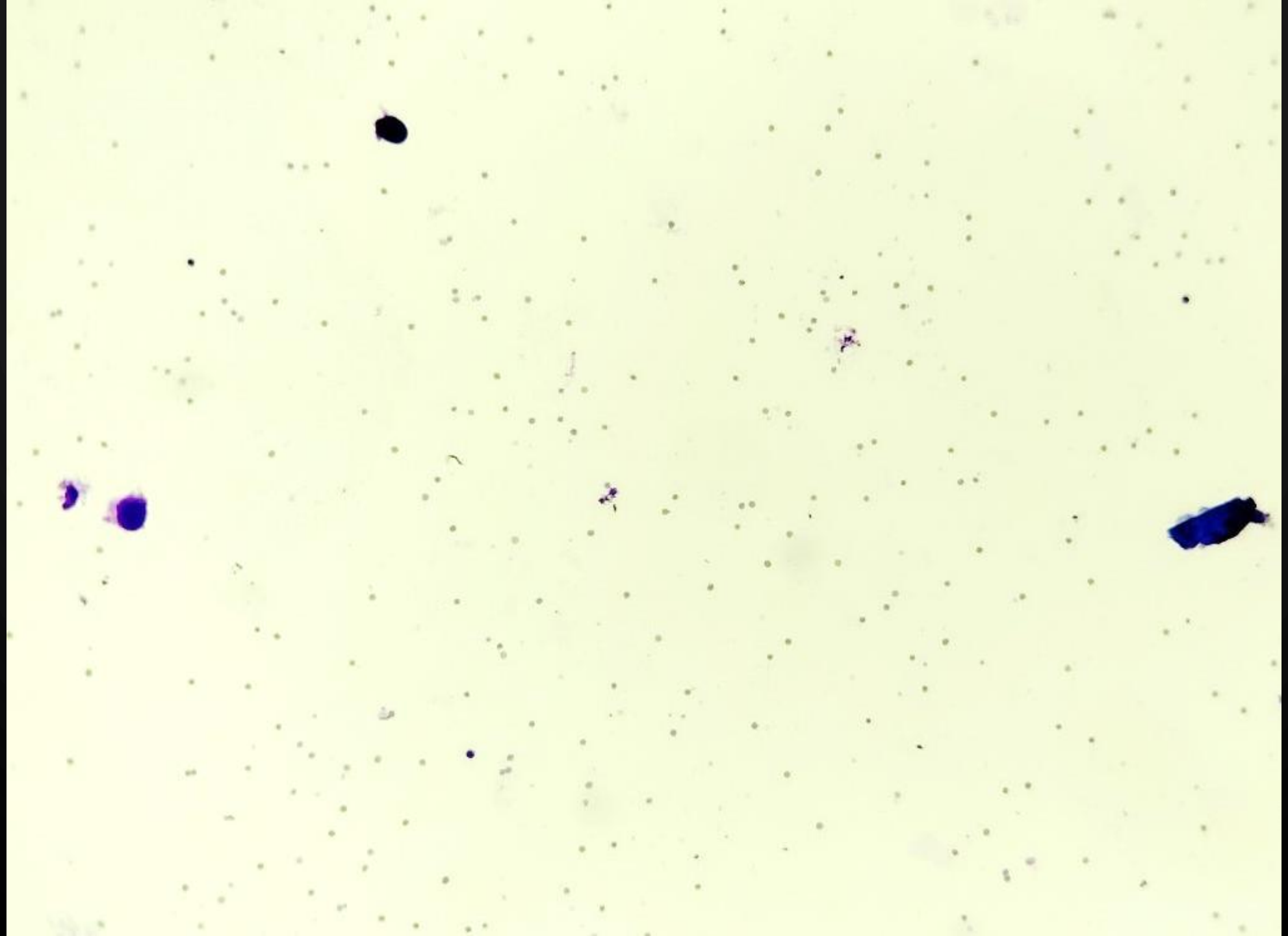
B) INADECUADA

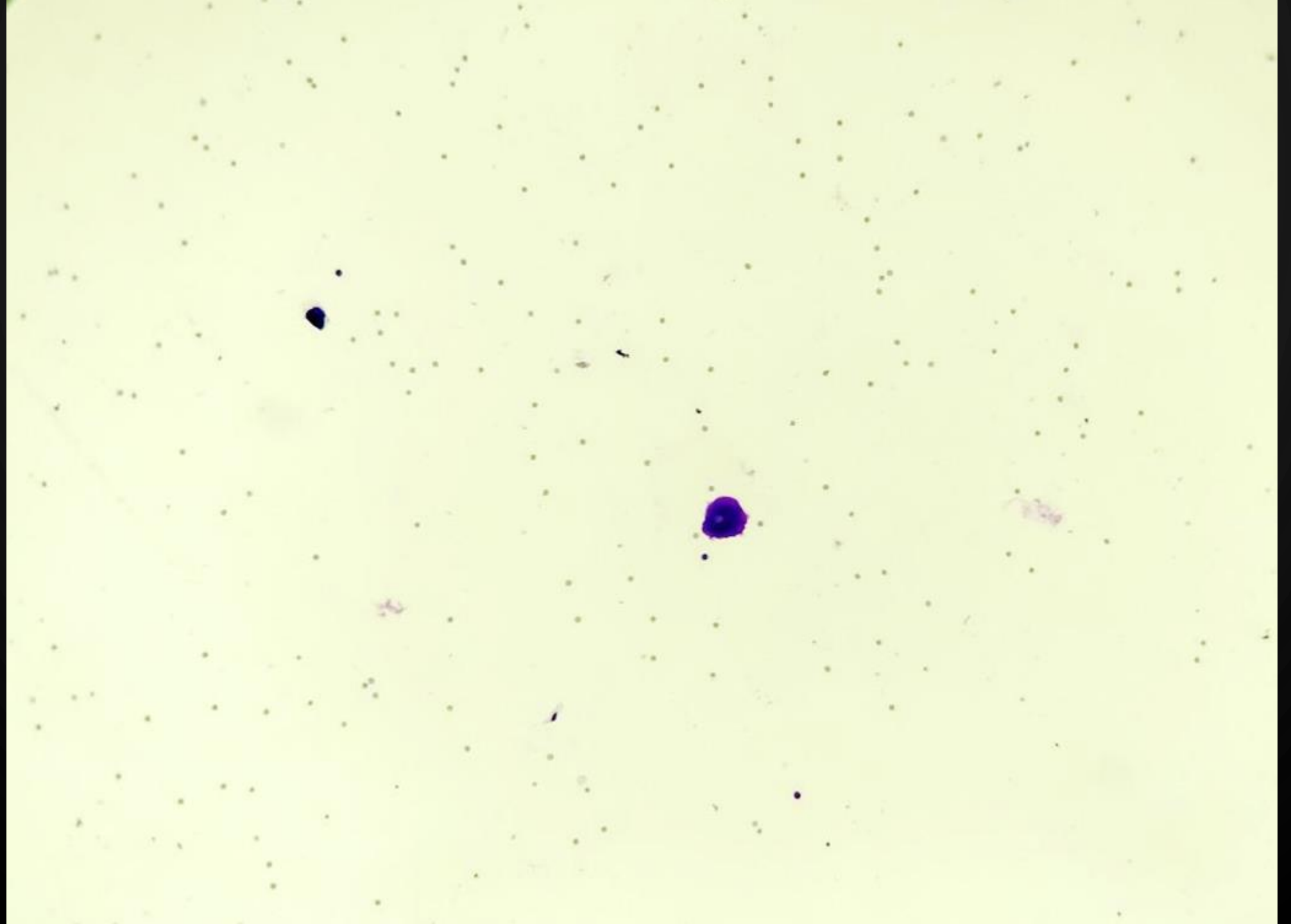
C) POSITIVO

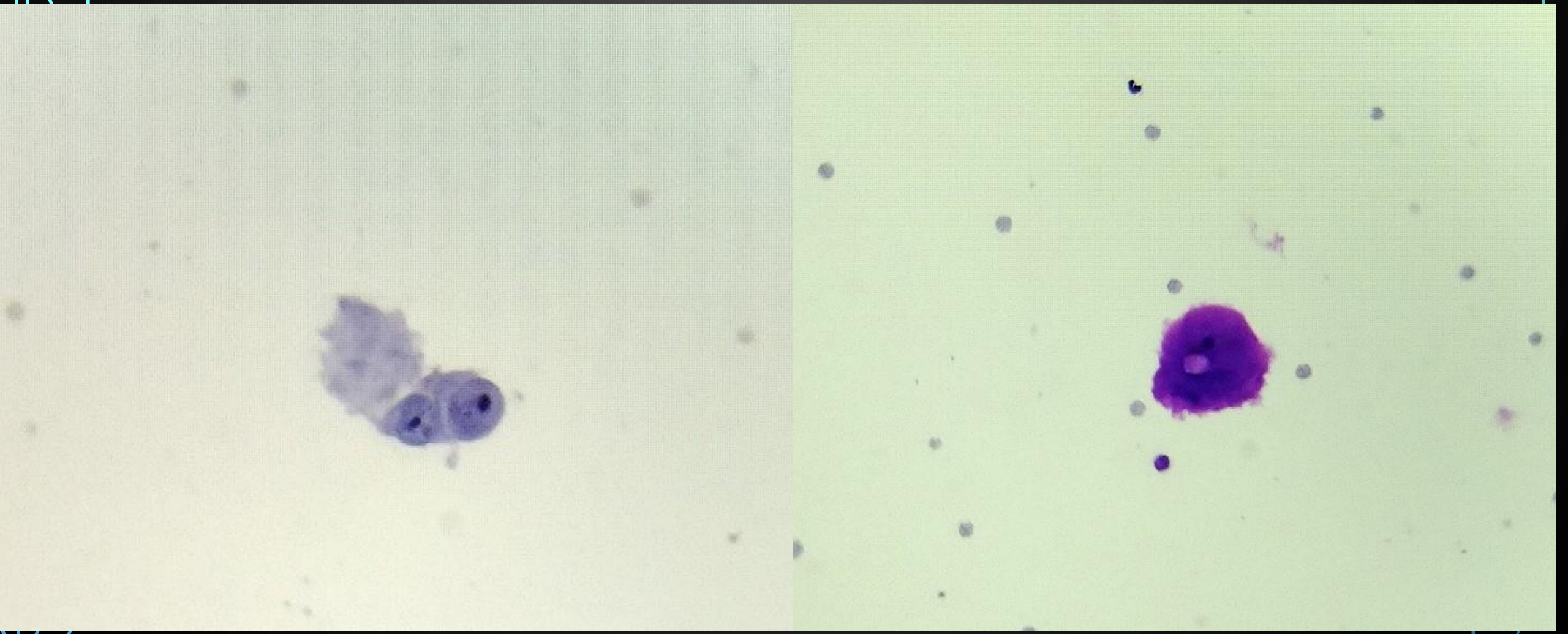
D) PLEOCITOSIS

CASO 2. MUJER DE 21 AÑOS CON DIAGNÓSTICO DE LAL, TOMAN LCR DE CONTROL









¿DIAGNÓSTICO?

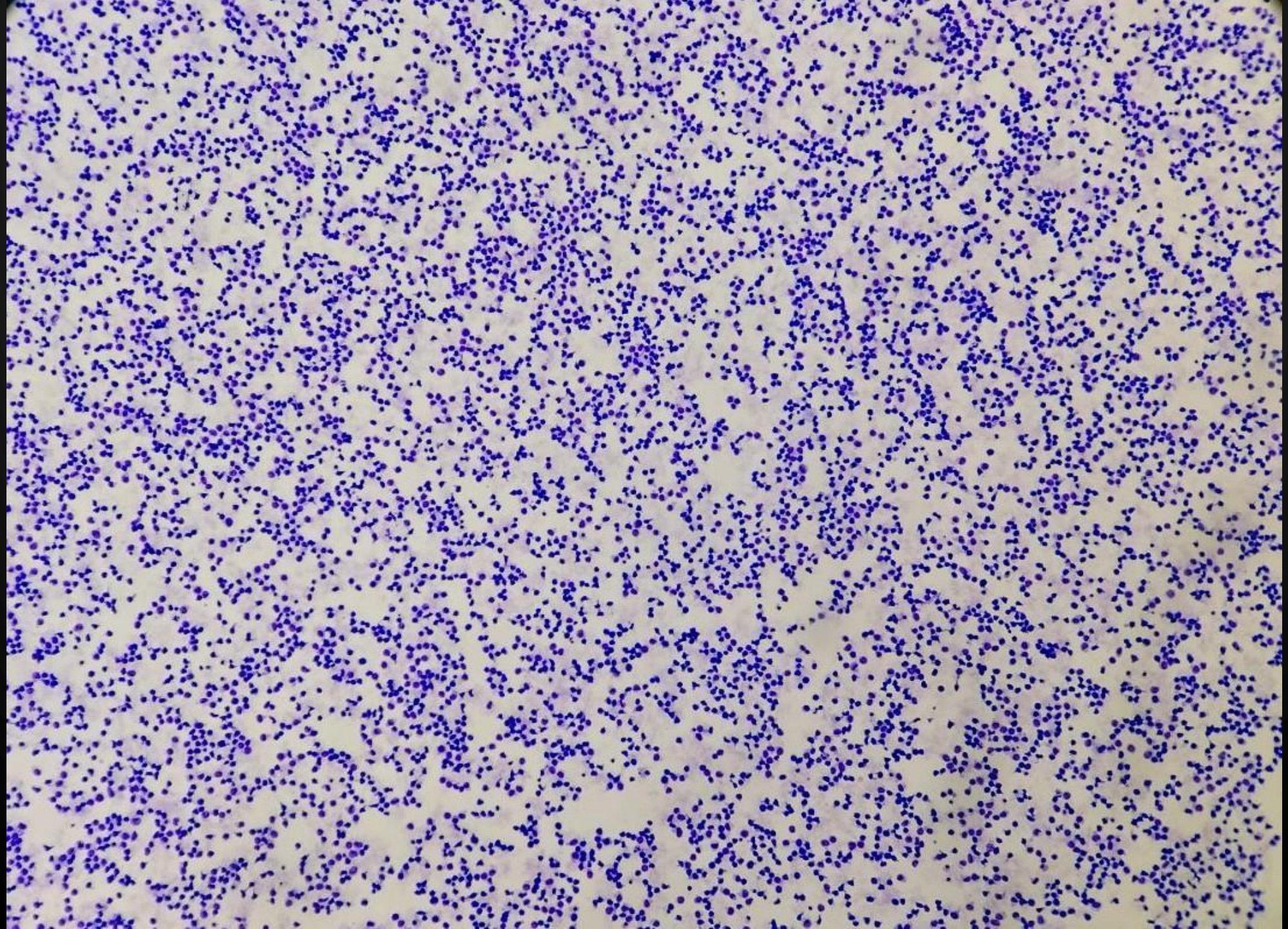
A) NEGATIVO

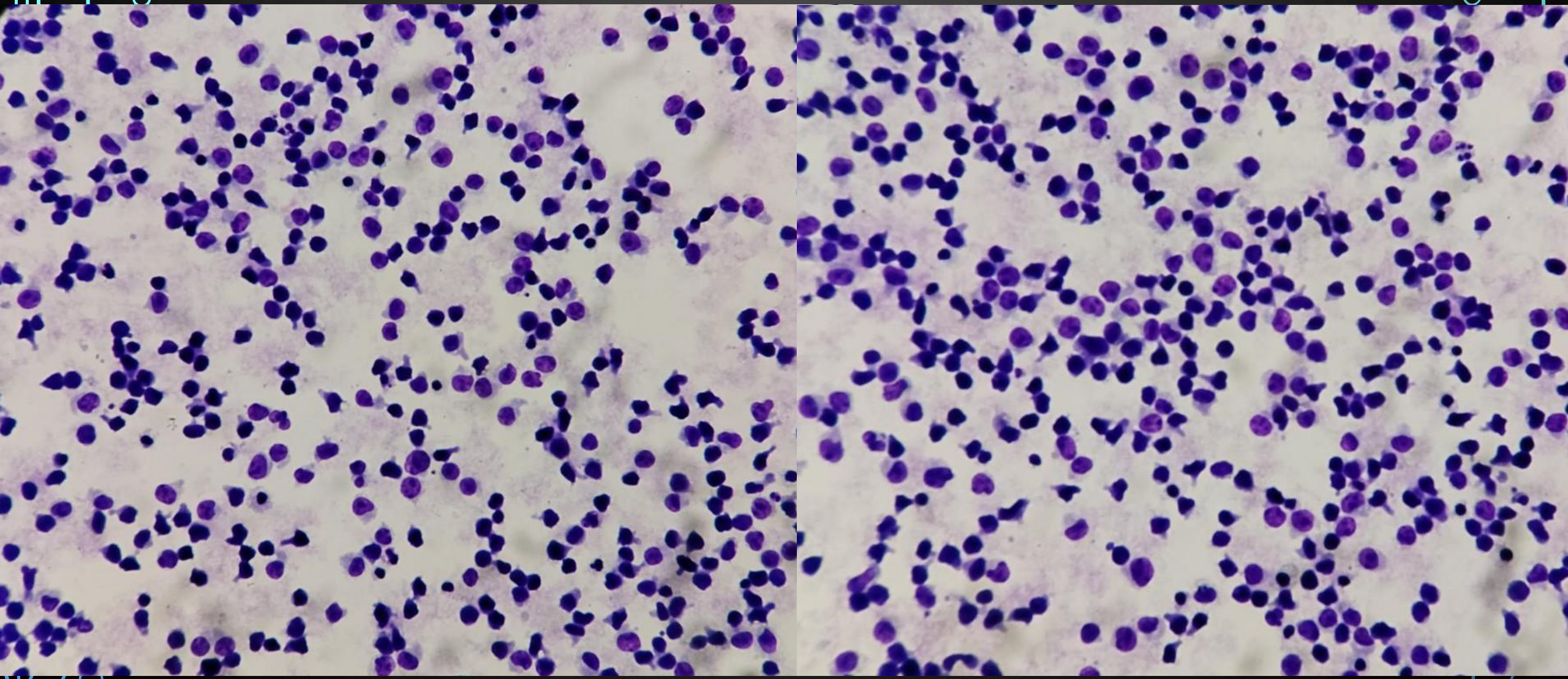
B) INADECUADA

C) POSITIVO

D) PLEOCITOSIS

CASO 3. MUJER CON DIAGNÓSTICO DE LAM, CON CEFALEA, MAREO Y NAUSEAS





¿DIAGNÓSTICO?

A) NEGATIVO

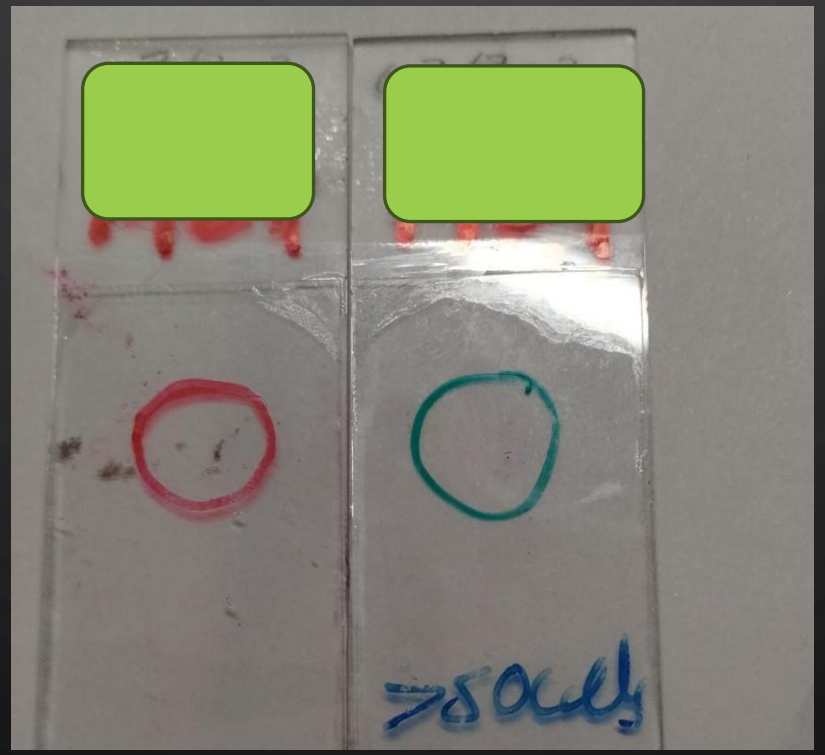
B) INADECUADA

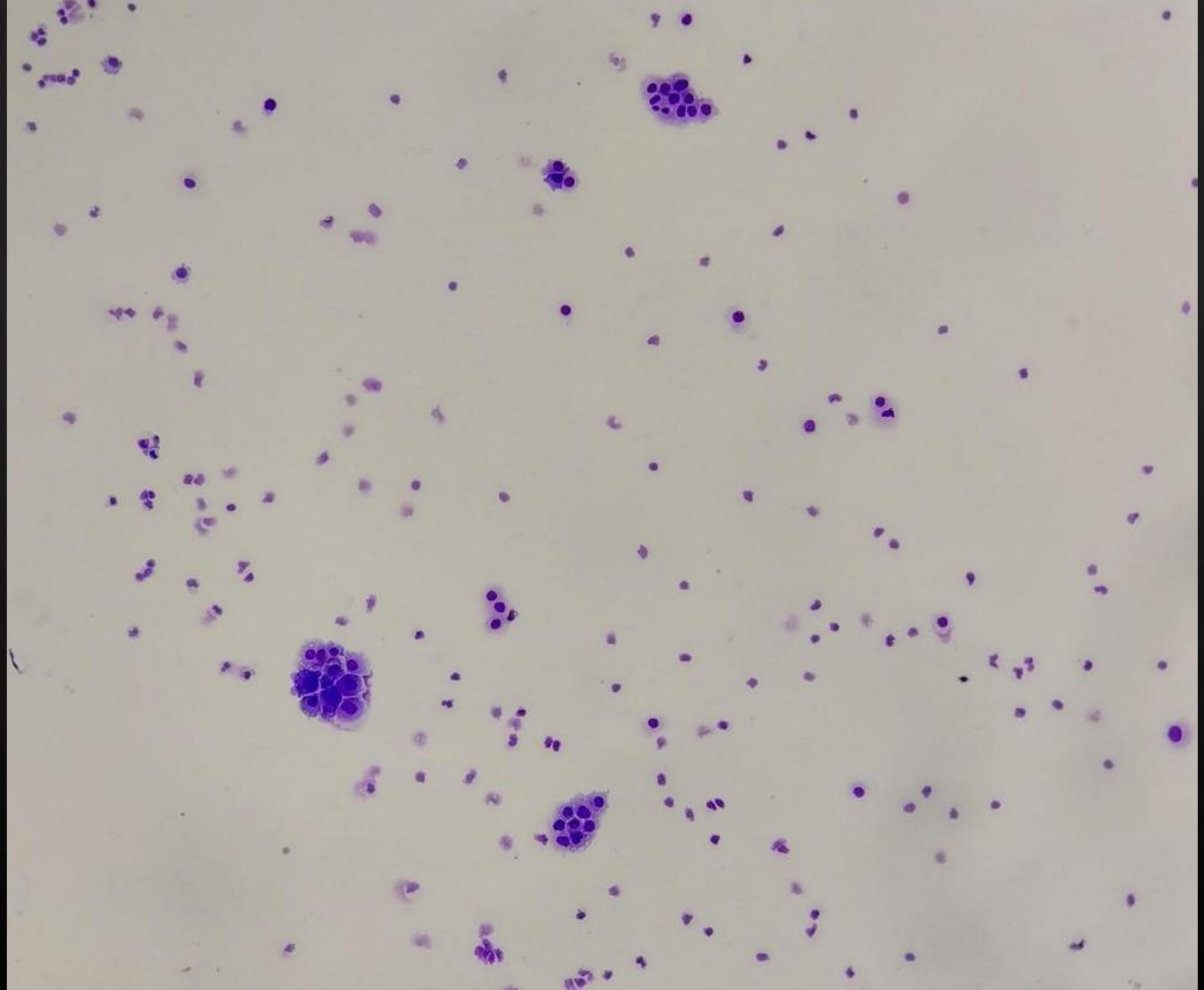
C) POSITIVO

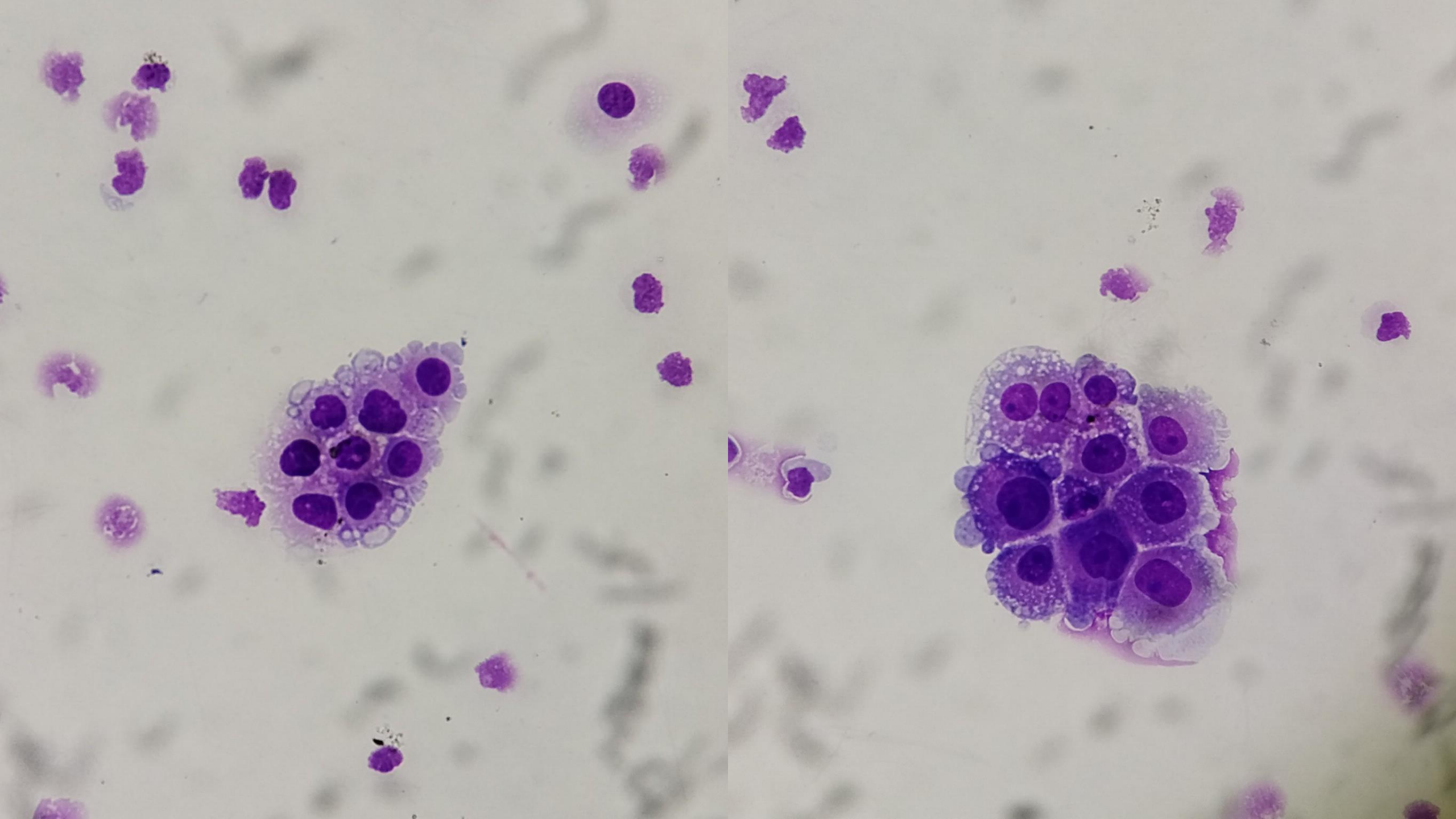
D) PLEOCITOSIS

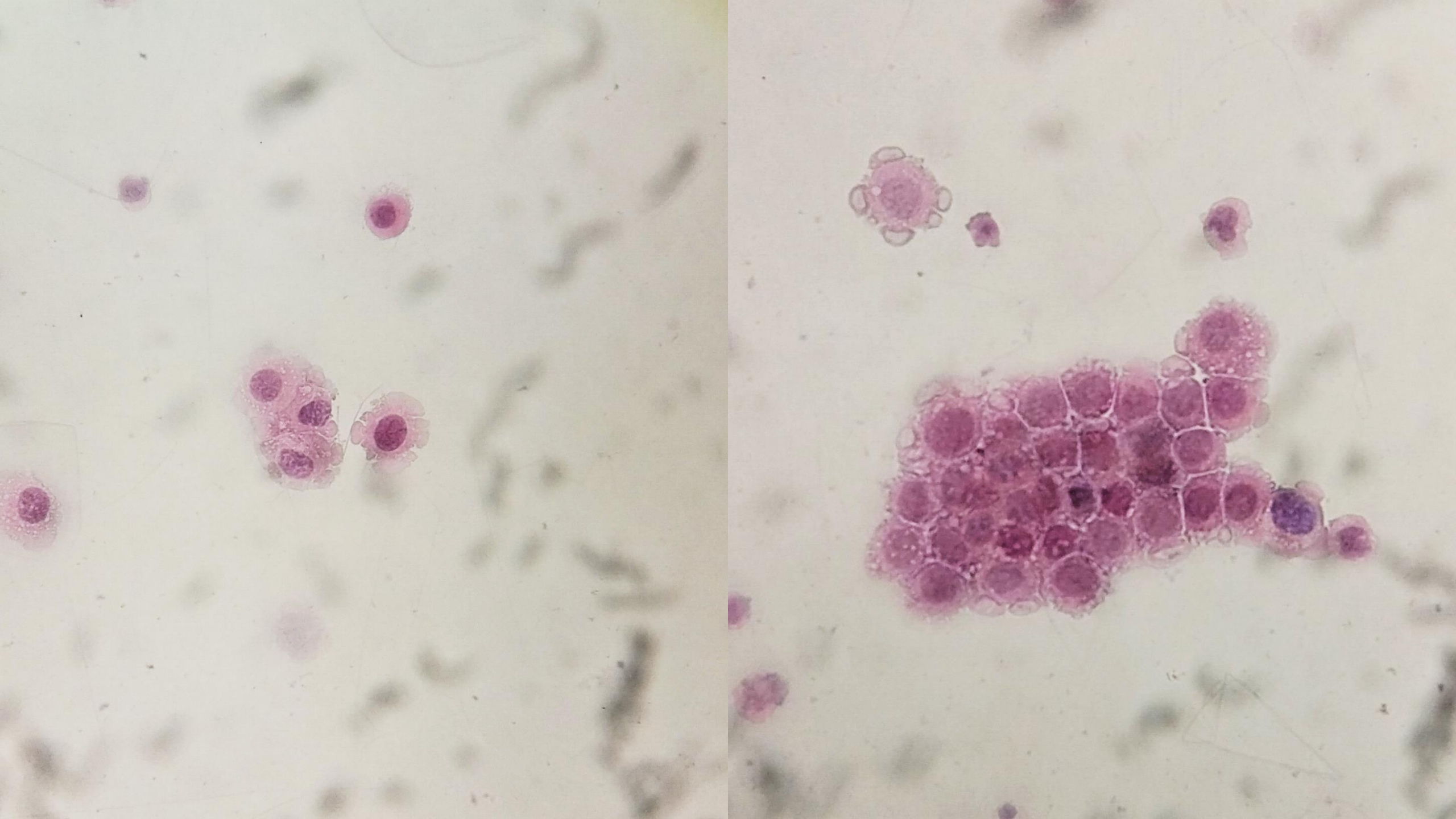
MPO

CASO 4. MUJER DE 55 AÑOS CON HISTORIA CLINICA DE CANCER DE MAMA.









¿DIAGNÓSTICO?

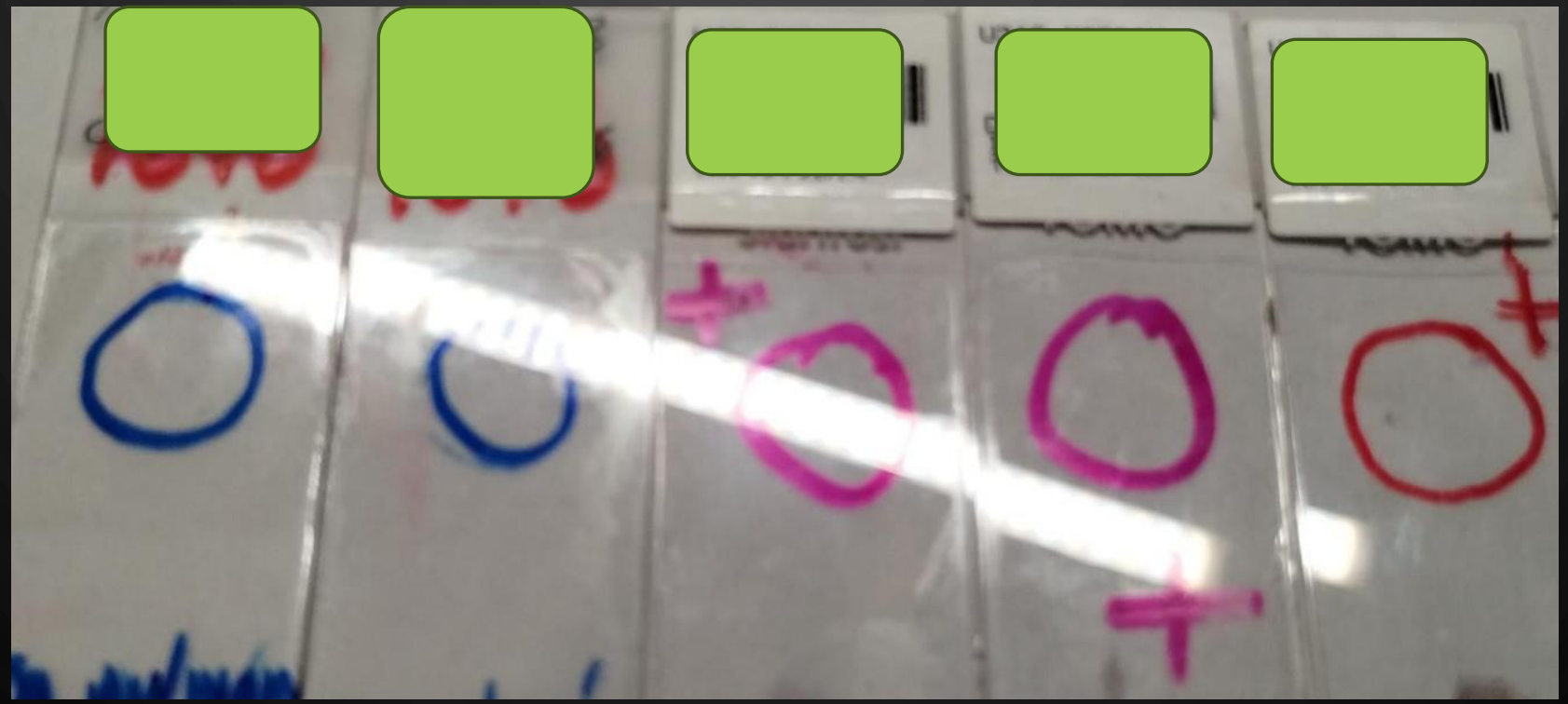
A) NEGATIVO

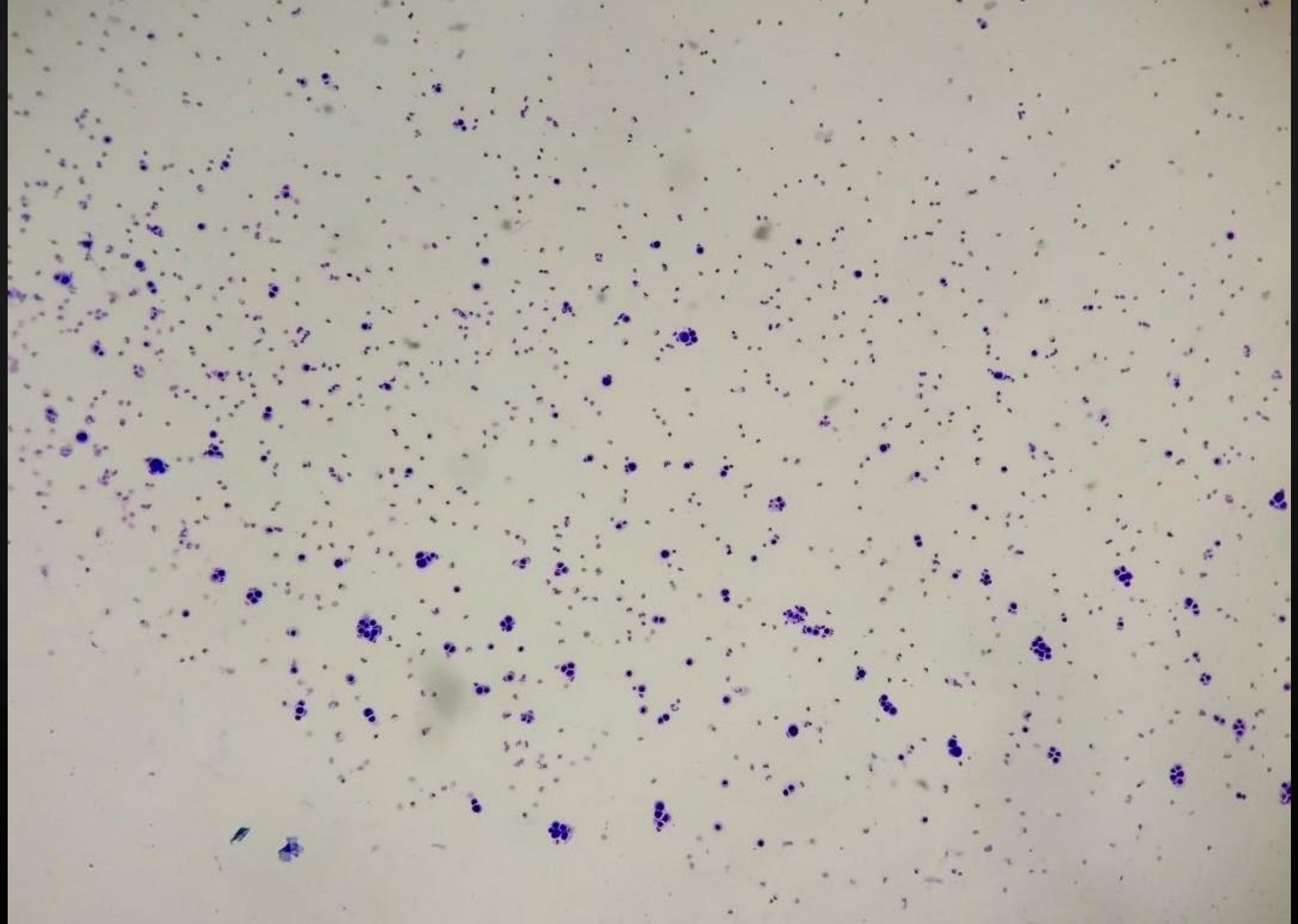
B) INADECUADA

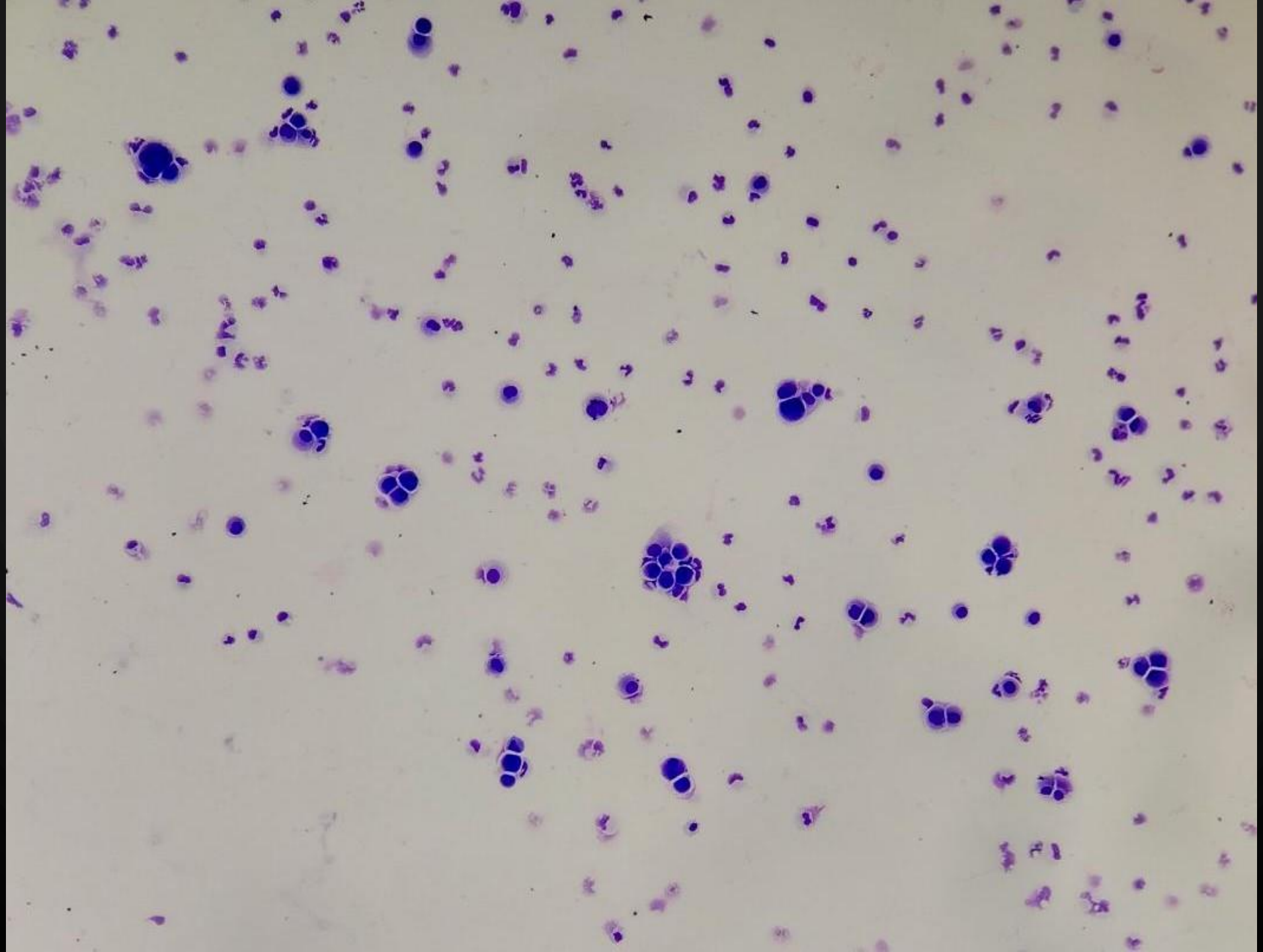
C) POSITIVO

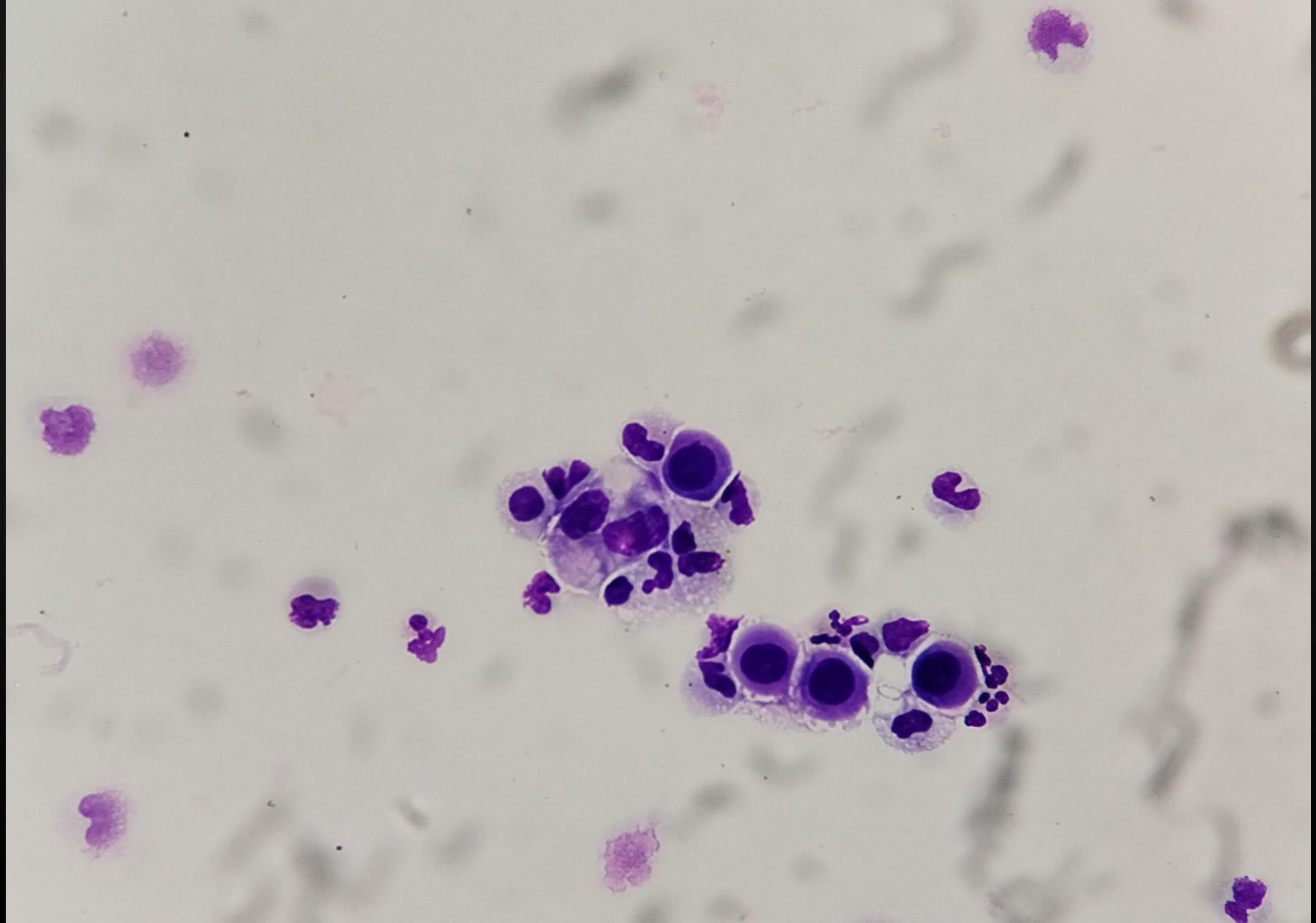
D) PLEOCITOSIS

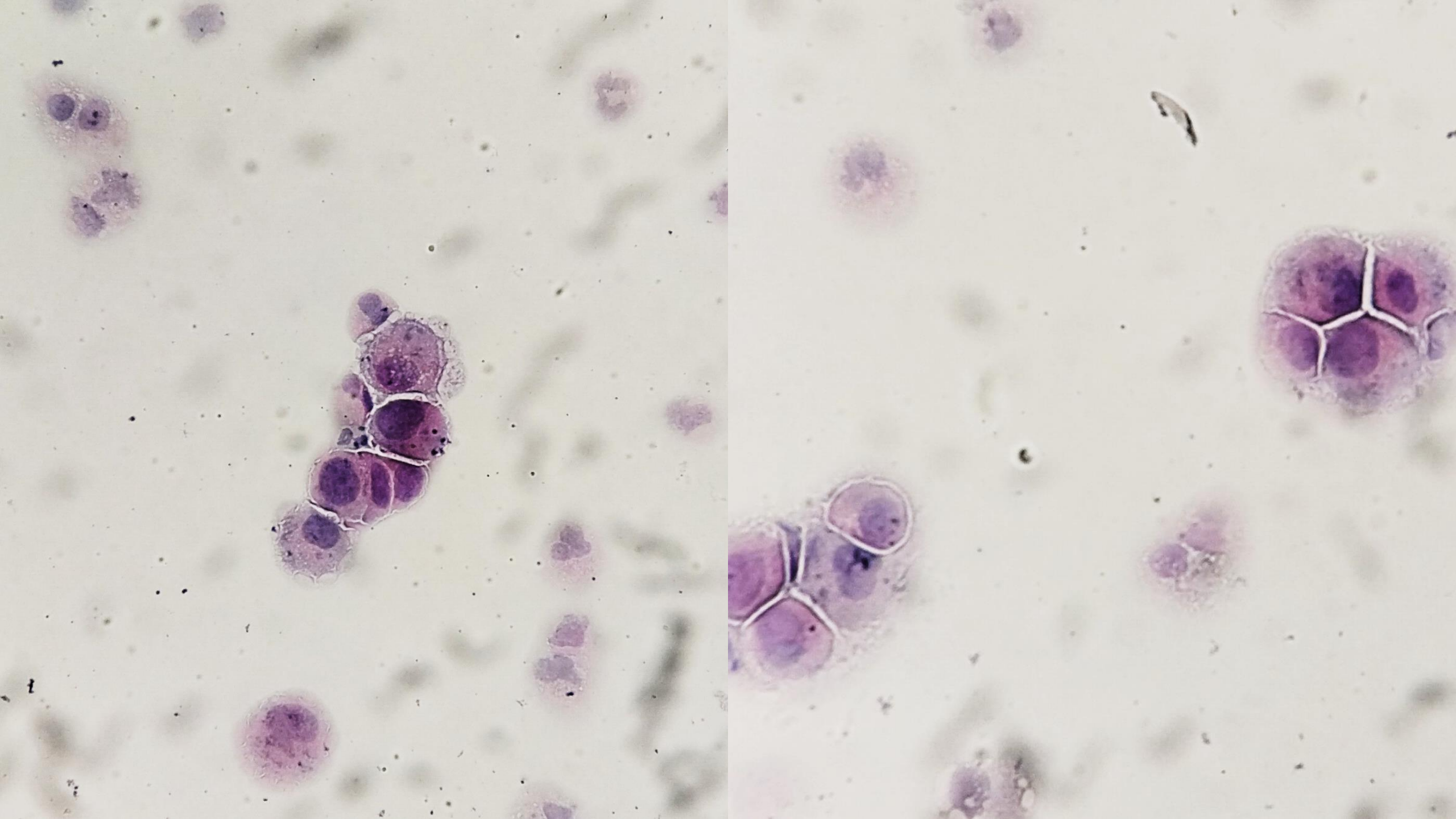
CASO 5. HOMBRE 65 AÑOS CON DIAGNÓSTICO DE CA DE PULMÓN EC IV











¿DIAGNÓSTICO?

A) NEGATIVO

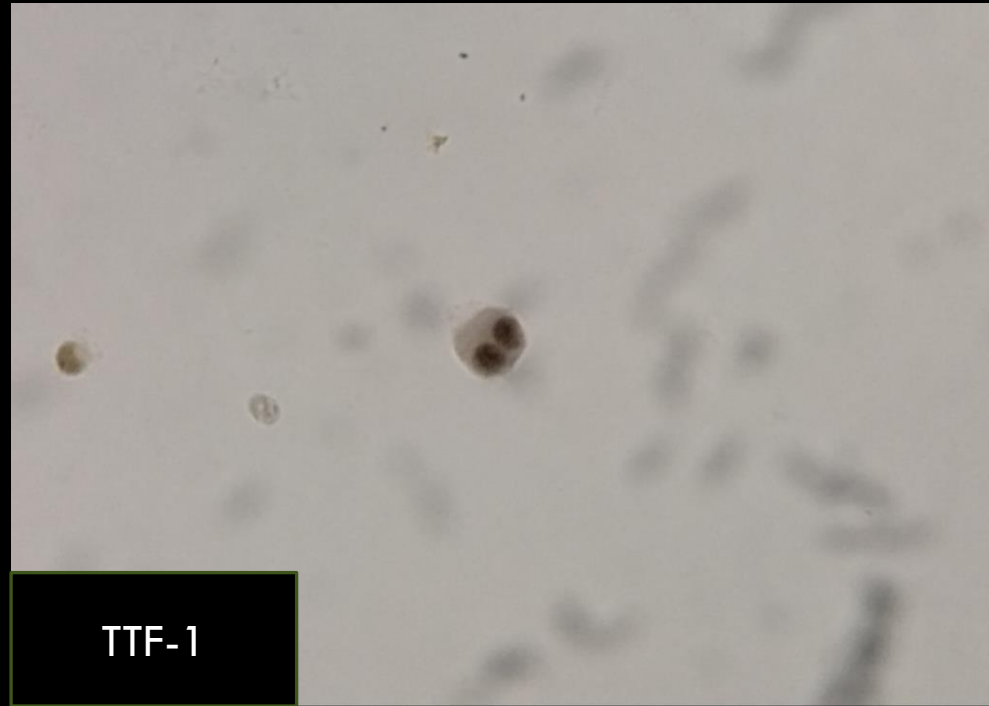
B) INADECUADA

C) POSITIVO

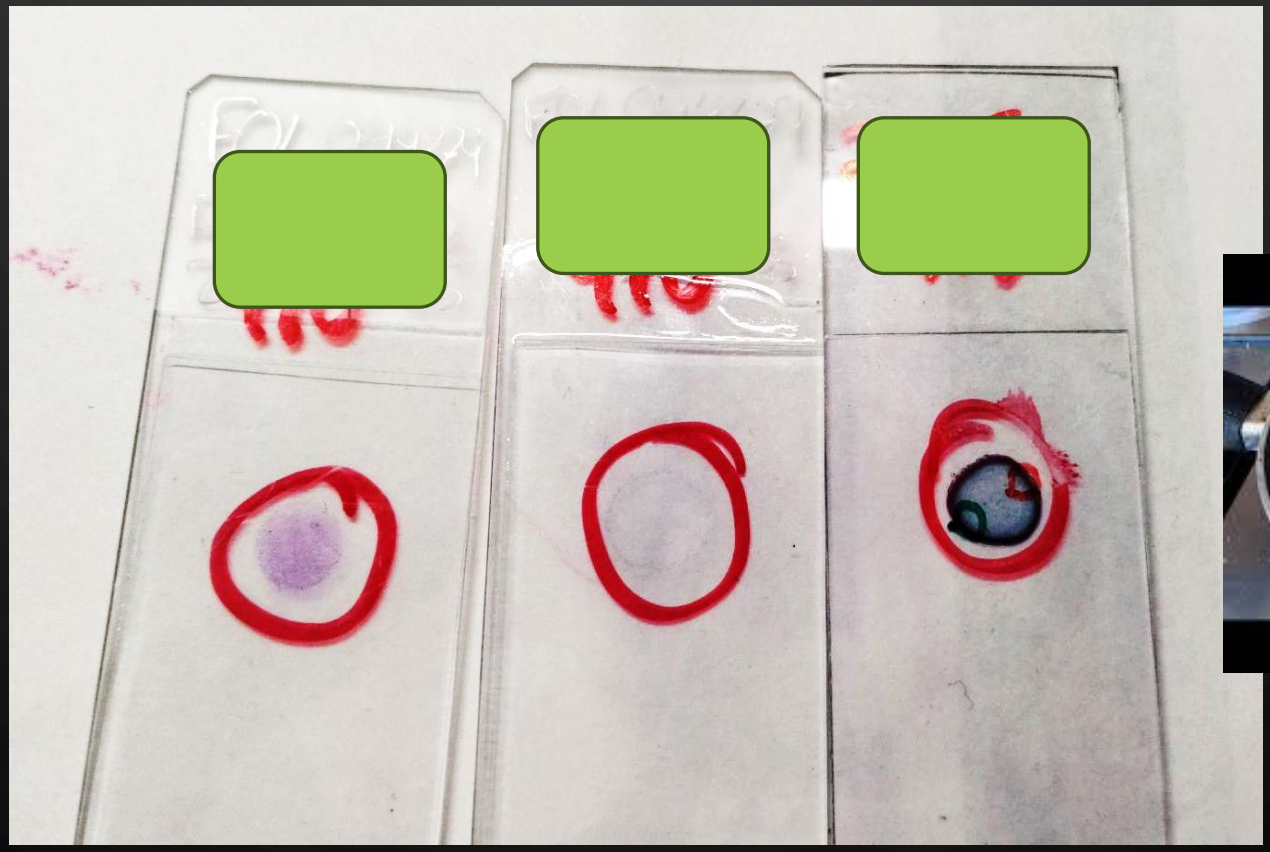
D) PLEOCITOSIS

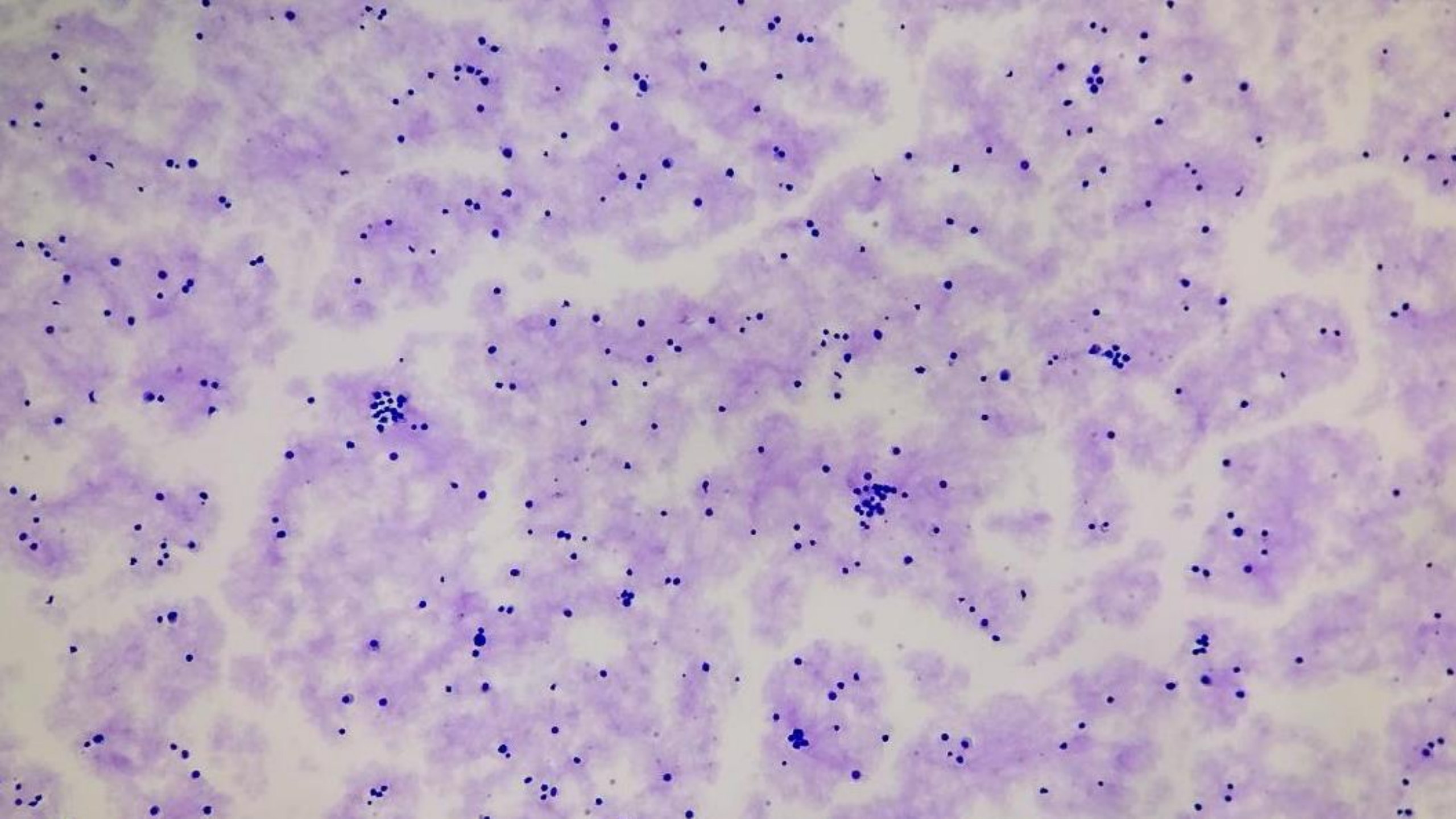

NAPSIN-A

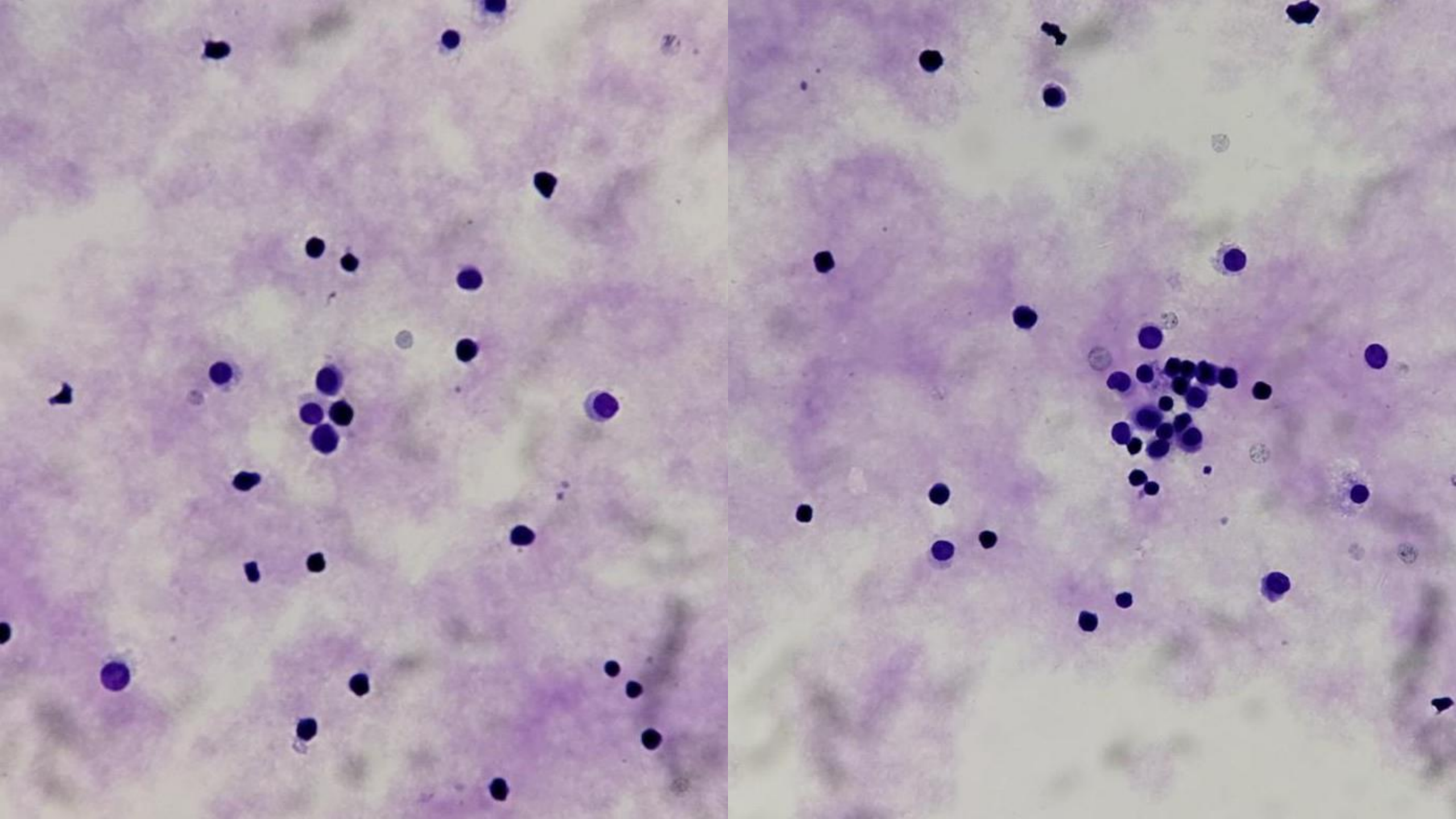

CK 7

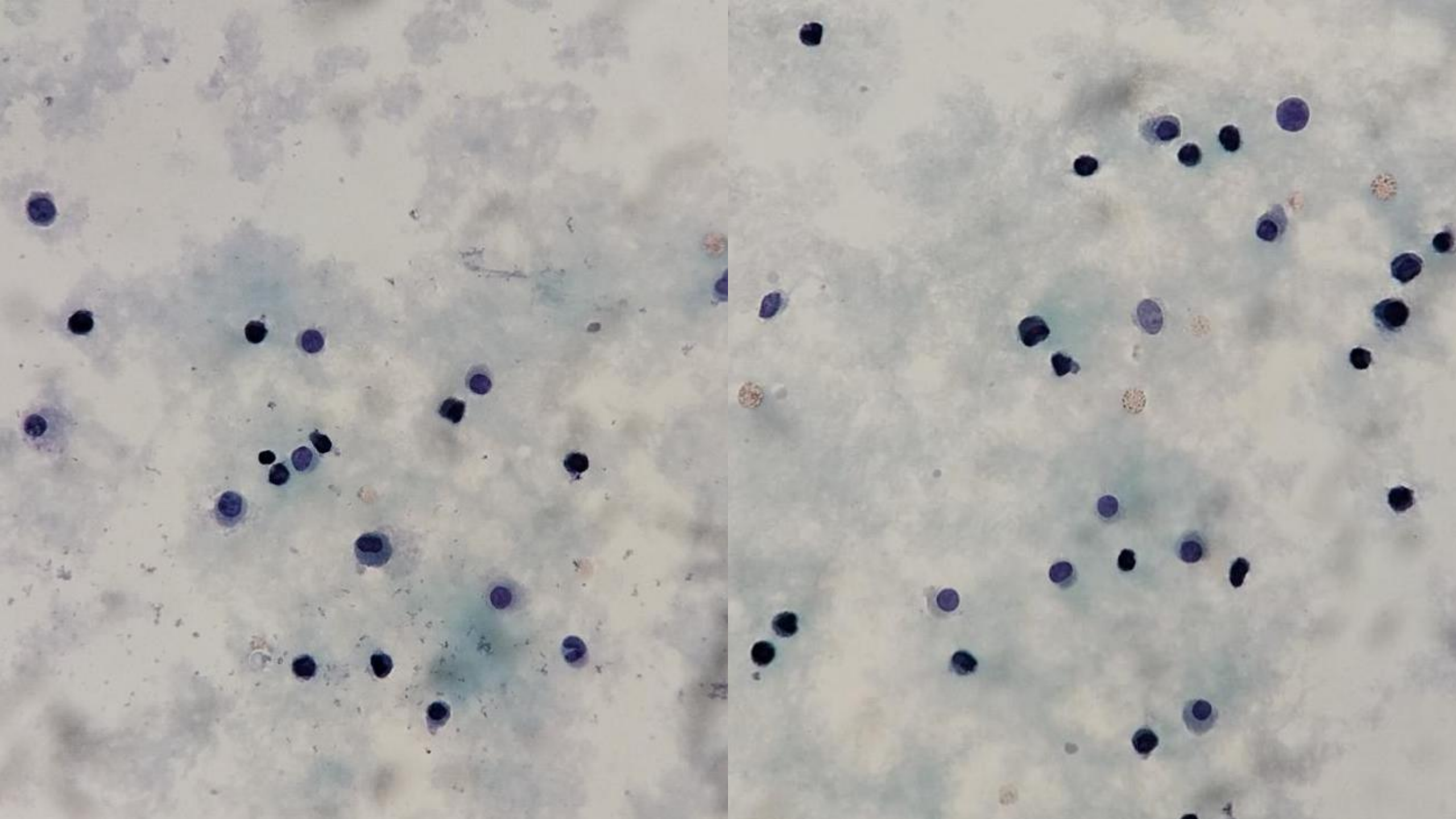

TTF-1

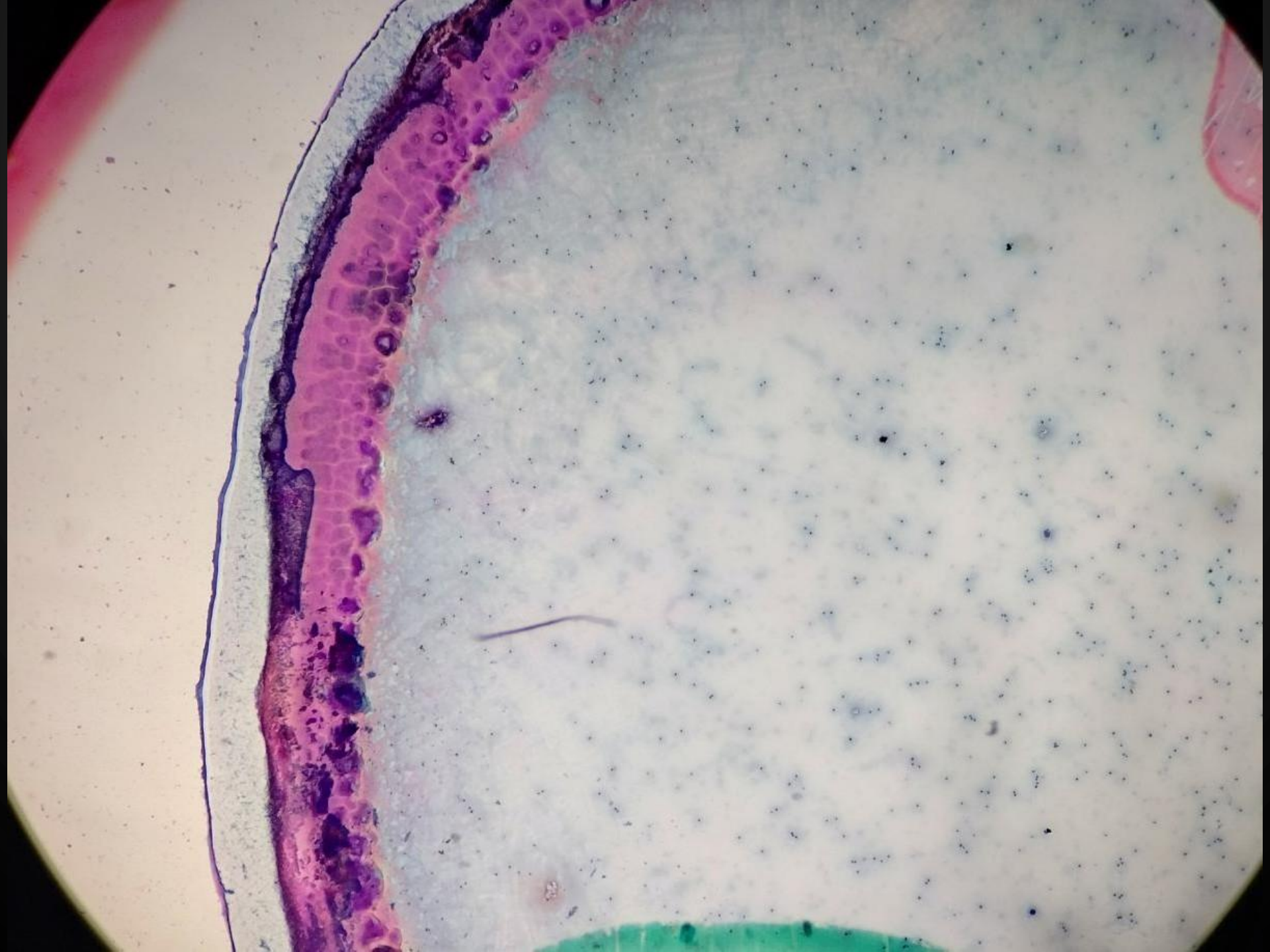
CASO 6. MUJER 57 AÑOS 1RA VEZ, CON DX FINC ASTROCITOMA. LA LESIÓN ES INTRADURAL EXTRA AXIAL A NIVEL DE T3- T4

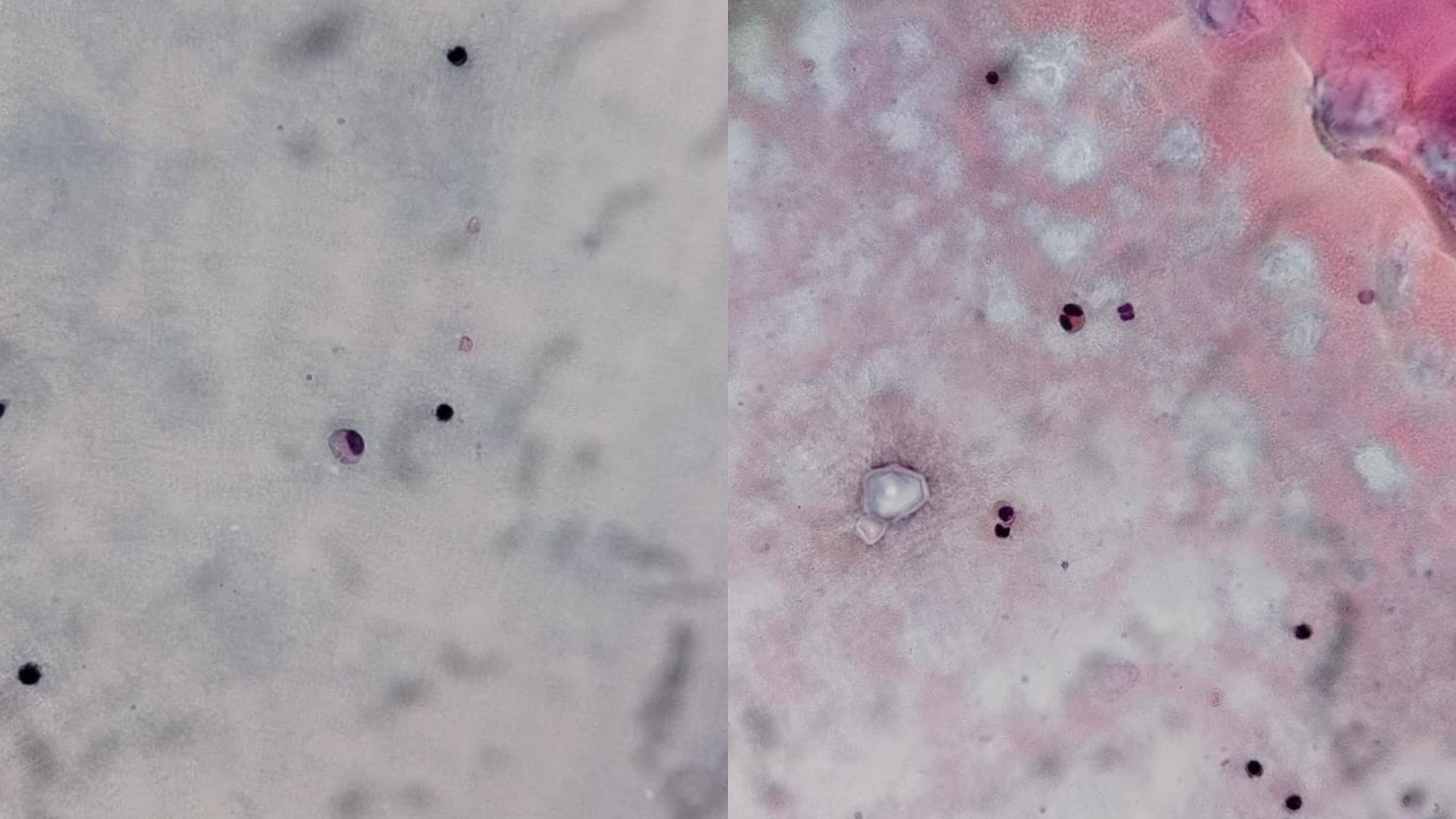












¿DIAGNÓSTICO?

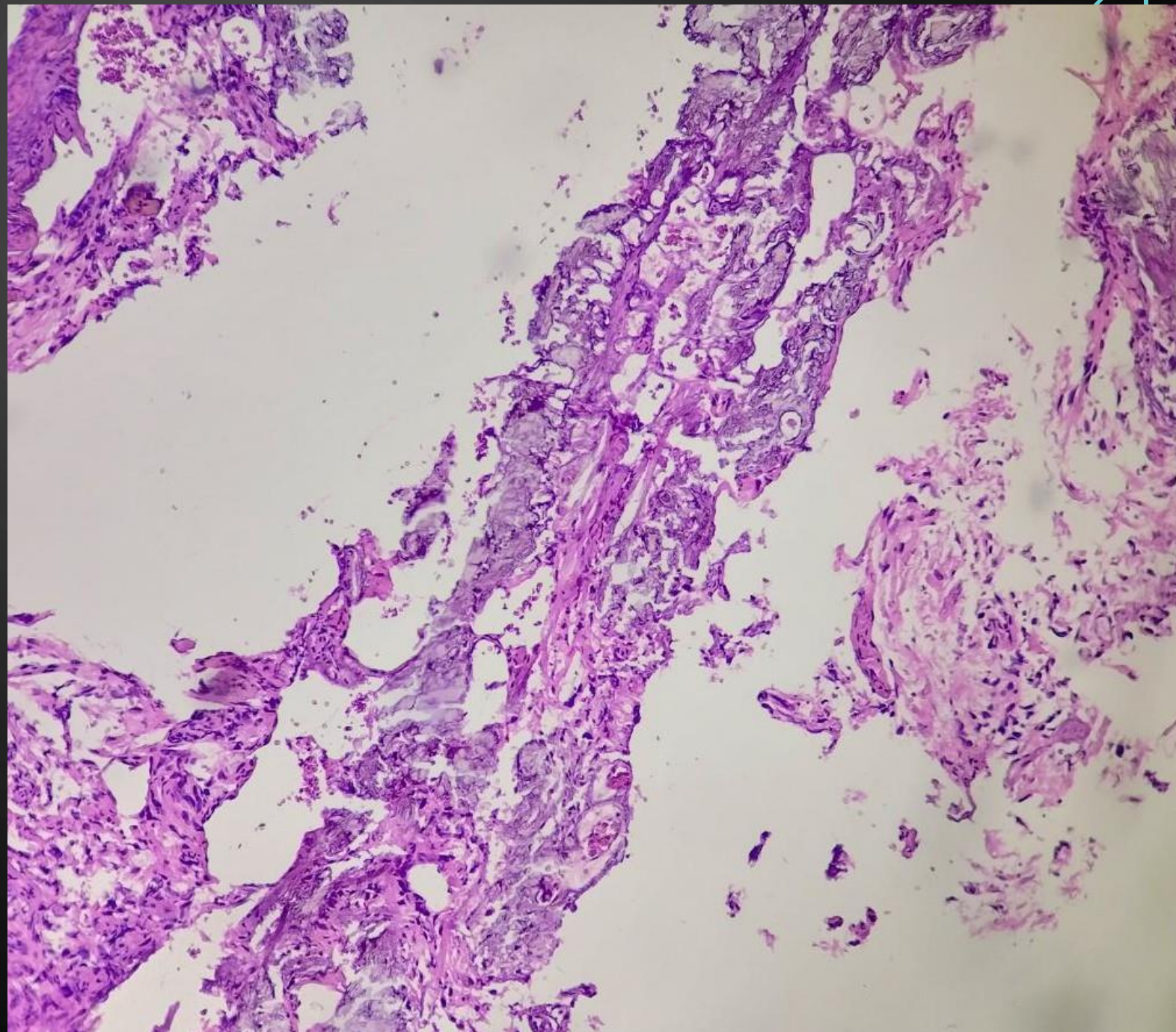
A) NEGATIVO

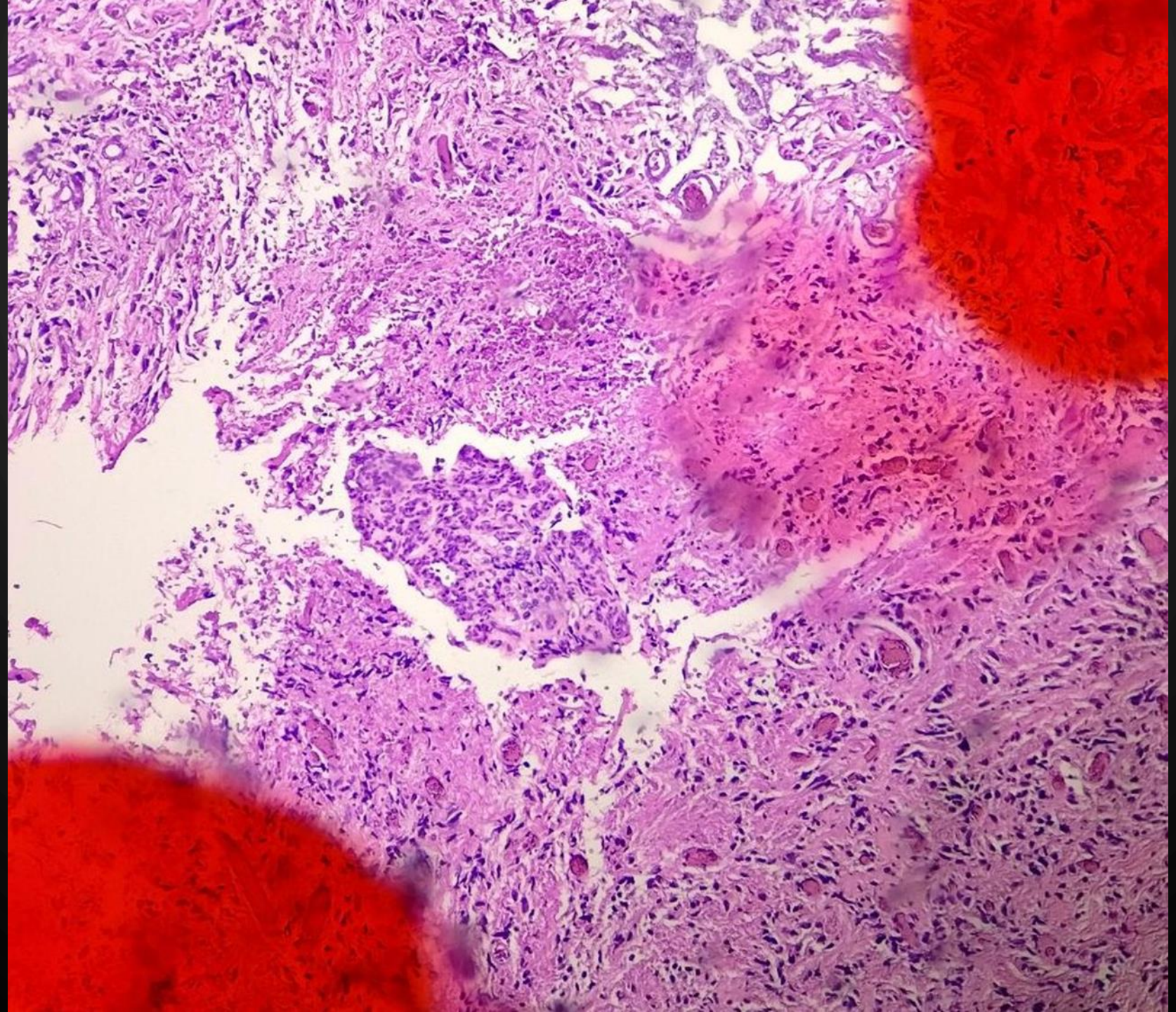
B) INADECUADA

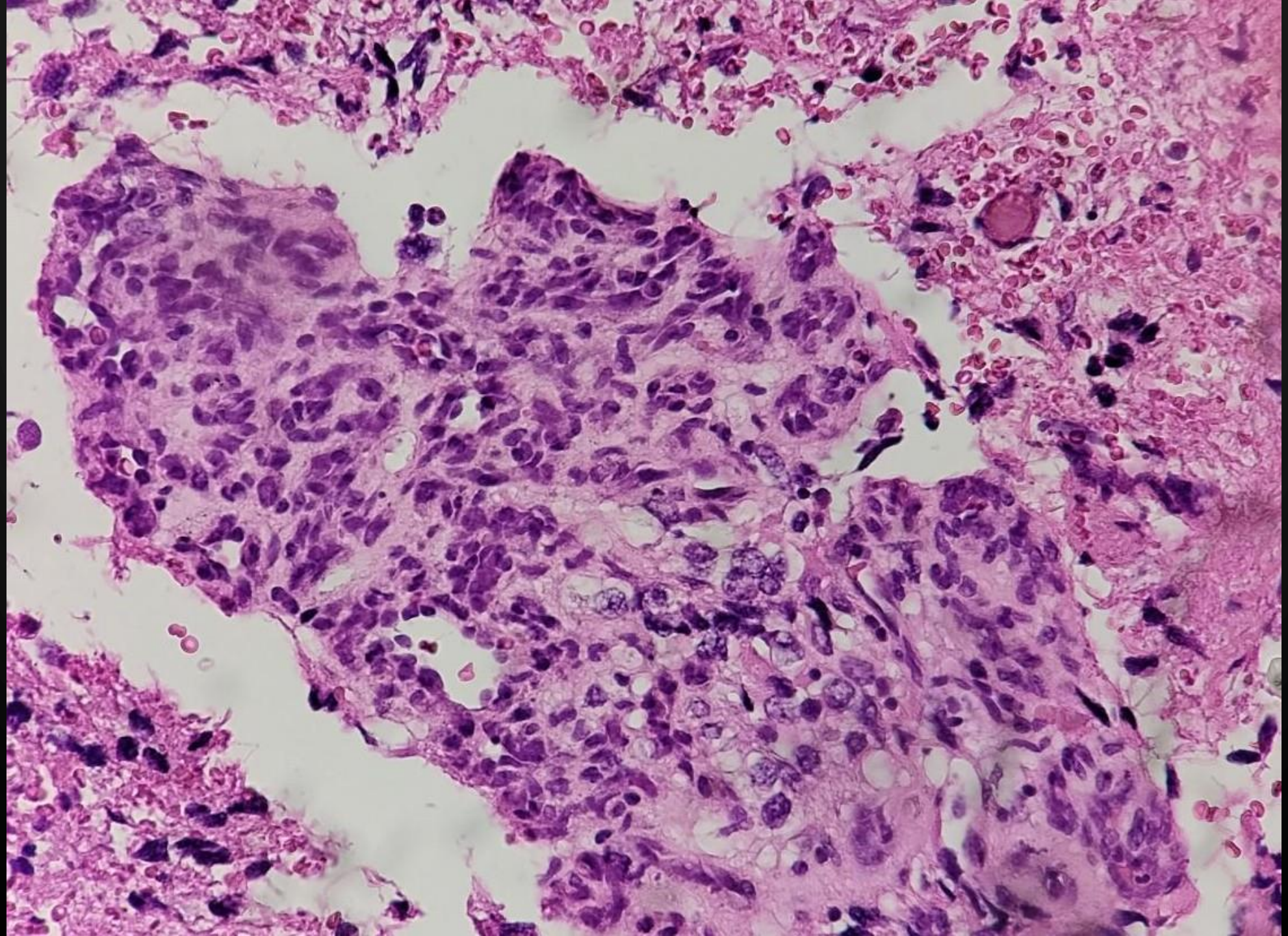
C) POSITIVO

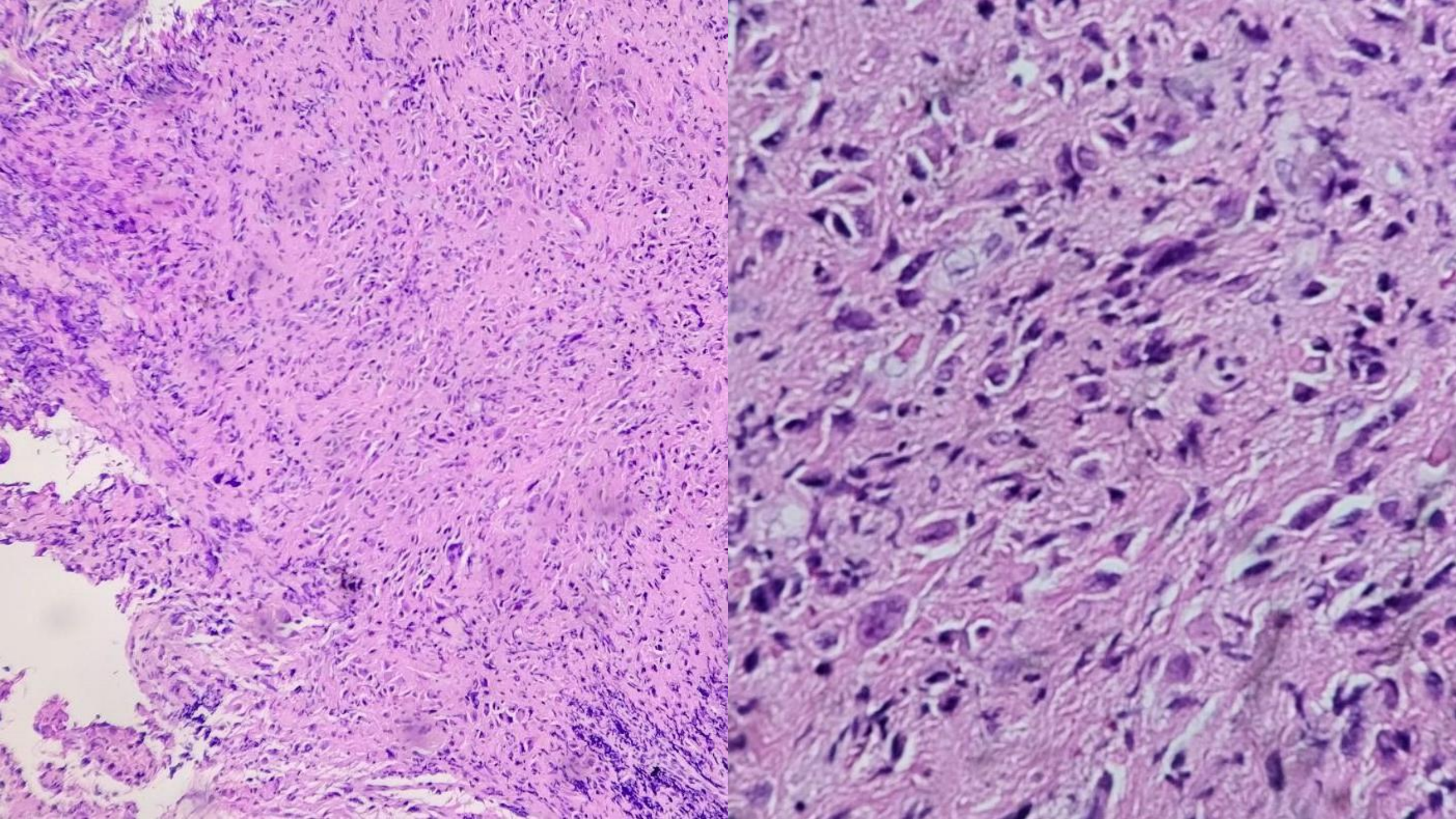
D) PLEOCITOSIS

MATERIAL DE REVISIÓN PATOLOGÍA









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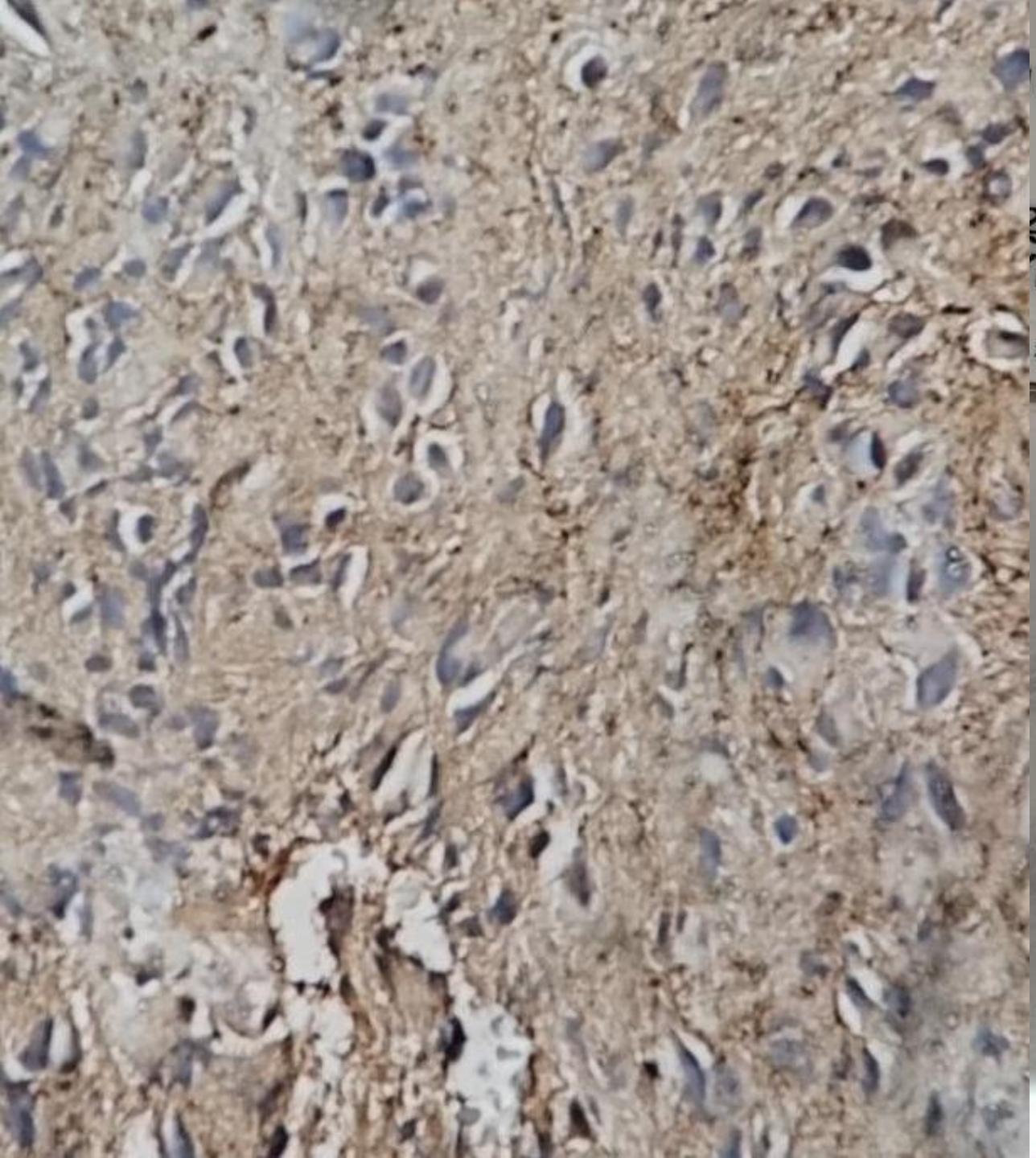


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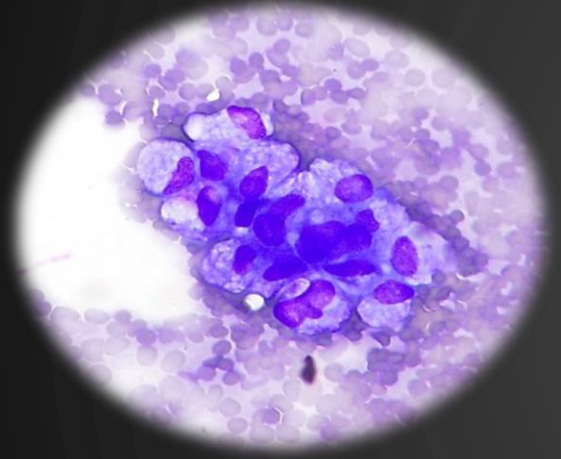
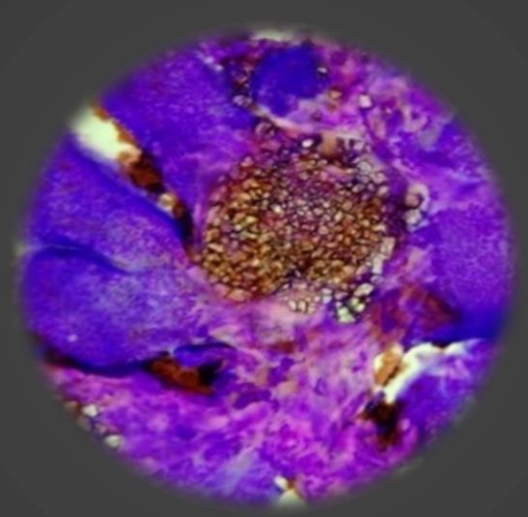
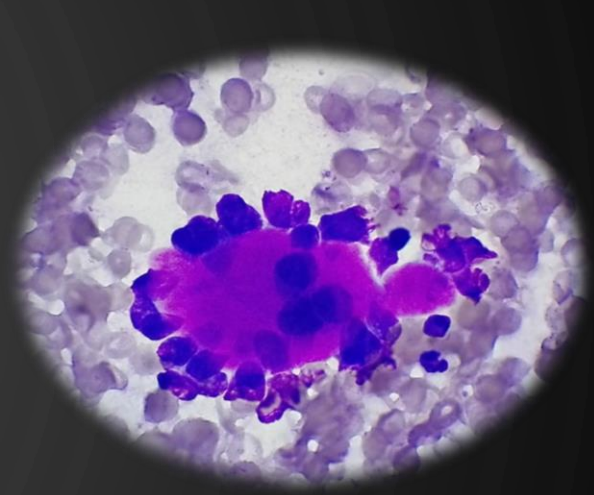
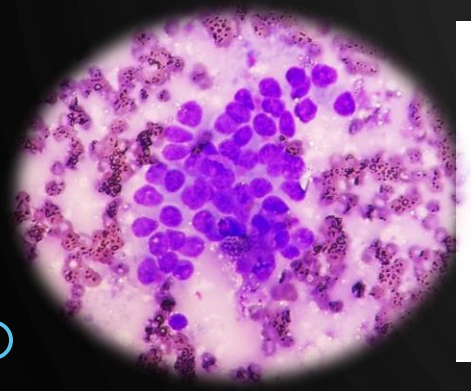
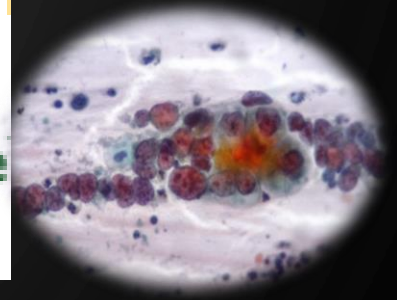

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