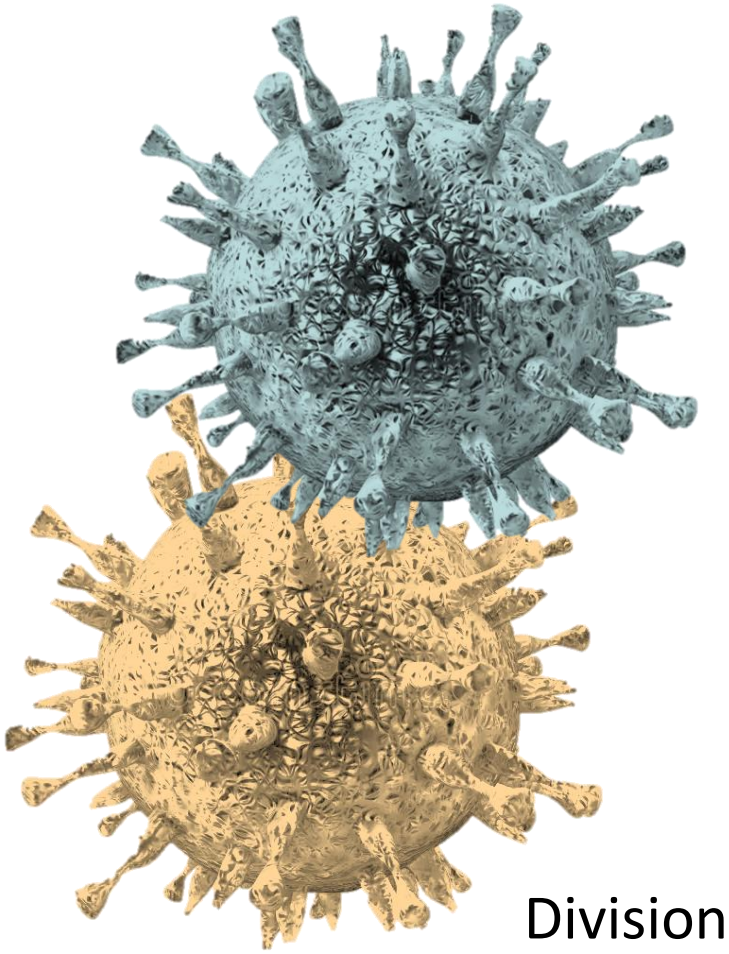

Common problems in infectious diseases

Review in Internal Medicine 2026

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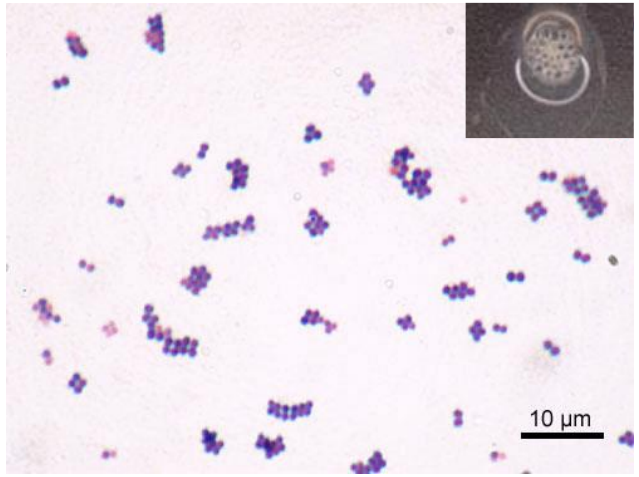
SiTID

SIRIRAJ TRANSPLANT INFECTIOUS DISEASE

Common bacterial infections

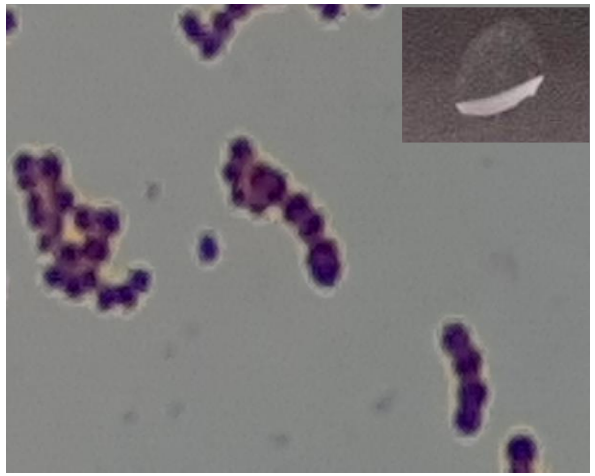
Common Gram-positive cocci

Cluster
(Catalase +ve)

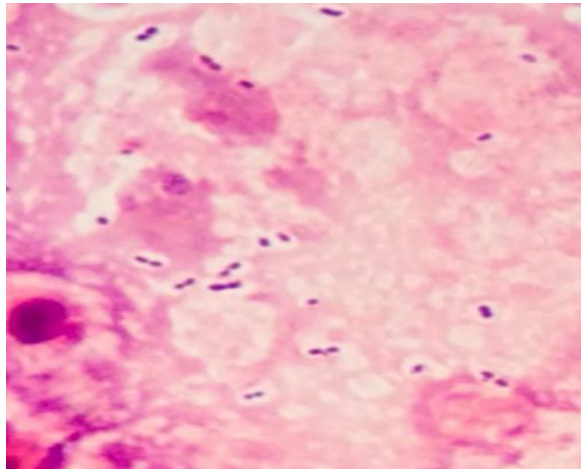


Staphylococcus aureus
Coagulase neg staphylococci

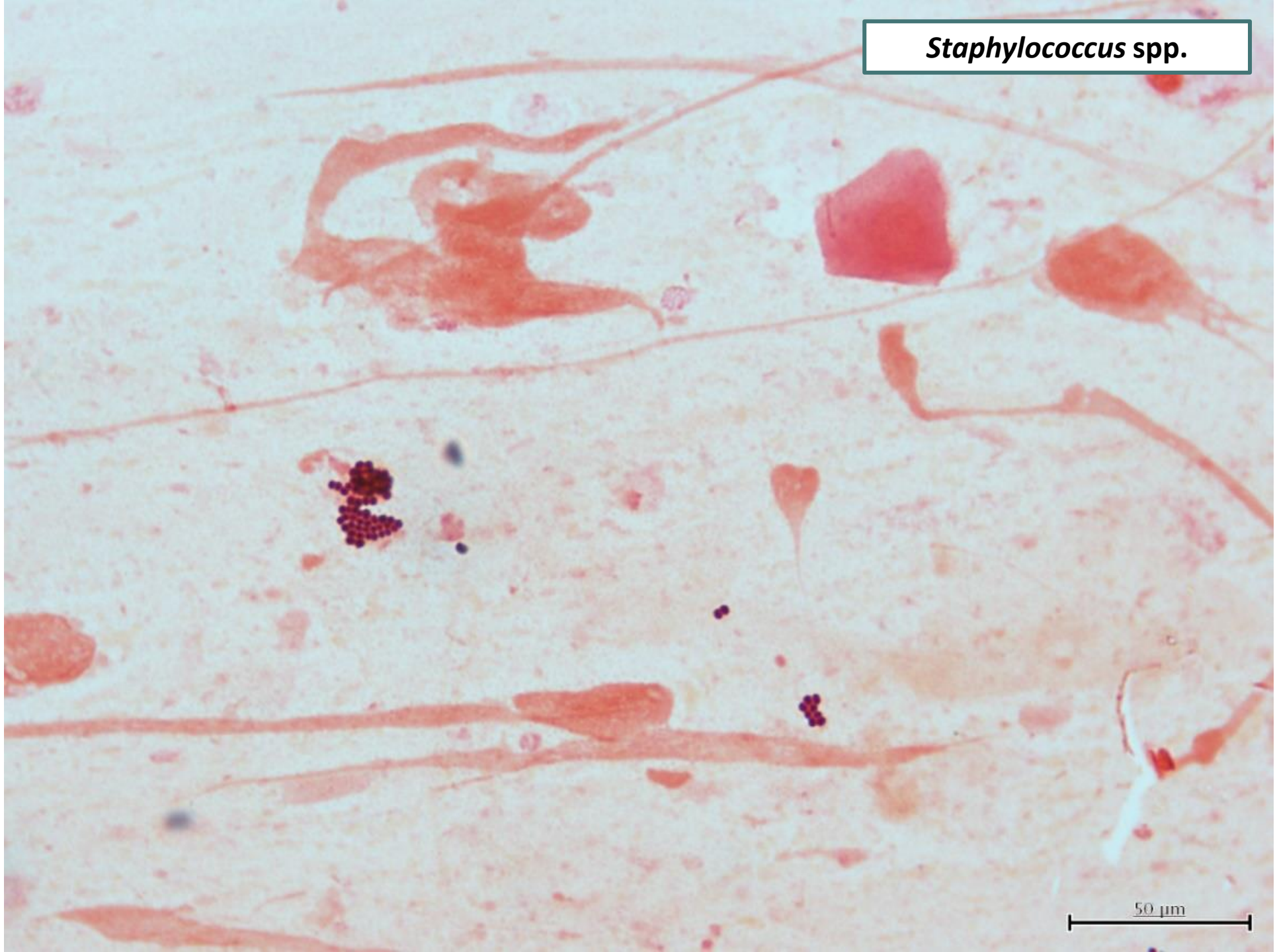
Pair and chain
(Catalase –ve)

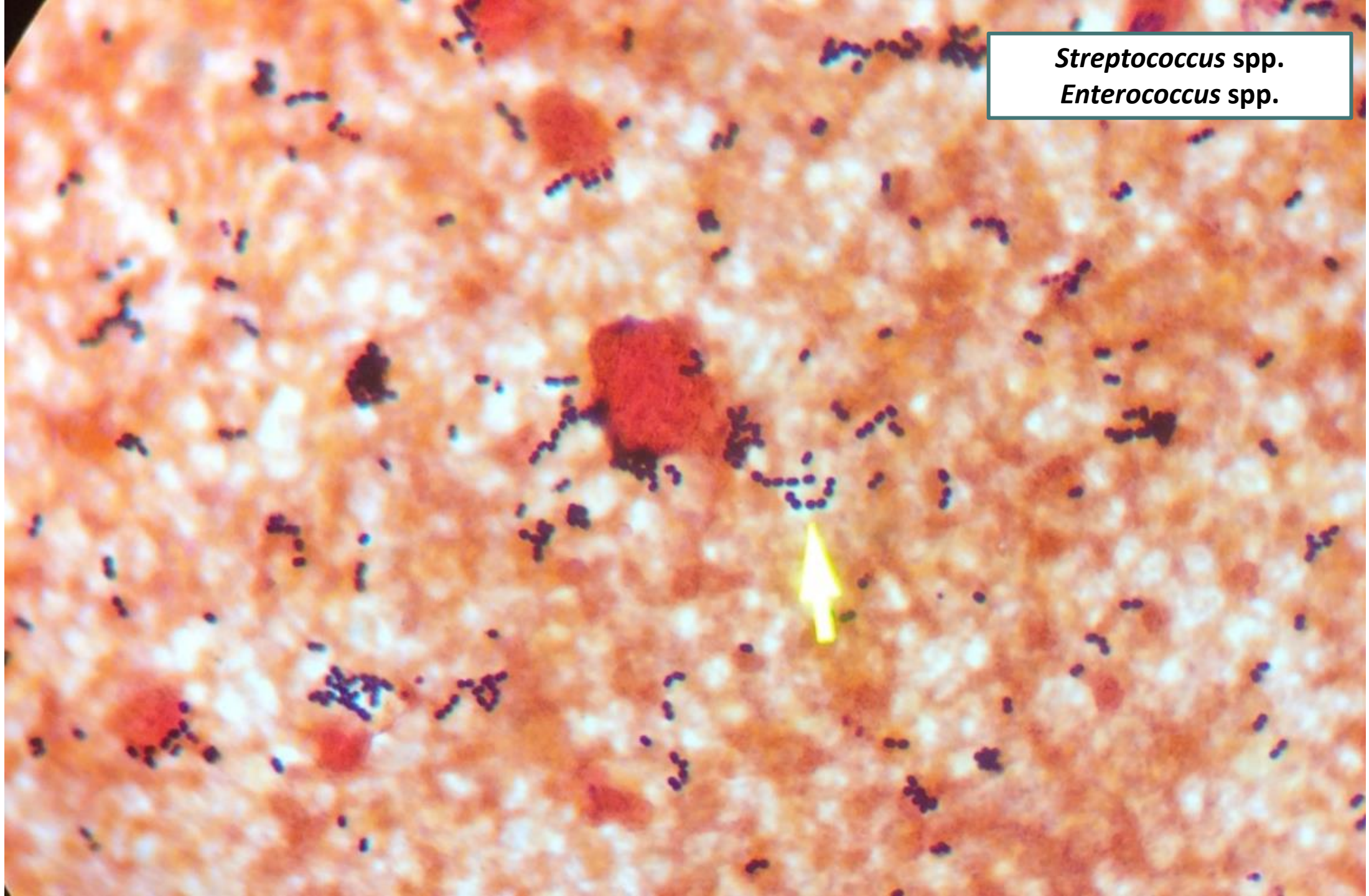


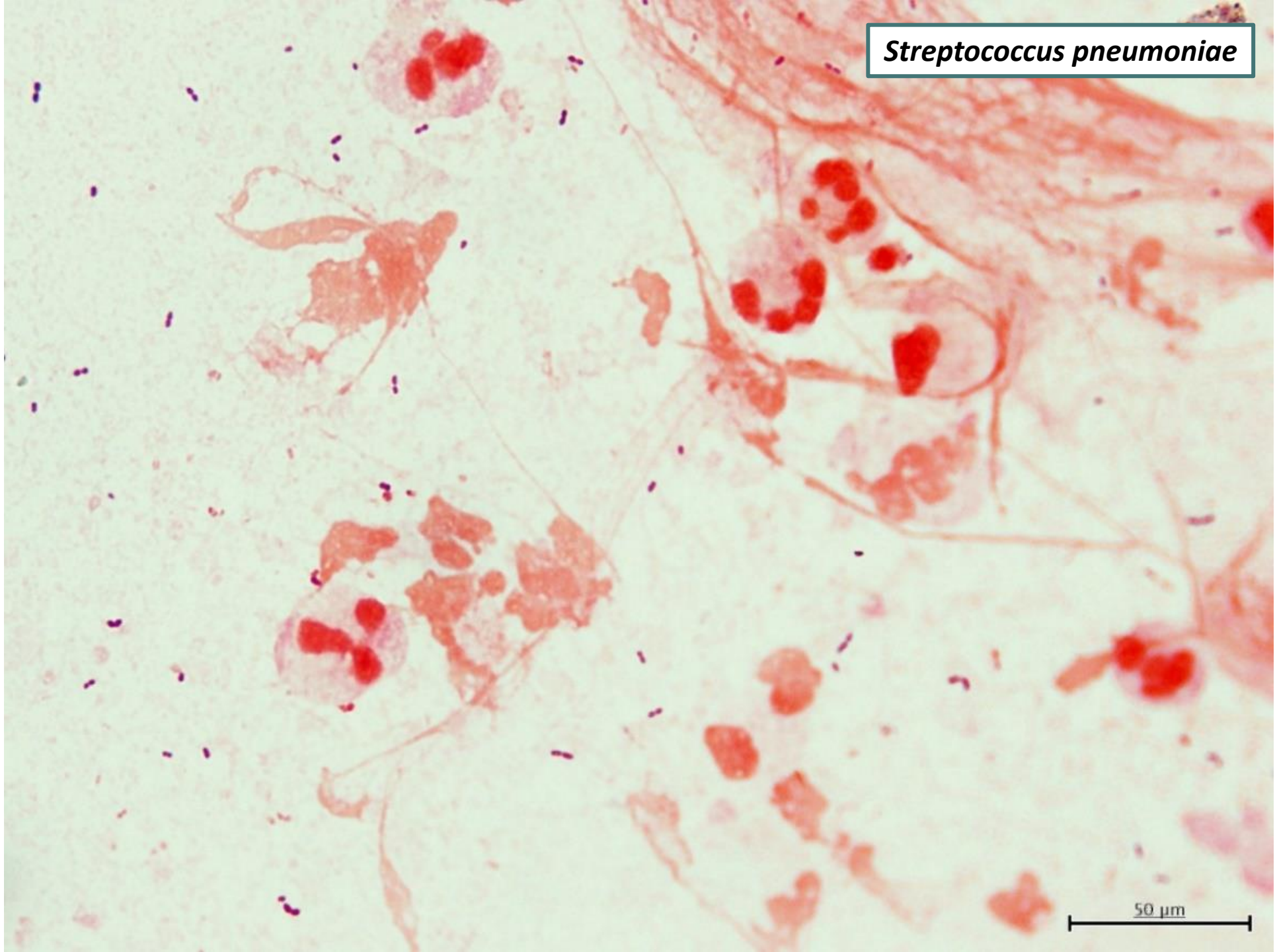
***Streptococcus* spp.**
***Enterococcus* spp.**



Streptococcus pneumoniae


Staphylococcus spp.
50 µm


Streptococcus spp.
Enterococcus spp.


Streptococcus pneumoniae
50 µm

Q1: A 60-year-old man with lymphoma had febrile neutropenia after R-CHOP.

No response after 5 days of ceftazidime.

H/C grew the organism as shown.

Which of the following is

the most appropriate management?

A. Add cloxacillin

B. Add vancomycin

C. Add fosfomycin

D. Switch to piperacillin/tazobactam & cloxacillin

E. Switch to piperacillin/tazobactam & vancomycin

Streptococcus & Enterococcus

Species	Susceptible hosts	Common clinical syndromes	IV ATB
Streptococcus pyogenes (GAS)	Normal host	• Acute pharyngotonsilitis • Skin and soft tissue infection & TSS • Acute rheumatic fever and post-streptococcal GN	PGS (no AST required)
Streptococcus agalactiae (GBS)	Pregnancy Elderly DM, CKD Cancer	• Peripartum sepsis and neonatal infection • Primary bacteremia • Skin and soft tissue infection • Septic arthritis (mono-polyarthritis)	
Streptococcus pneumoniae	HIV Asplenia Elderly Rituximab	• Pneumonia • Meningitis • Invasive pneumococcal disease (IPD)	Ceftriaxone

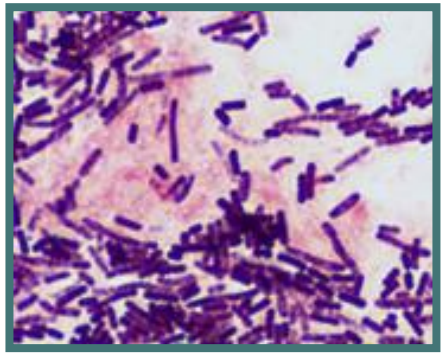
Streptococcus & Enterococcus

Species	Susceptible hosts	Common clinical syndromes	IV ATB
S. suis	Normal host (Exposure to pork 50%)	• Meningitis • Bacteremia, IE	Ceftriaxone
S. gallolyticus *S. pasterianus* (GDS)	Elderly Chronic liver disease	• Bacteremia • IE • Hepatobiliary tract infections and IAI • Associated with colonic cancer (*S. gallolyticus*)	
Viridans streptococci	Preexisting valve Neutropenia	• Bacteremia in neutropenic host • Subacute IE • Deep seated abscess (*S. anginosus* group)	
Enteroccoccus	Elderly Broad spectrum ATB	• Bacteremia • Intra-abdominal infection • Urinary tract infection	Ampicillin *(E. faecalis)* Vancomycin *(E. faecium)*

Common Gram-positive bacilli

Spore forming

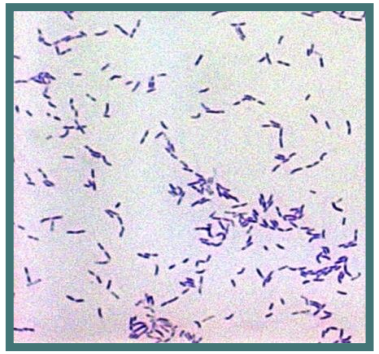
Large, boxy



Bacillus
Clostridium
(anaerobe)

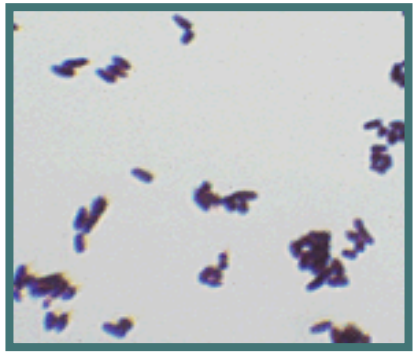
Non-spore forming

Small regular



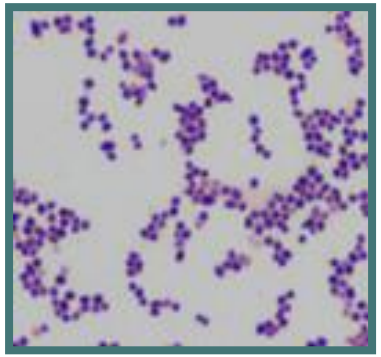
Listeria
Erysipelothrix
(variable length & can be gram variable)

Club shape



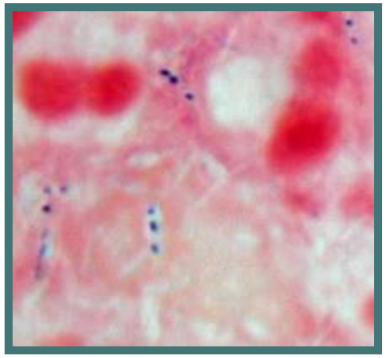
Corynebacterium
Cutibacterium
(anaerobe)

Coccobacilli



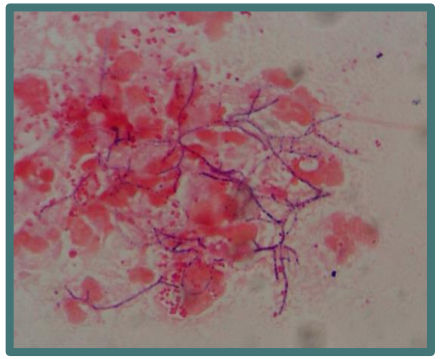
Gardnerella
Rhodococcus
(mAFB +)

Beaded/Ghost

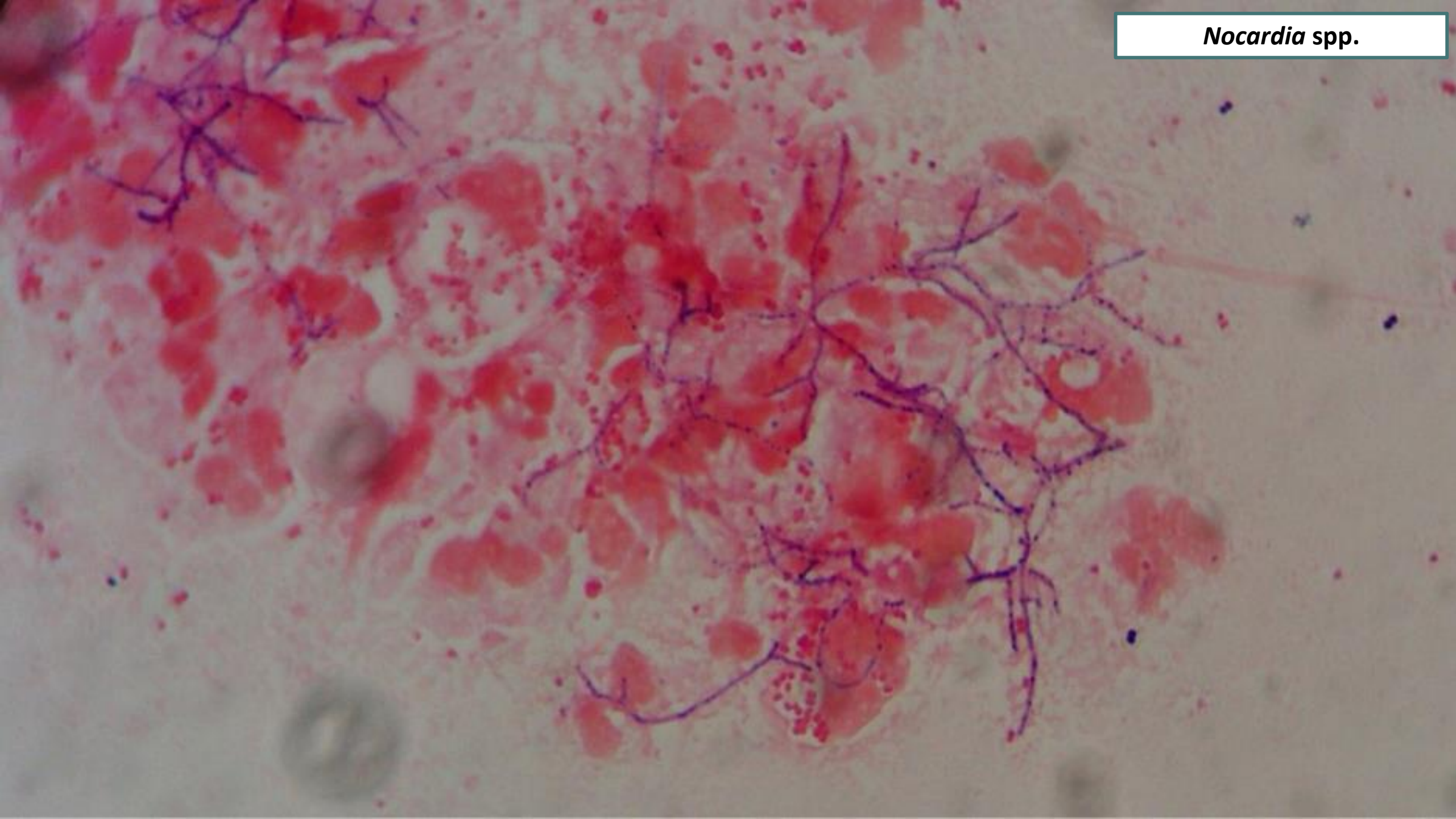


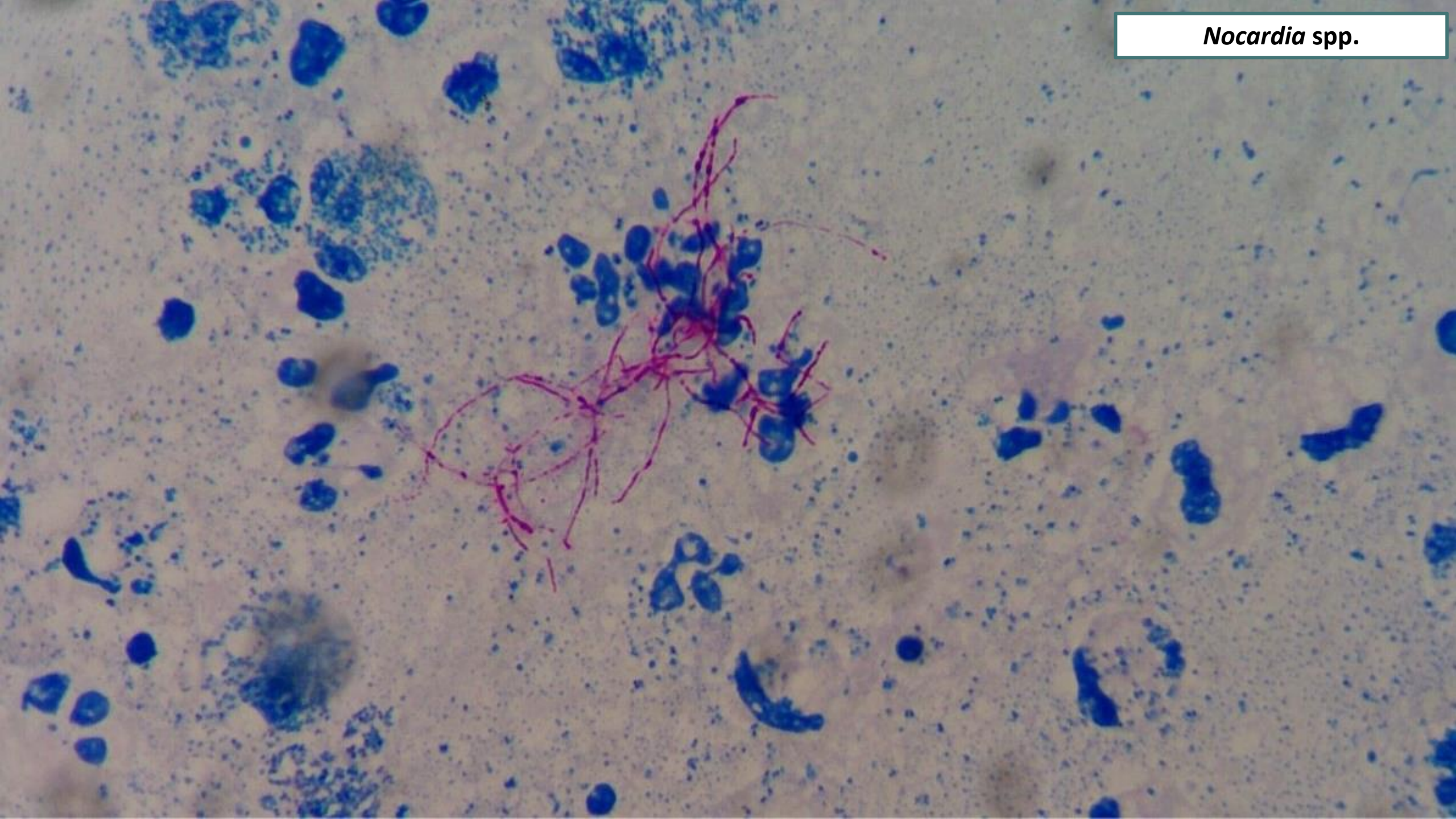
Mycobacteria
(AFB +)

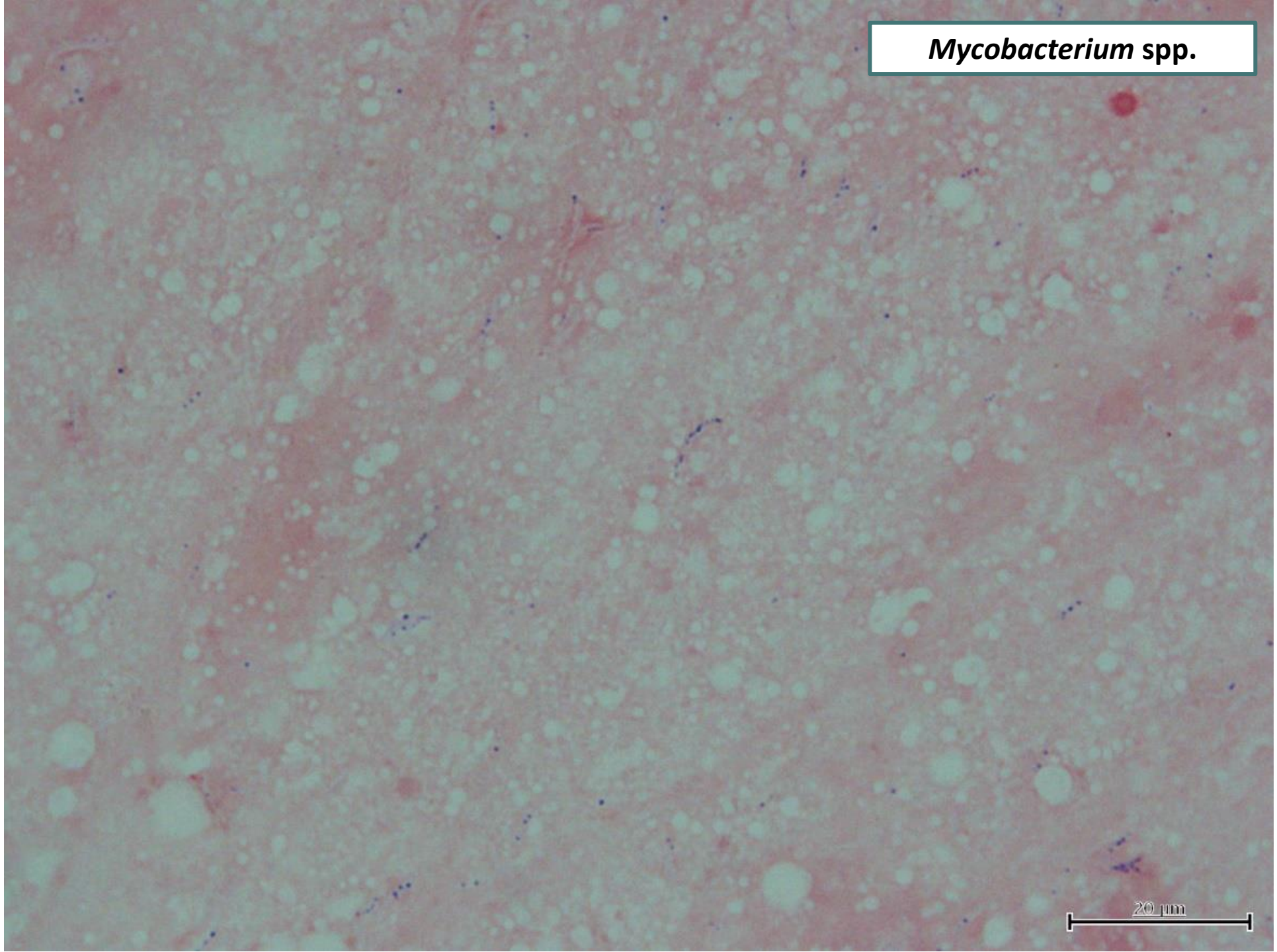
Branching

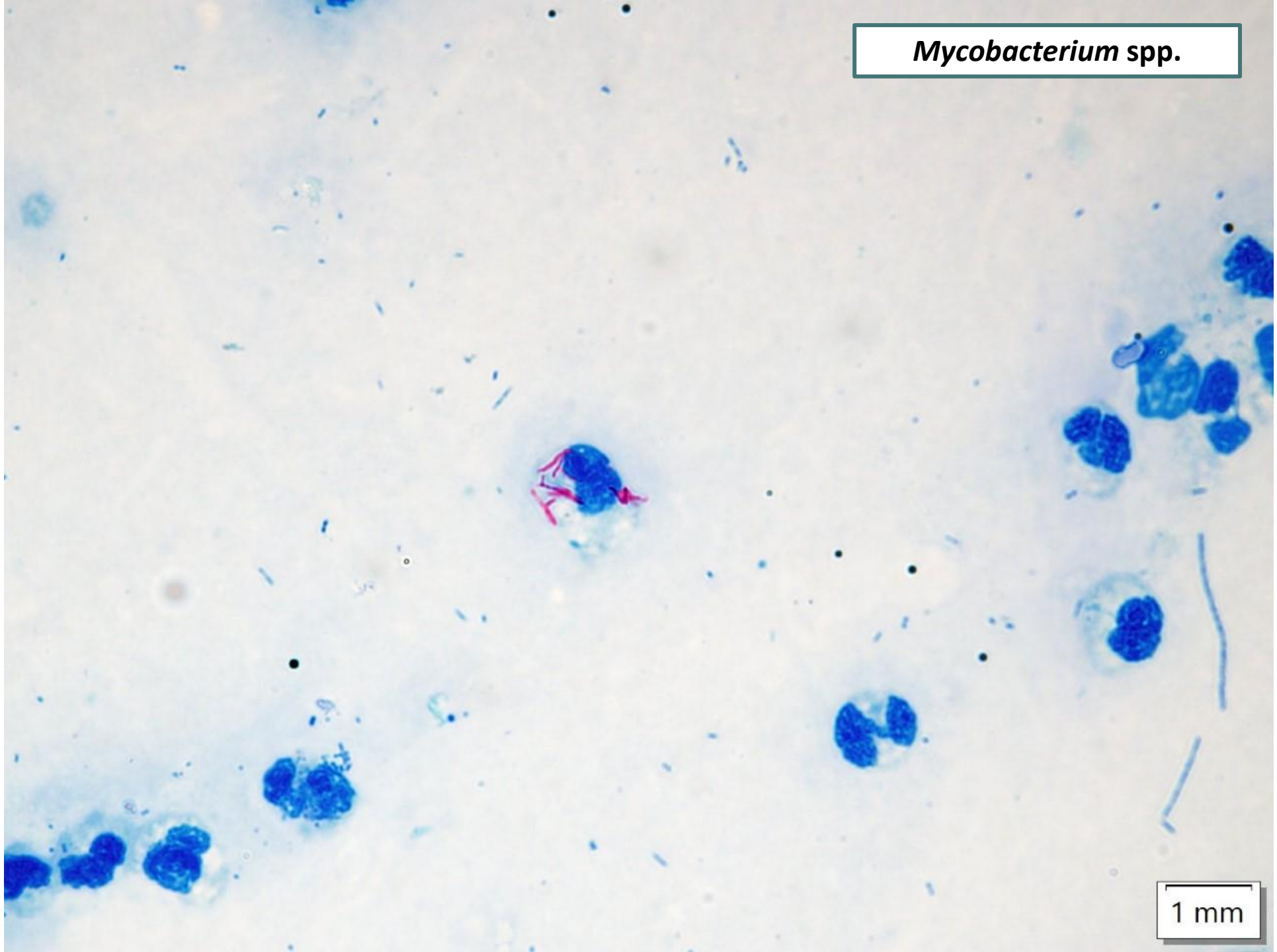


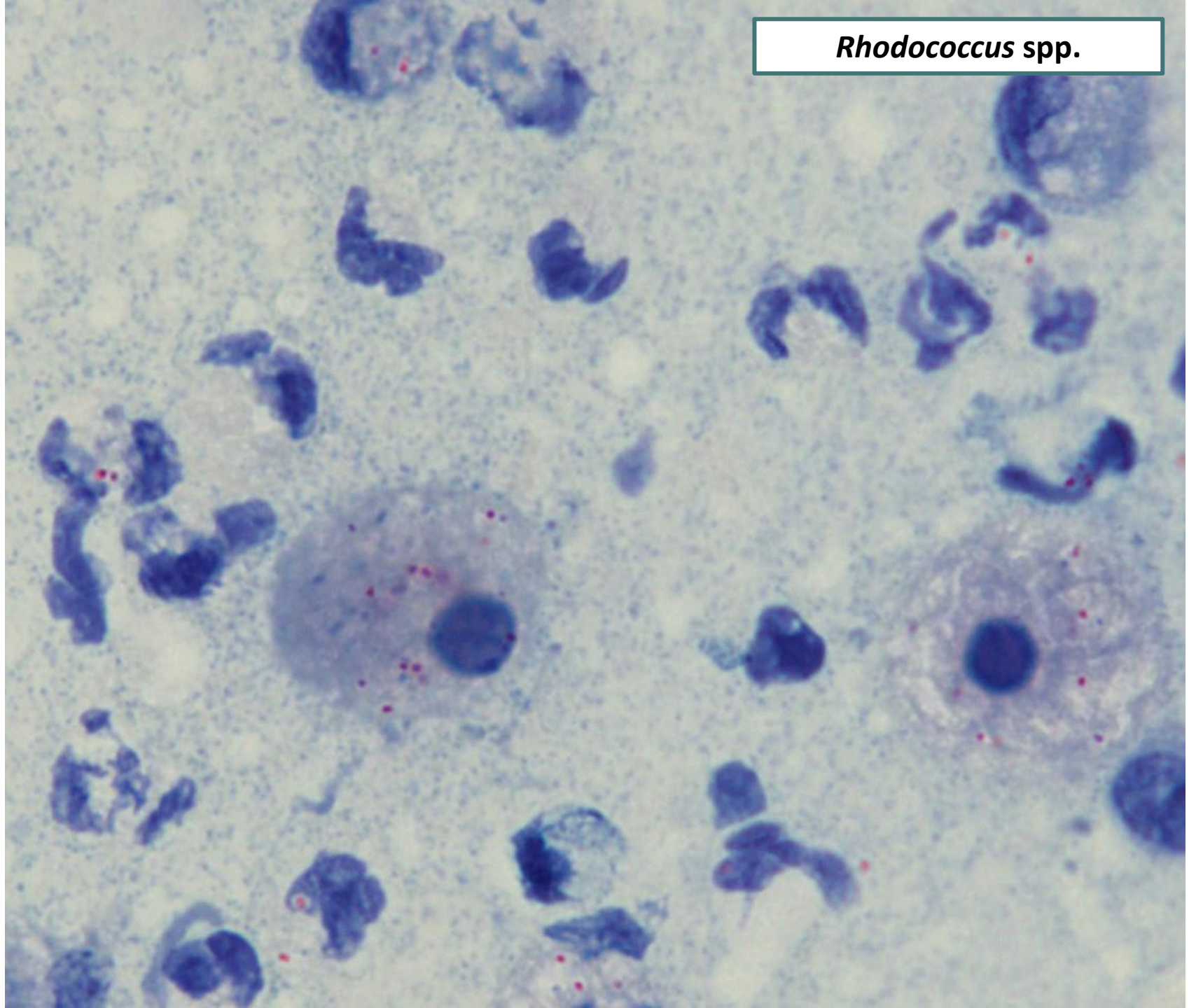
Actinomyces (mAFB -)
Nocardia (mAFB +)


Nocardia spp.


Nocardia spp.


Mycobacterium spp.
20 µm


Mycobacterium spp.
1 mm


Rhodococcus spp.

Q2: A 75-year-old diabetic female presented with fever & left hemiparesis for 1 day.

MRI brain showed rim-enhancing lesions at right thalamus & pons.

Blood culture Gram stain as shown.

Which of the following is the most likely causative agent?

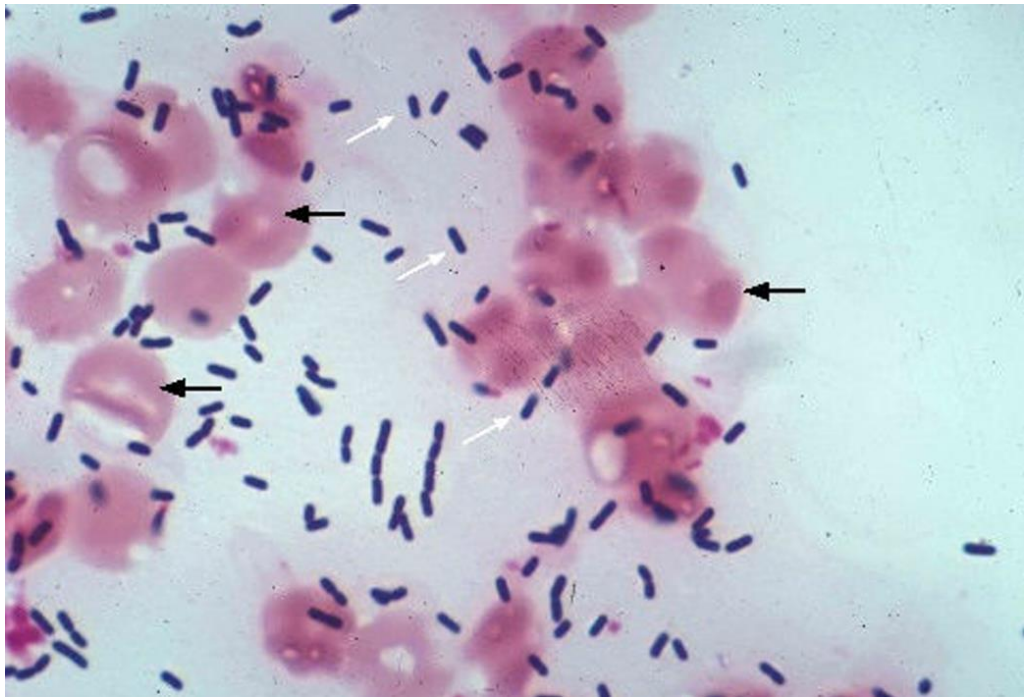
A. *Bacillus* sp.

B. *Actinomyces* sp.

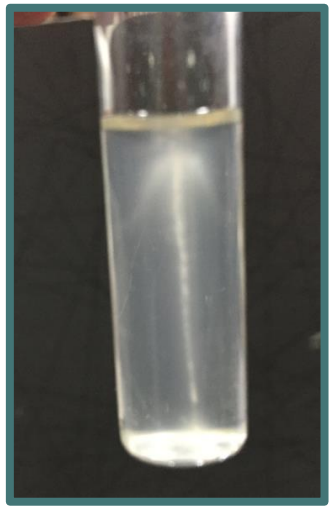
C. *Streptococcus agalactiae*

D. *Listeria monocytogenes*

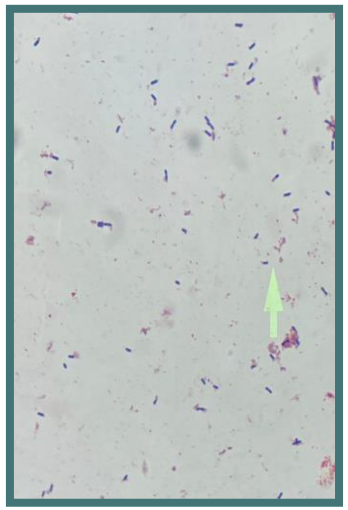
E. *Erysipelothrix rhusiopathiae*



Listeriosis



Umbrella motility



Susceptible host: pregnancy (3rd trimester), steroid use, elderly

Route: food-borne (raw vegetable, dairy product)

Clinical syndrome

- Self-limit gastroenteritis
- Bacteremia
- CNS infection: subacute meningoencephalitis (L predominate), rhombencephalitis, brain abscess

Treatment

- Ampicillin
- Intrinsic R to 3rd generation cephalosporin

Q3: A 65-year-old man presented with fever & chills for 3 days.

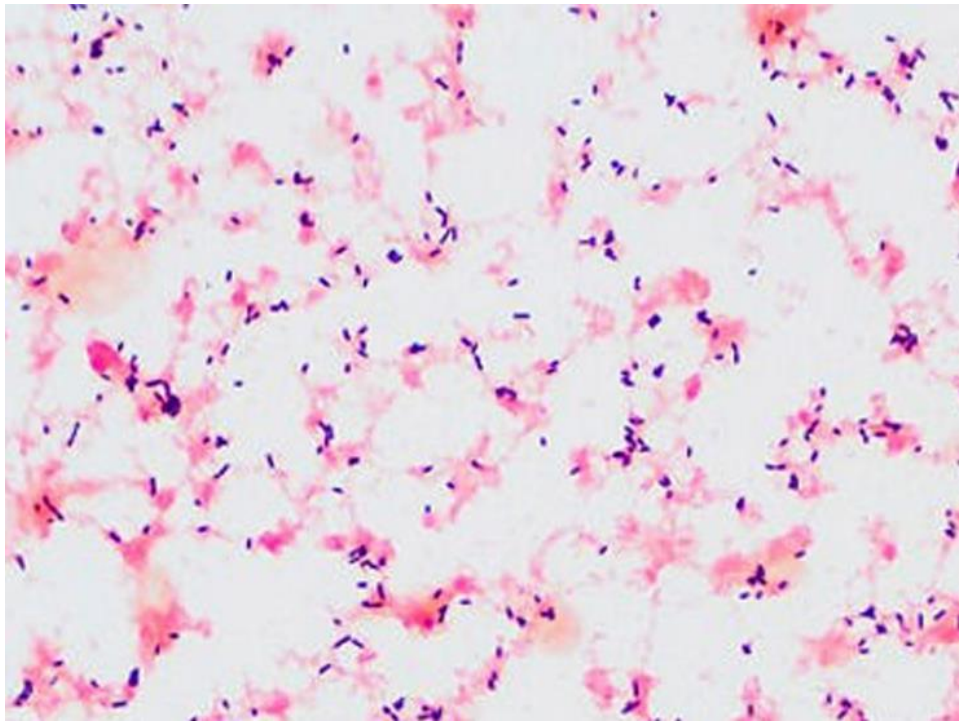
He & his friends had a self-limited watery diarrhea 7 days ago.

PE: pansystolic murmur grade IV at mitral valve area; nontender hemorrhagic macules at both palms; tender raised lesions at left palm.

Which of the following is

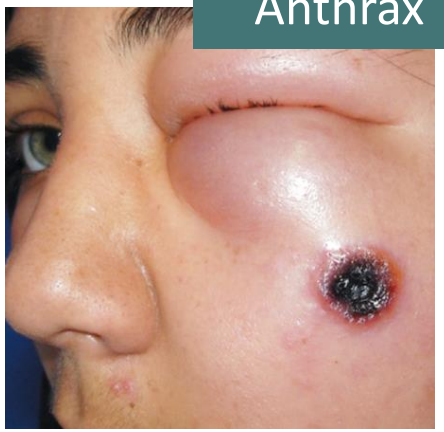
the most appropriate treatment?

A. Ampicillin
B. Ceftriaxone
C. Vancomycin
D. Ampicillin + gentamicin
E. Vancomycin + gentamicin



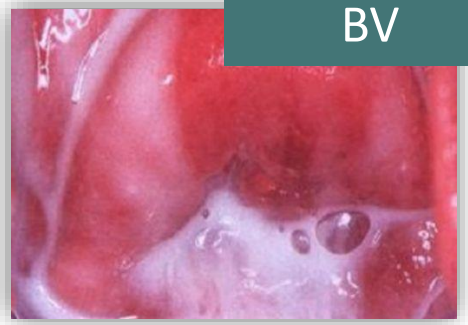
Species	Clinical syndrome
Bacillus anthracis	• Anthrax
Bacillus cereus	• Food poisoning (fried rice, onset 2-6 h) • CRBSI & febrile neutropenia
Clostridium perfringens	• Food poisoning • Traumatic gas gangrene & TSS
Clostridium tetani	• Tetanus
Clostridium botulinum	• Botulism
Clostridium septicum	• Neutropenic enterocolitis • Spontaneous gas gangrene
Clostridioides difficile	• Nosocomial diarrhea
Erysipelothrix rhusiopathiae	• Erysipeloid • Septicemia associated with IE
Cutibacterium acnes	• Acne • Shoulder prosthetic joint infection
Gardnerella vaginalis	• Bacterial vaginosis

Anthrax



Erysipeloid

BV



Q4: A 20-year-old pregnancy woman presented with fever & pubic pain for 1 day.

She had a history of criminal abortion 5 days ago.

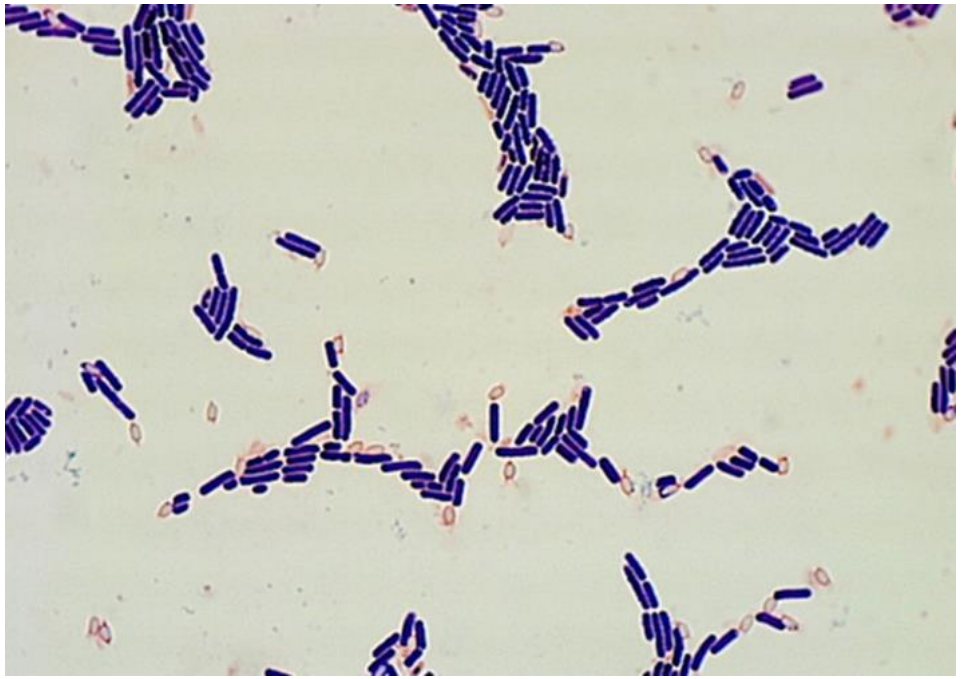
PE: BP 80/50 mmHg, HR 140/min, abdominal generalized guarding.

PV: foul smell discharge per os, cervical motion tenderness.

Discharge Gram-stain as shown.

Which of the following is the most likely causative pathogen?

A. *Actinomyces israelii*
B. *Bacillus cereus*
C. *Clostridium sordellii*
D. *Lactobacillus acidophilus*
E. *Nocardia abscessus*



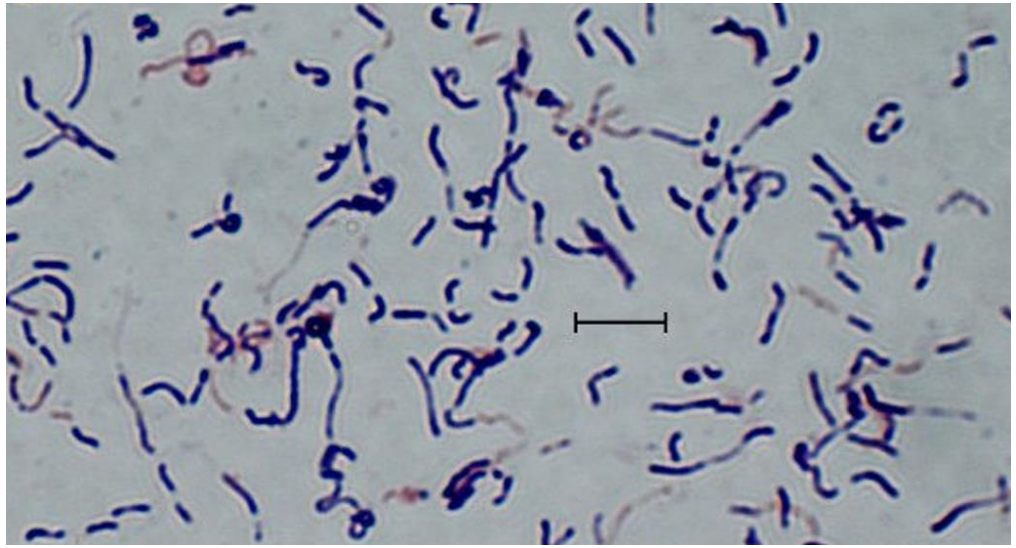
Q5: A 40-year-old woman presented with fever & dyspnea for 2 weeks.

PE: nontender skin nodules at both soles, palpebral conjunctival petechiae and diastolic blowing murmur grade IV at aortic valve area.

Hemocultures grew the organism as shown.

Which of the following is the best agent?

A. PGS
B. Vancomycin
C. Ampicillin + gentamicin
D. Ampicillin + ceftriaxone
E. Cloxacillin + ampicillin + gentamicin



Q6: A 60-year-old S/P right TKA 6 years ago presented with painful & swelling at his right knee for 4 months.
Arthrocentesis showed numerous neutrophils & negative Gram stain.
The organism grew in anaerobic condition after 3 days incubation as shown.

Which of the following is the most likely organism?

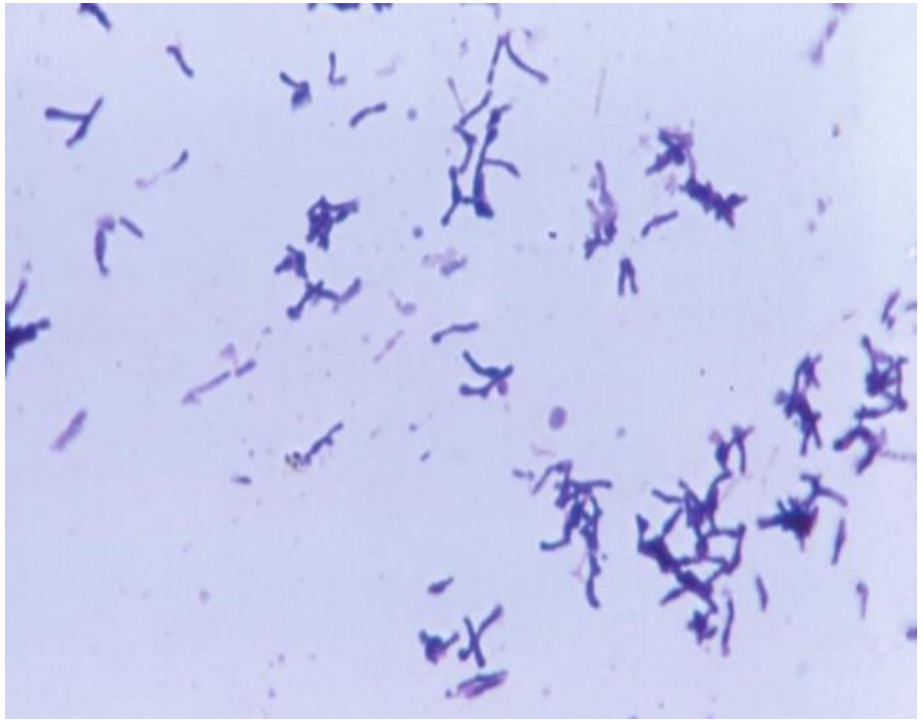
A. *Bacillus subtilis*

B. *Cutibacterium acnes*

C. *Clostridium perfringens*

D. *Corynebacterium jeikeium*

E. *Erysipelothrix rhusiopathiae*



Q7: A 40-year-old man with lupus & G-6PD deficiency presented with fever & progressive dyspnea for 1 week.

He has been treated with prednisolone 60 mg/day for 3 months.

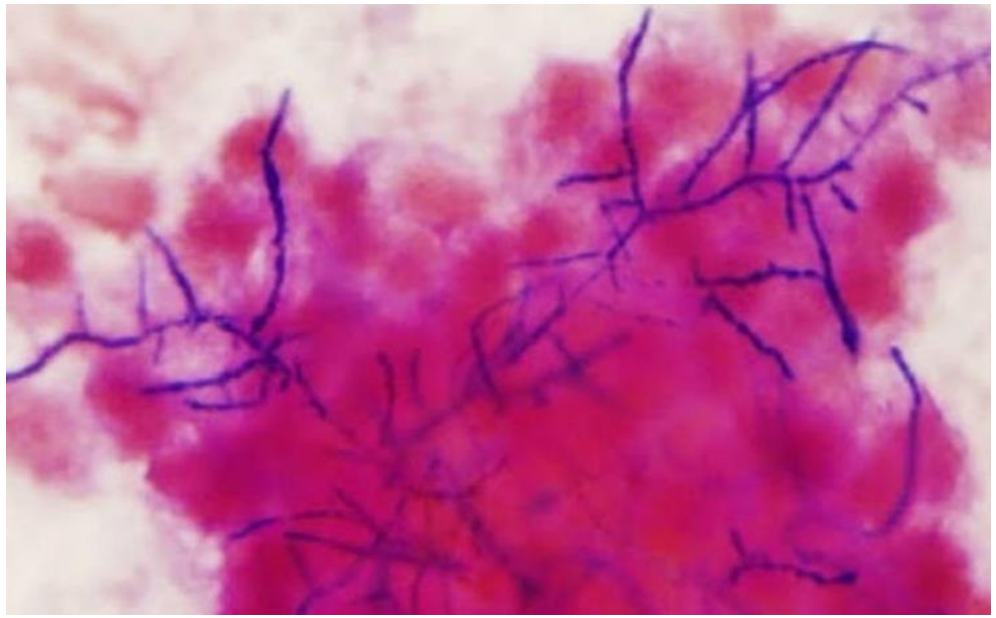
PE: fever and respiratory distress, SpO_2 92% RA.

Sputum Gram-stain as shown.

Which of the following

is the most appropriate treatment?

A. Ampicillin
B. Azithromycin
C. Ceftazidime
D. Co-trimoxazole
E. Imipenem



ATB that should be avoided in …

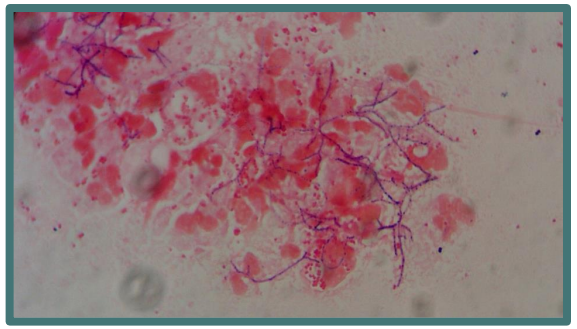
Pregnancy

- Fluoroquinolone
- Chloramphenicol
- Aminoglycosides
- Tetracycline
- Sulfonamide in near-born
- Ribavirin

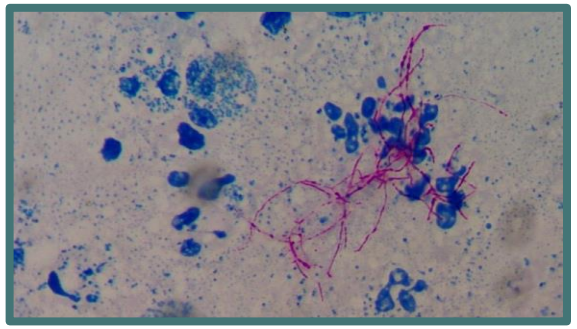
G-6PD deficiency

- Fluoroquinolone
- Chloramphenicol
- Sulfonamide
- Nitrofurantoin
- Primaquine
- Quinine

Nocardiosis



Gram-positive branching filamentous bacteria



mAFB-positive branching filamentous bacteria

Gram & mAFB-positive branching bacilli

Susceptible host: AIDS (CD4 < 100), steroid use, transplant

Route: Inhalation or traumatic inoculation

Clinical syndrome

- Pneumonia: subacute to chronic, consolidation w/wo cavity
- Brain abscess: may have daughter abscess
- Cutaneous: ulcer, abscess, sporotrichoid lesion, mycetoma

Treatment

- Severe cases: imipenem/amikacin + co-trimoxazole x 3-6 weeks then co-trimoxazole (TMP 15 mKD) 6-12 months

Q8: A 70-year-old woman presented with fever, productive cough and dyspnea for 1 week.

She was recently admitted for 3 days due to near-drowning which occurred 3 weeks ago.

PE: fine crackles at right lower lobe.

Sputum Gram stain is shown in the figure.

She had a history of type I allergy to sulfonamide antibiotics.

Which of the following

is the most appropriate treatment?

A. Penicillin G sodium
B. Amoxicillin/clavulanate
C. Linezolid
D. Amphotericin B
E. Voriconazole

Q9: A 65-year-old alcoholic man presented with fever & non-massive hemoptysis, & weight loss of 10 kg for 1 month.

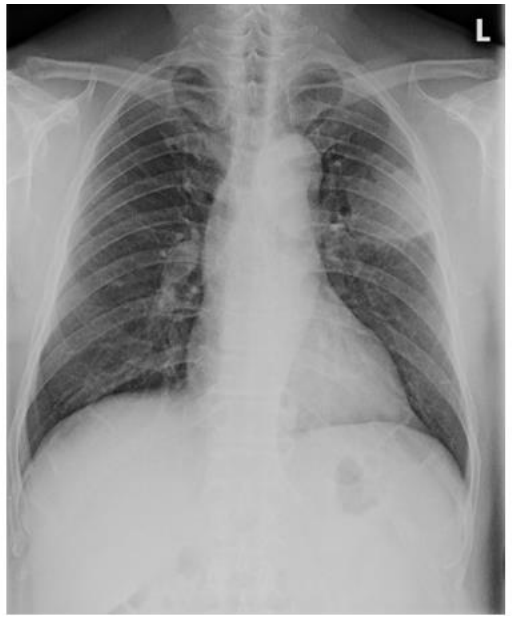
PE: BT 36.5°C, BP 140/70 mmHg, PR 70/min, and RR 20/min.

CXR and sputum Gram stain are shown as figures.

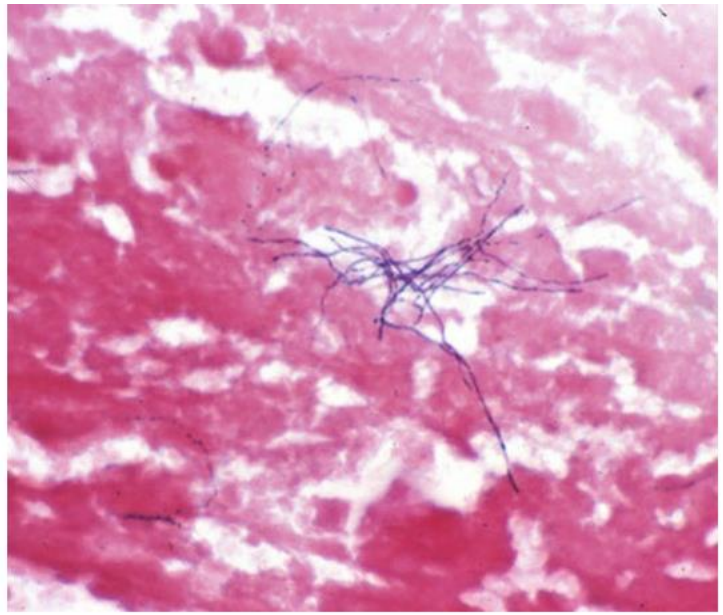
Which of the following is the most appropriate antimicrobials?

A. HRZE
B. Penicillin
C. Co-trimoxazole
D. Azithromycin
E. Levofloxacin

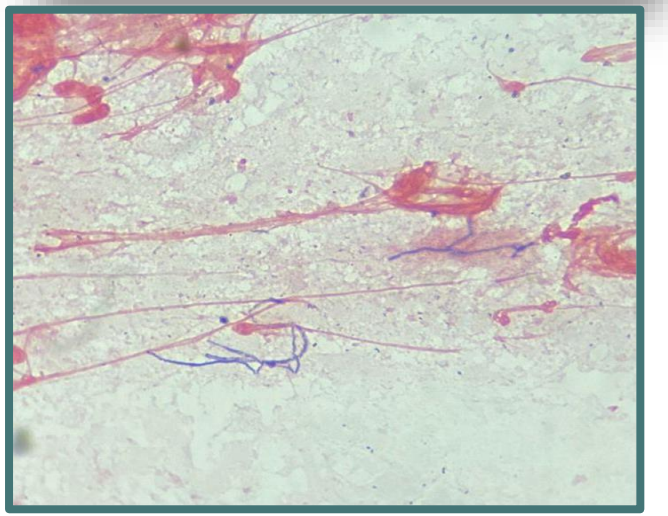
A.



B.



Actinomycosis



Gram-positive & mAFB-negative branching bacilli

Clinical syndrome

- Orocervical: poor denture, bisphosphonate
- Thoracic: aspiration, esophageal perforation
  → lung abscess & empyema
- Abdominal: occult GI perforation, fish bone
- Pelvic: IUD

Treatment

- PGS, amoxicillin, doxycycline 3-6 months
- Resistant to dicloxacillin, cephalexin & metronidazole

Q10: A 45-year-old HIV-infected male presented with fever & productive cough for 2 weeks.

CXR and sputum Gram stain as shown.

What is the most appropriate management?

A. PGS
B. Co-trimoxazole
C. Ceftriaxone + azithromycin
D. Vancomycin, imipenem, rifampicin
E. Meropenem + co-trimoxazole

figure 1.

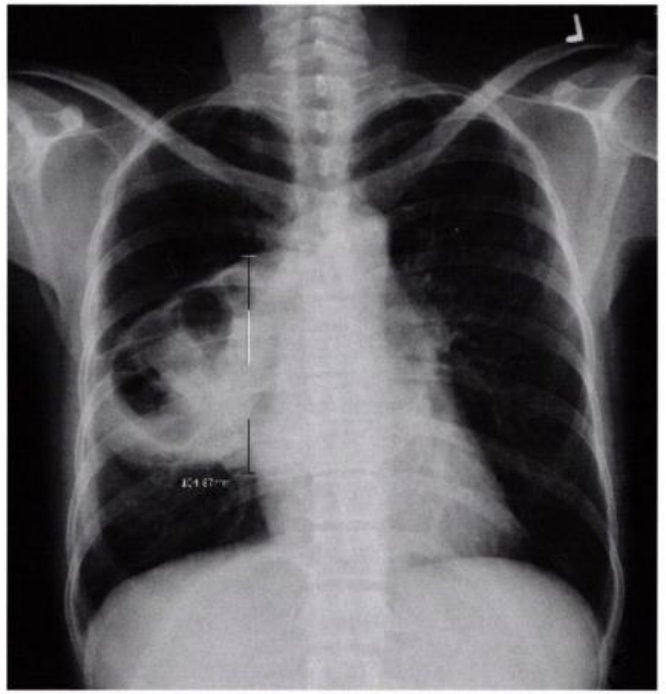
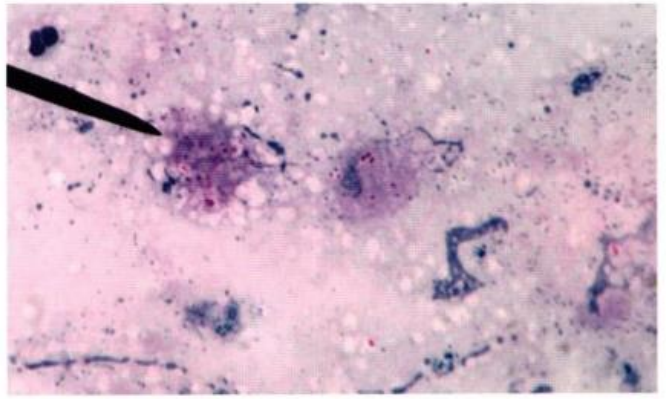
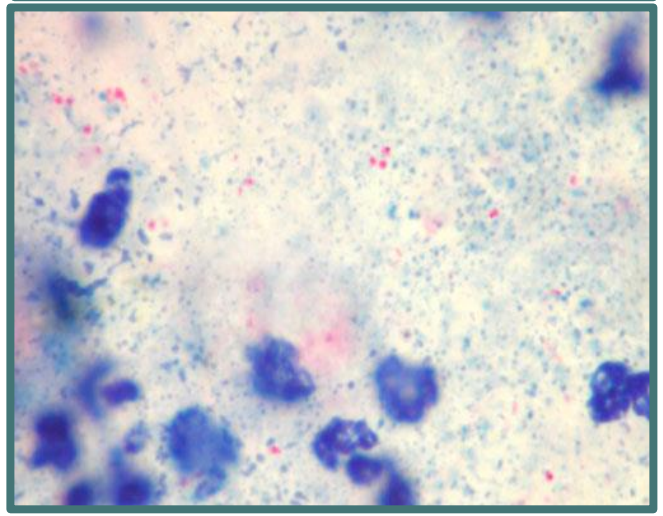


figure 2.



Rhodococcosis



Gram-positive & mAFB-positive coccobacilli

Susceptible host: same as nocardiosis

Clinical syndrome

- Subacute pneumonia mimicking TB (consolidation & cavity)
- Extrapulmonary: brain & skin abscess

Treatment

Combination of two drugs

- Levofloxacin or ciprofloxacin, rifampicin, azithromycin
- Alternative: Imipenem, vancomycin
- At least 2 months then secondary prophylaxis

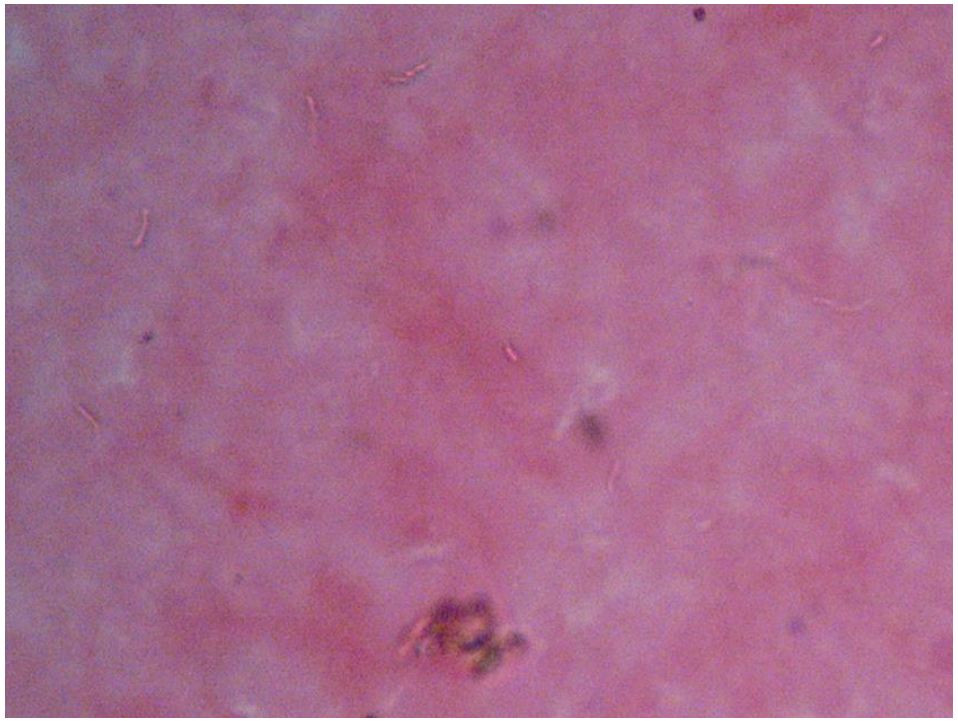
Q11: A 35-year-old man with HIV presented with prolonged fever & hemiparesis.

CT scan: multiple ring-enhancing lesions at basal ganglia and brainstem.

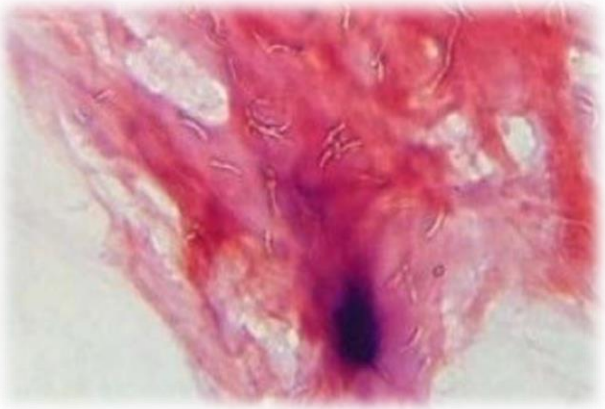
Pus aspirate gram stain as shown.

What is the most likely pathogen?

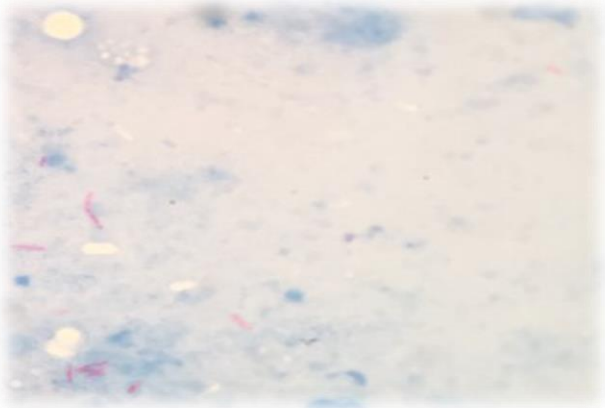
A. *Nocardia*
B. *Mycobacterium*
C. *Toxoplasma*
D. *Cryptococcus*
E. *Klebsiella*



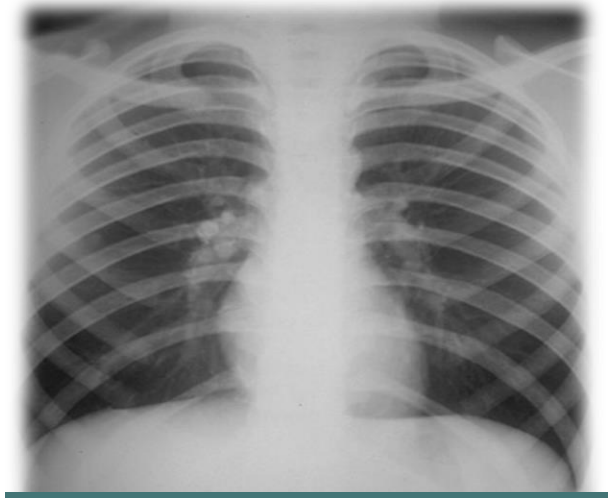
Tuberculosis



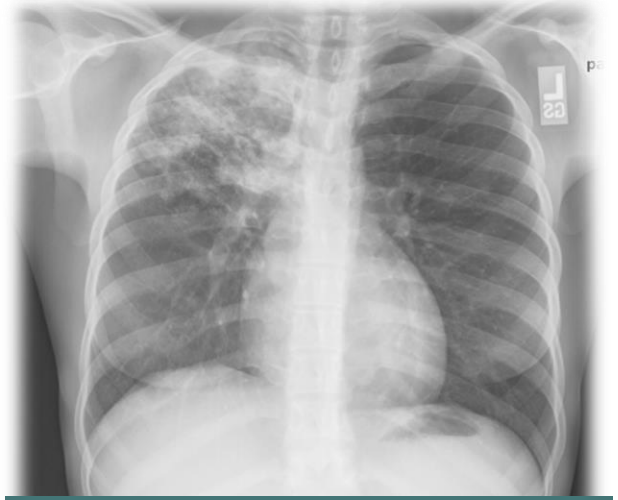
Gram ghost



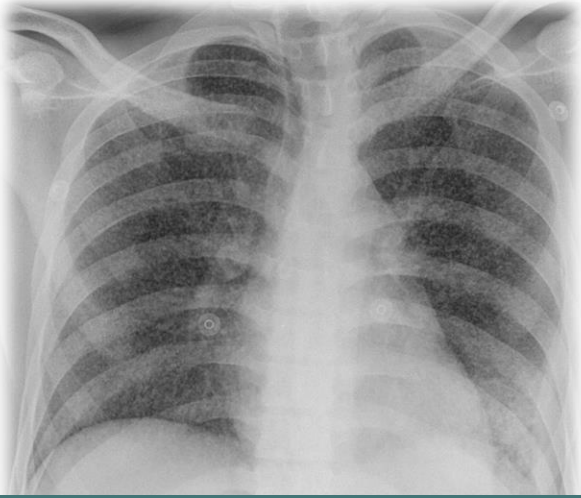
AFB +ve



Primary TB



Post-primary TB



Miliary TB

Q12: A 35-year-old SLE female presented with subcutaneous abscess at right arm.

Pus AFB & modified AFB are shown.

PCR for *Mycobacterium tuberculosis* was negative.

Which of the following is

the most appropriate empirical antimicrobial therapy?

A. Ceftriaxone

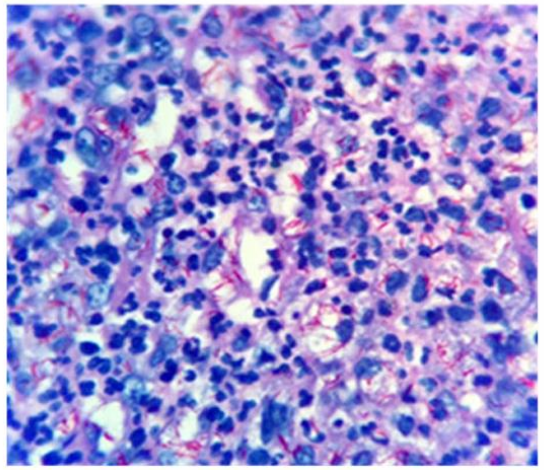
B. Cotrimoxazole

C. Imipenem/cilastatin

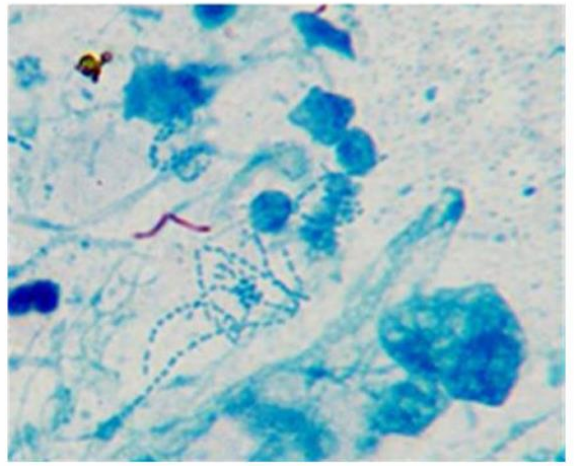
D. Moxifloxacin and azithromycin

E. Isoniazid, rifampicin, and ethambutol

A.



B.

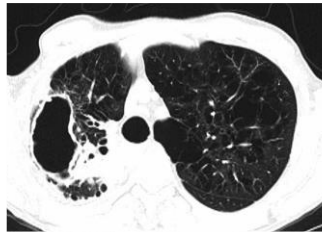


Nontuberculous mycobacteria

Cutaneous: fish tank granuloma (*M. marinum*), trauma or cosmetic related (RGM esp. *M. abscessus*)

Disseminated disease: LN + reactive skin in anti-IFN gamma autoAb (*M. abscessus,* MAC), HIV (MAC)

Pulmonary disease (Require 2 sputum C/S or 1 BAL C/S for diagnosis)



Fibrocavitary disease

Male smokers; usually early 50S

- Upper lobe cavitary
- MAC, *M. kansasii*

Nodular bronchiectasis

Female nonsmokers; usually > 60 year

- RML and lingular lobe nodular bronchiectasis
- MAC, *M. abscessus*

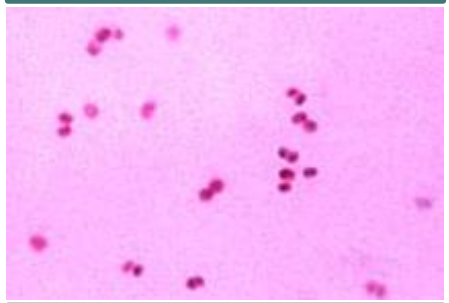
Hypersensitivity pneumonitis

Younger; usually non-smoker

- Diffuse reticulonodular infiltration, GGO
- MAC (hot tub), *M. immunogenum* (metal working)

Common Gram-negative pathogens

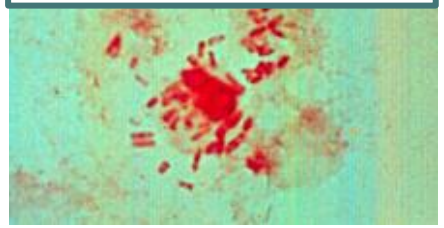
Cocci



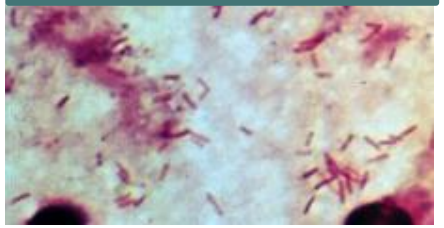
Neisseria, Moraxella

Bacilli/coccobacilli

Regular
Enterobacterales

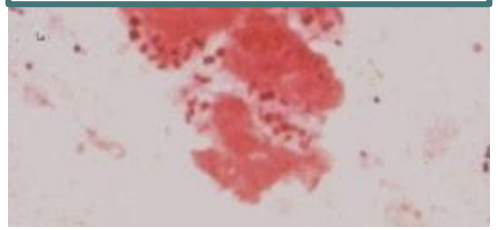


Slender
PsA, Steno, Burkholderia

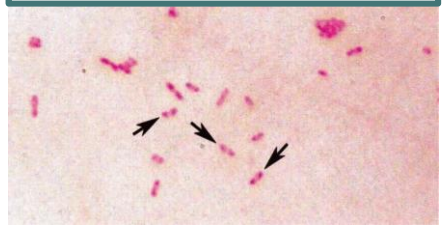


Curved
Vibrio, Campylobacter, Helicobacter

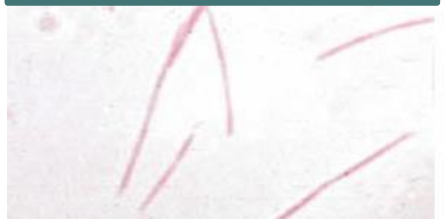
Coccobacilli
Acinetobacter



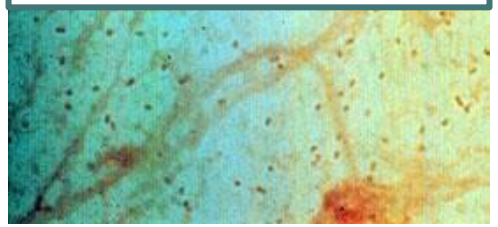
Bipolar staining
Enterobacterales
B. pseudomallei, Y. pestis

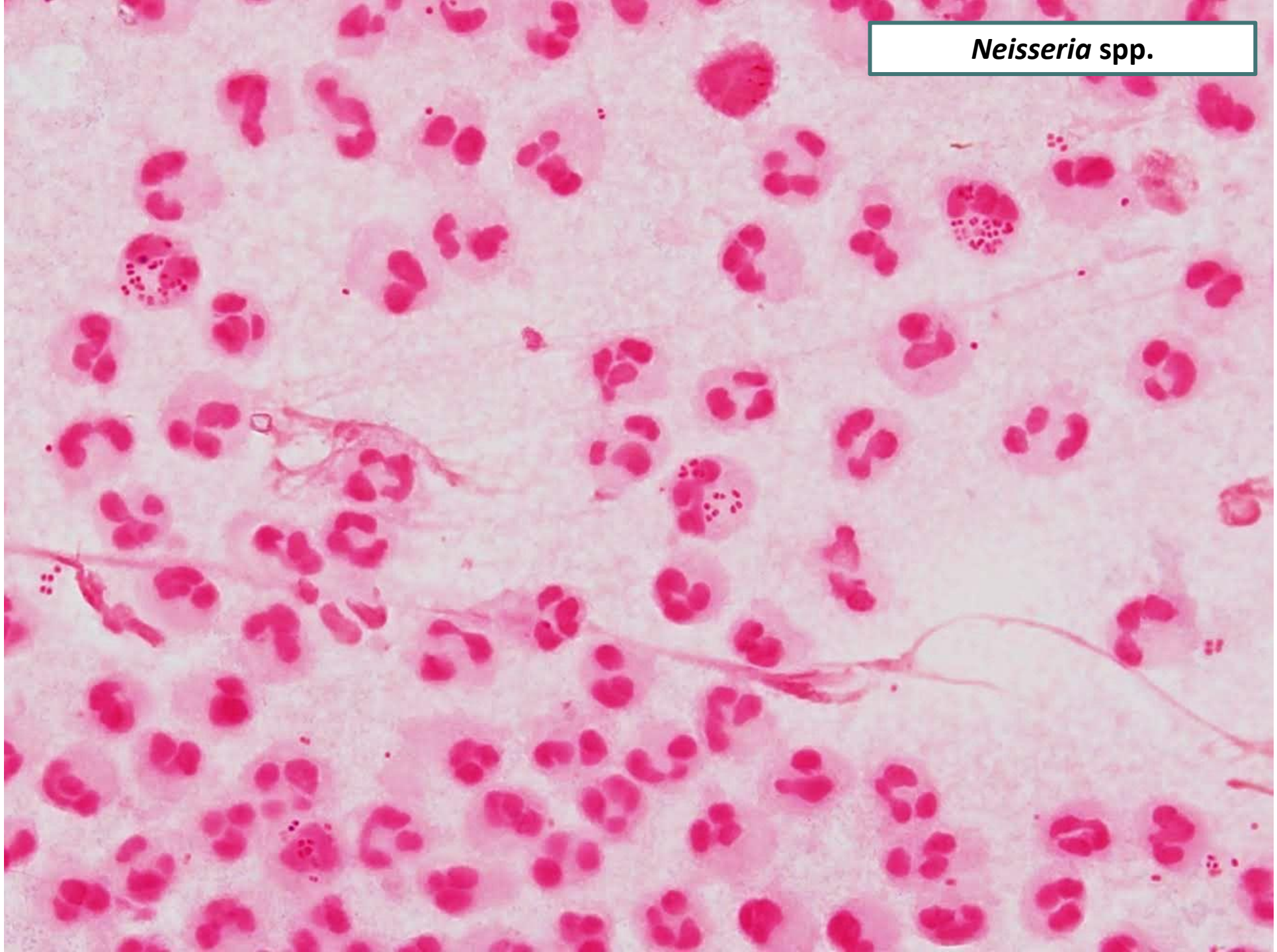


Fusiform
Capnocytophaga, Fusobacterium

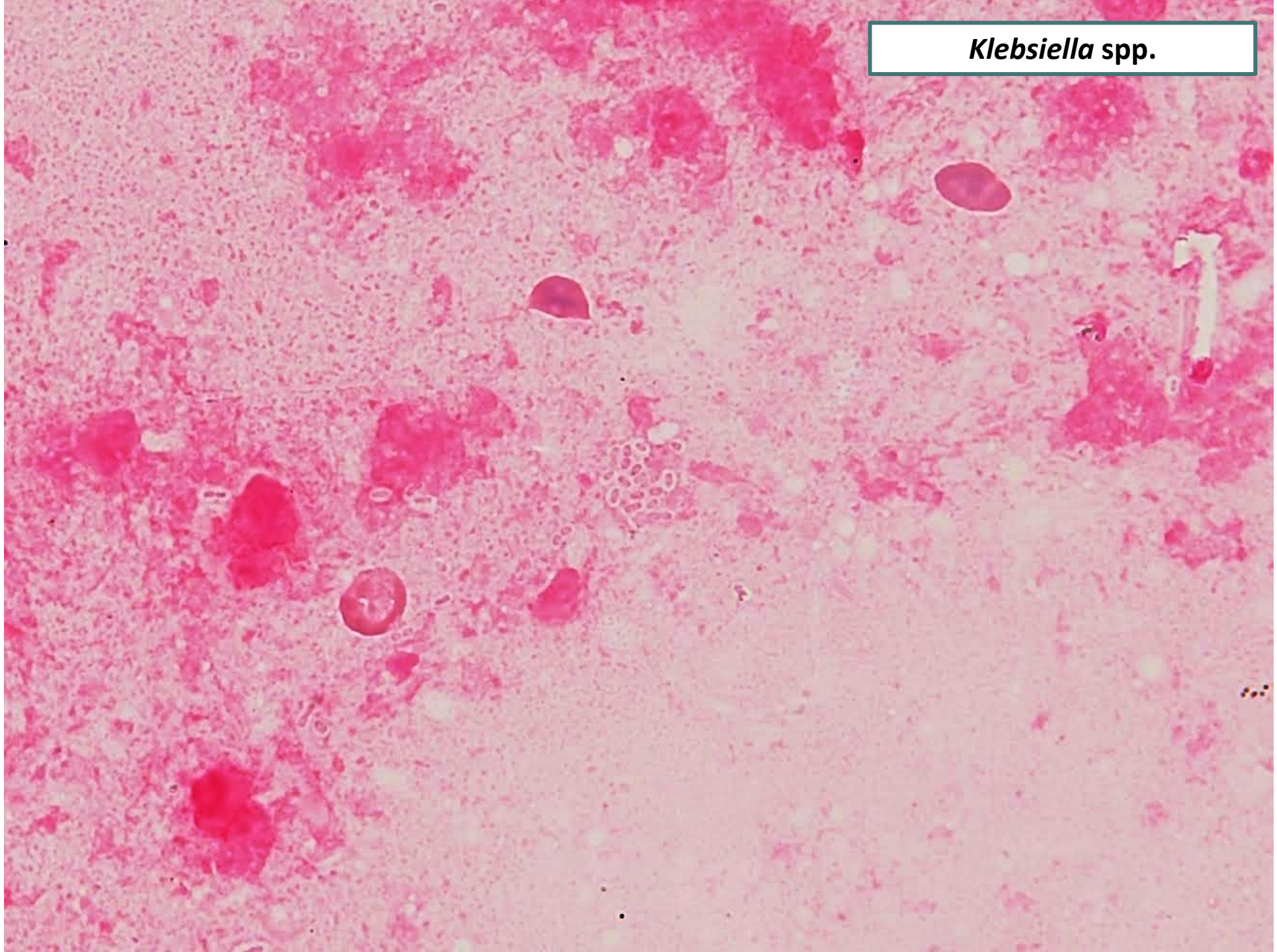


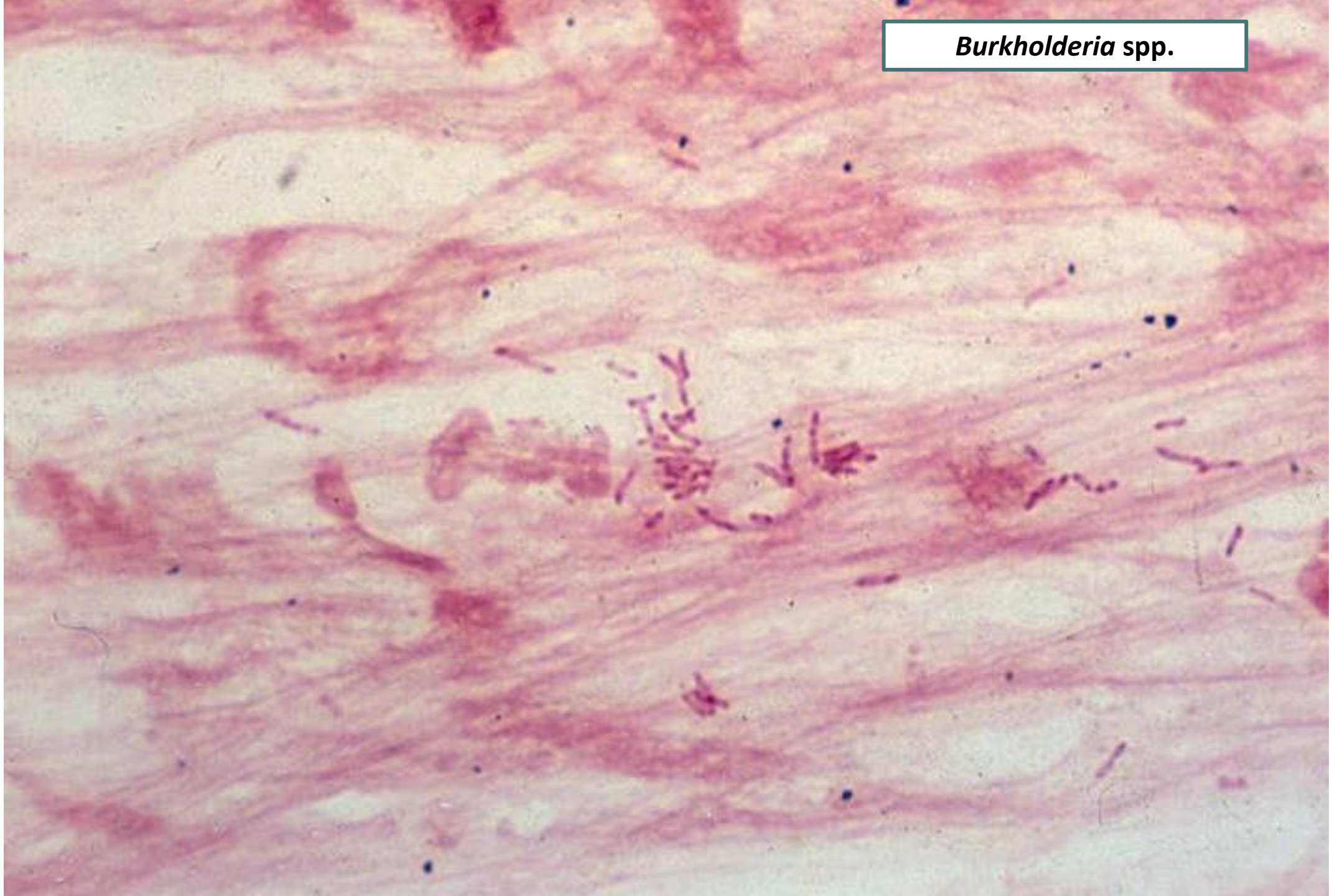
Small coccobacilli
Haemophilus, Brucella, Pasteurella

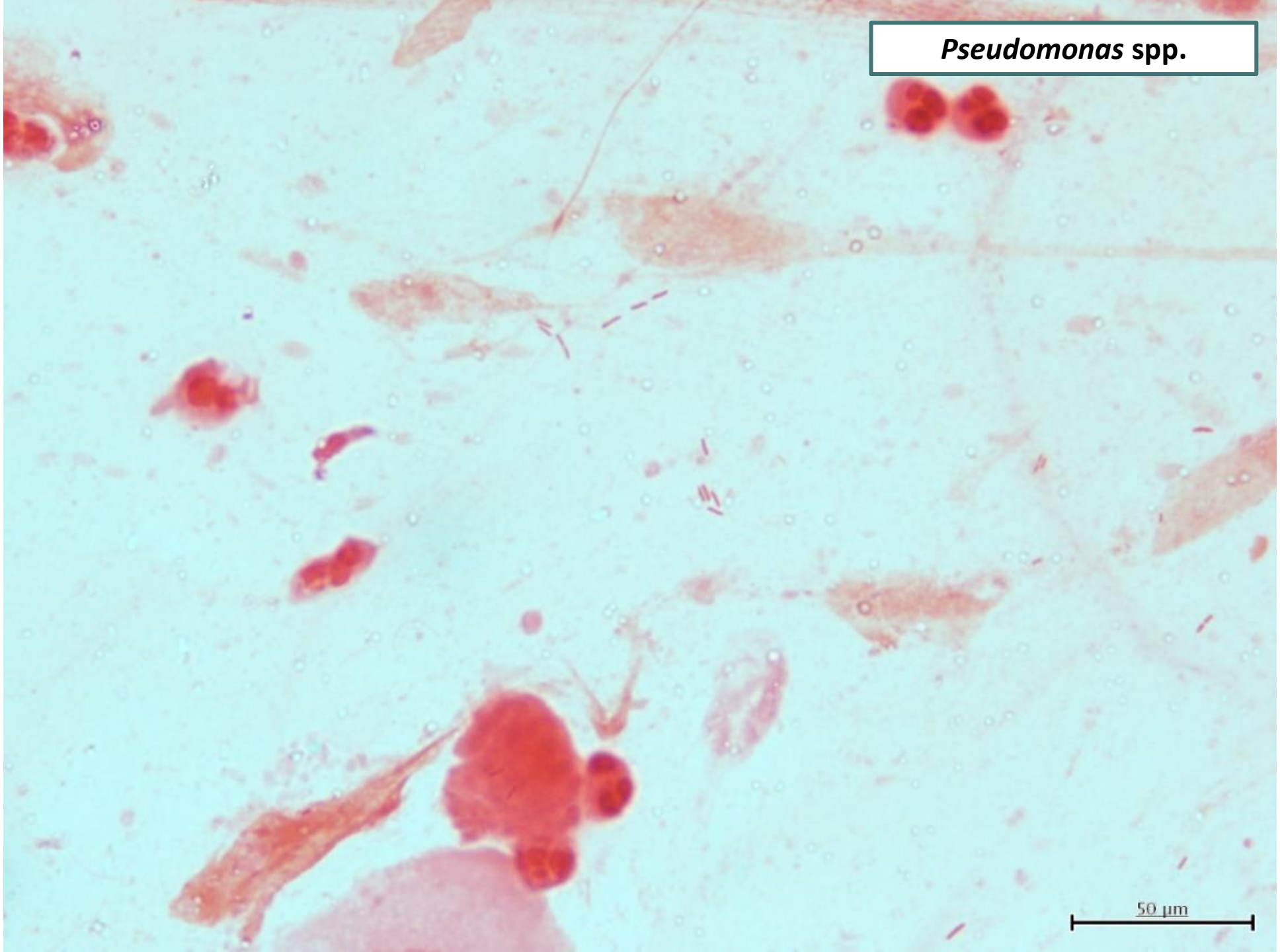


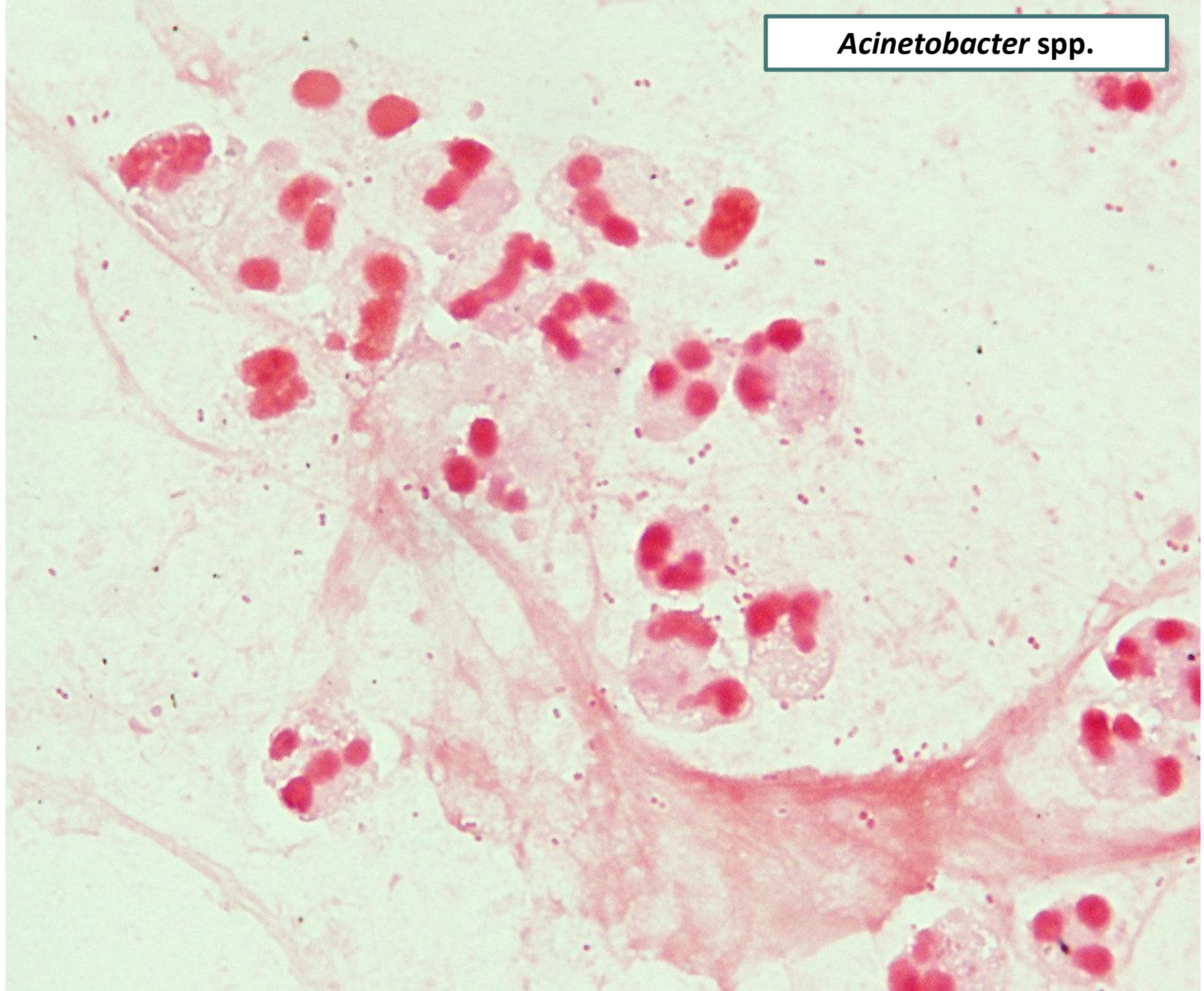


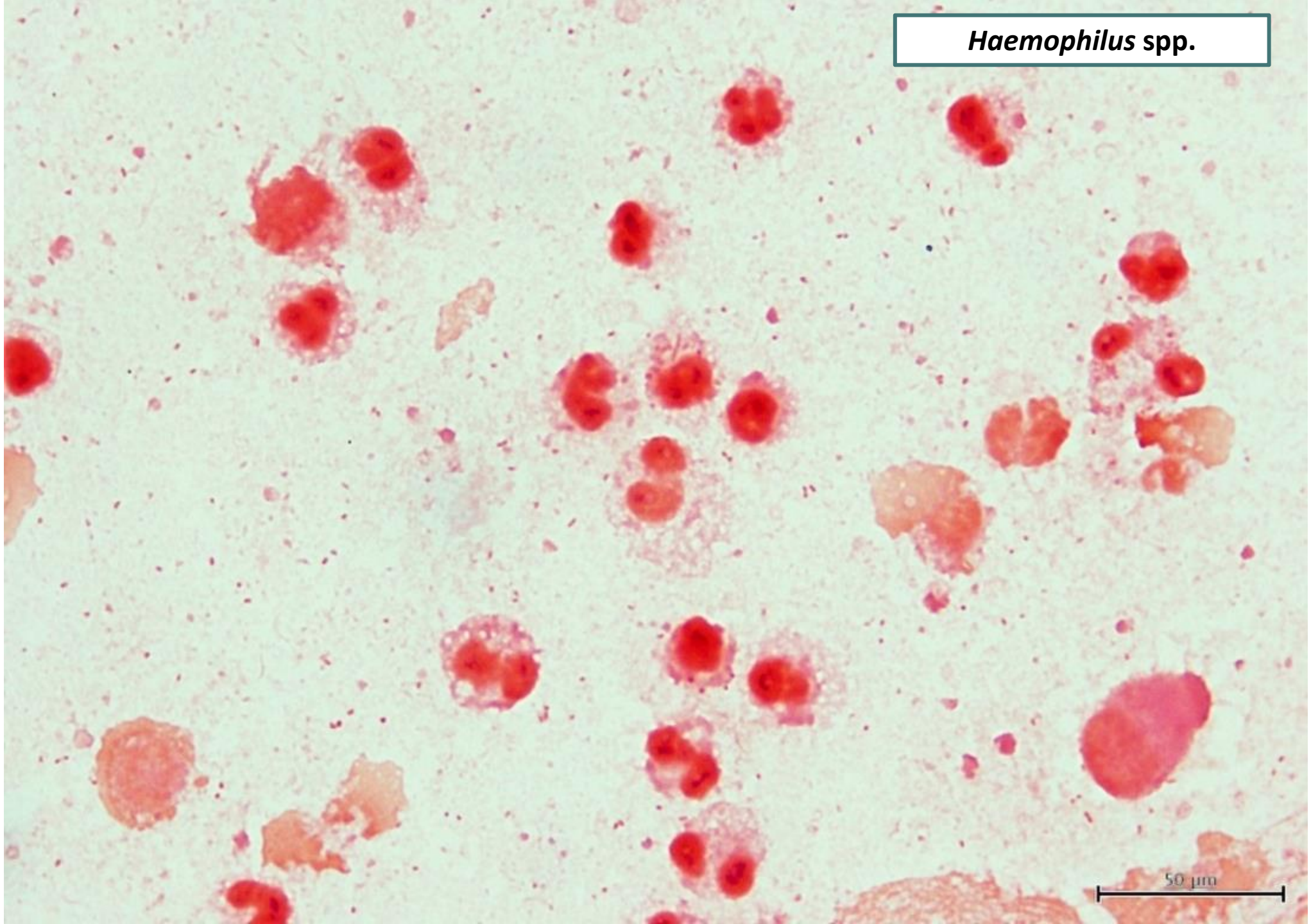
***Neisseria* spp.**


Klebsiella spp.


Burkholderia spp.


Pseudomonas spp.
50 µm


Acinetobacter spp.


Haemophilus spp.
50 µm

Q13: A 55-year-old diabetic man presented with fever and pain at right wrist, left knee & ankles for 1 day.

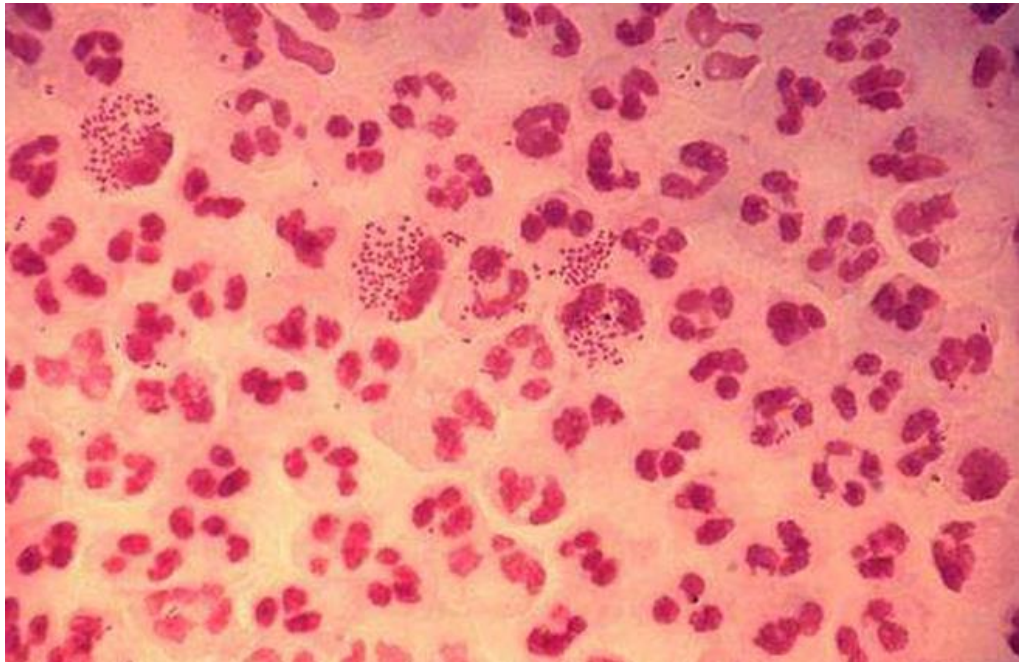
PE: swelling and redness of right wrist, left knee and ankles.

Knee joint aspiration: WBC 80,000/cu.mm. (N90%), Gram stain as shown.

Which of the following

is the most appropriate treatment?

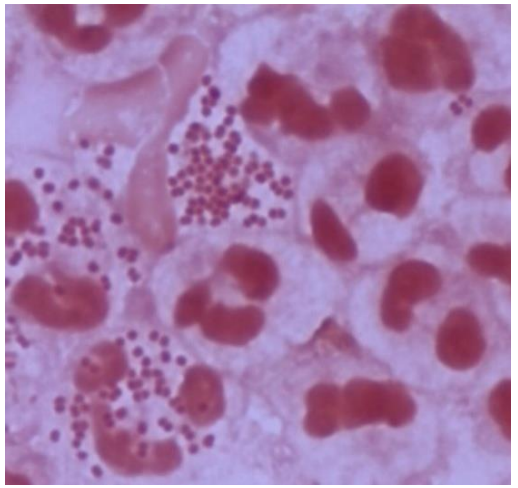
A. Penicillin G sodium
B. Ceftriaxone
C. Ceftazidime
D. Ceftriaxone+azithromycin
E. Ceftazidime+cotrimoxazole



Gonococcal infection

- Gonococcal urethritis, conjunctivitis
- Disseminated gonococcal infections: polyarthritis, tenosynovitis, skin lesions (papules/nodules)

Specimens	Sensitivity
Urethral discharge	90%
Endocervical smear	50-70%
Hemoculture	50%
Synovial culture	<10%



Treatment

- Urethritis: ceftriaxone 1 gm IM single dose + doxycycline 100 mg PO BID x 7 days
- Alternative agents: cefixime 800 mg PO + azithromycin 2 g PO
- DGI: ceftriaxone 1 g IM/IV PD x 7 days + doxycycline 100 mg PO BID x 7 days

Meningococcal infection

Susceptible host: complement deficiency, asplenia, eculizumab

Clinical syndrome: meningitis, meningococcemia

Infection control

- Droplet precaution: 24 hours after ATB treatment
- PEP within 24 hours : Close contact environments (e.g. household contact, LTCF), expose to oral secretion

  high risk healthcare worker: intubation, suctioning

Drugs	Dose	Remarks
Ciprofloxacin	500 mg PO single dose	C/I in pregnancy
Rifampicin	600 mg oral q 12 hrs x 4 doses	C/I in pregnancy, Increase resistance rate
Ceftriaxone	250 mg IM stat	Recommend in pregnancy

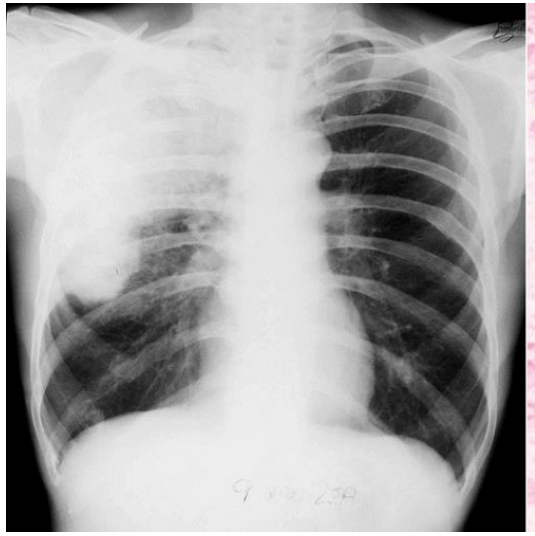
Q14: A 55-year-old female rice farmer with type 2 DM presented with fever, productive cough & dyspnea for 4 days.

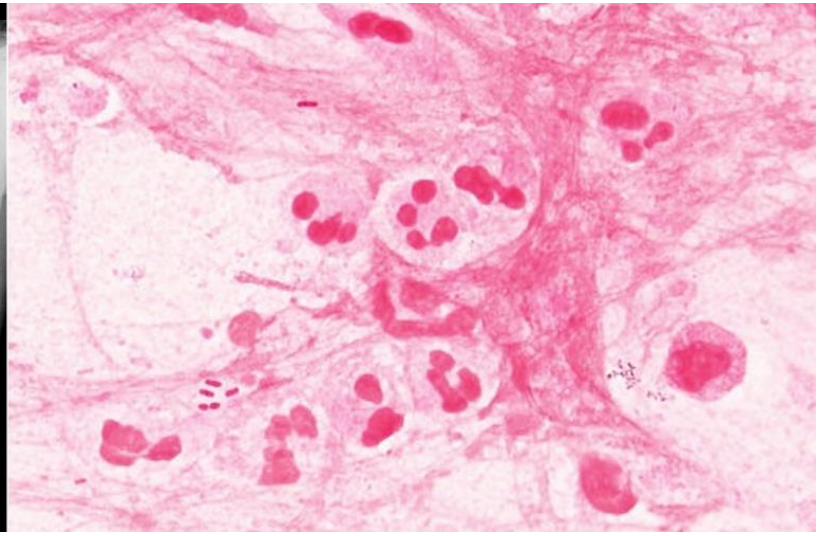
PE: T 39 ^{o}C, P90/min, RR 28/min, BP 120/90 mmHg, O_2 sat 94% RA, bronchial breath sounds at right lung.

CXR & sputum Gram Stain as shown.

Which of the following is the most likely pathogen?

A. *Burkholderia pseudomallei*
B. *Klebsiella pneumoniae*
C. *Pseudomonas aeruginosa*
D. *Stenotrophomonas maltophilia*
E. *Escherichia coli*





Klebsiella pneumoniae

Clinical syndrome

- Friedlander's disease: Upper lobar pneumonia in chronic alcoholic & DM patients
- Hepatobiliary infection
- UTI & HAP/VAP
- CNS infection

Mucoid colony
String test

Distinctive syndrome

- Hypermucoid strain of *K. pneumoniae* (K1/K2)
- Common in Asian descent with diabetes
- Liver abscess with extrahepatic Cx: CNS, endophthalmitis, septic pulmonary emboli and empyema

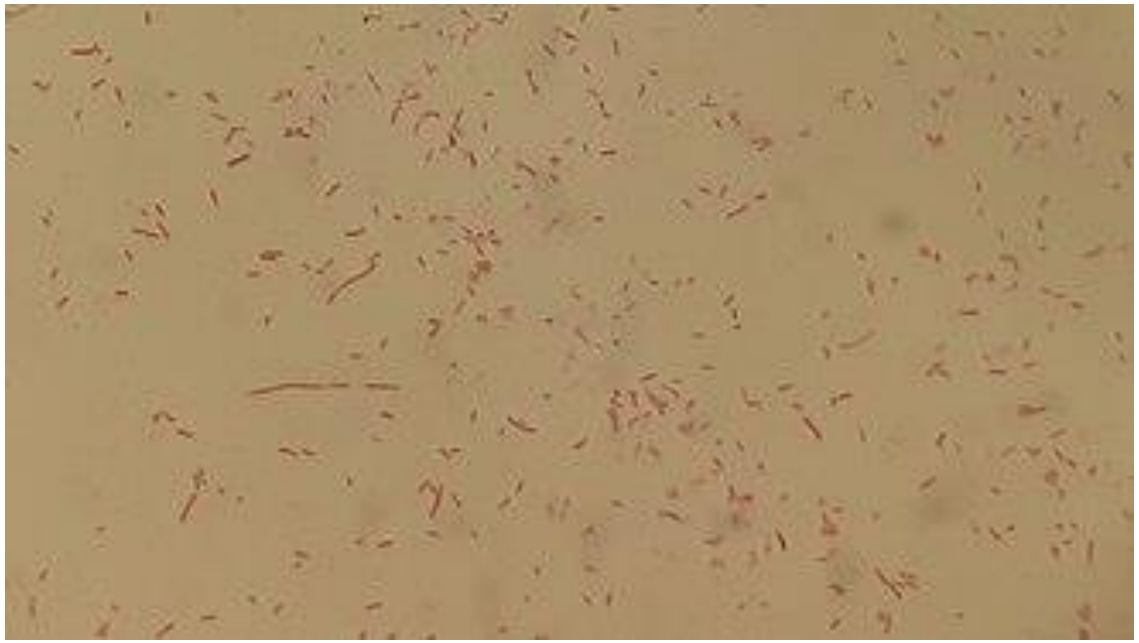
Q15: A 45-year-old man from Khon Kaen with chronic alcoholic drinking presented with fever for 4 hours.

PE: T 38.5 ^{o}C, BP 110/60 mmHg, P 135/min, jaundice, liver 2 FB BRCM, ecchymosis at right leg with hemorrhagic blebs.

FNA Gram stain as shown.

Which of the following is the most likely causative agent?

A. *Klebsiella pneumoniae*
B. *Escherichia coli*
C. *Pseudomonas aeruginosa*
D. *Aeromonas hydrophila*
E. *Burkholderia pseudomallei*



Gram-negative rod infection

Species	Clinical syndromes
Escherichia coli	Primary bacteremia, UTI, IAI
Klebsiella pneumoniae	Pneumonia, UTI, IAI, hepatobiliary tract infection
Proteus spp.	UTI with kidney stone, IAI
Nontyphoidal *Salmonella*	Primary bacteremia, IAI, hepatobiliary tract infection, endovascular infection
Pseudomonas aeruginosa	Pneumonia, diabetic foot infection, burn wound infection, hospital-acquired infection
Vibrio spp.	*V. cholerae:* gastroenteritis *V. vulnificus:* gastroenteritis, septicemia, SSTI (cirrhosis, CKD)
Aeromonas spp.	Gastroenteritis, septicemia, SSTI (*A. hydrophila*: cirrhosis, CKD; *A. veronii biovar sobria*: neutropenia)

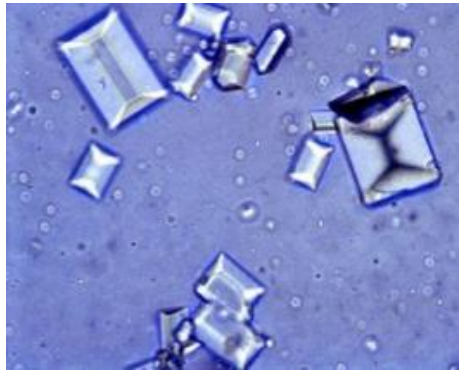
Proteus mirabilis

Community and nosocomial UTI

Risk factor: urinary catheter

Struvite stone

- Urease → urine alkalinisation
- Magnesium ammonium phosphate crystal



Treatment

- Ceftriaxone IV
- ESBL producing → carbapenem/piperacillin-tazobactam
- High MIC to imipenem
- Intrinsic resistant to nitrofurantoin, colistin

Enterobacterales

ATB	Susceptible
Cephalosporin	R
Cefoxitin	S
Cefepime	R
BL/BI	S
Carbapenem	S

ESBL

E. coli, K. pneumoniae, P. mirabilis

Rx: carbapenem > pip/taz

ATB	Susceptible
Cephalosporin	R
Cefoxitin	R
Cefepime	S
BL/BI	R
Carbapenem	S

AmpC

E. cloacae, *K. aerogenes, C. freundii*

Rx: carbapenem, FQ (non-severe)

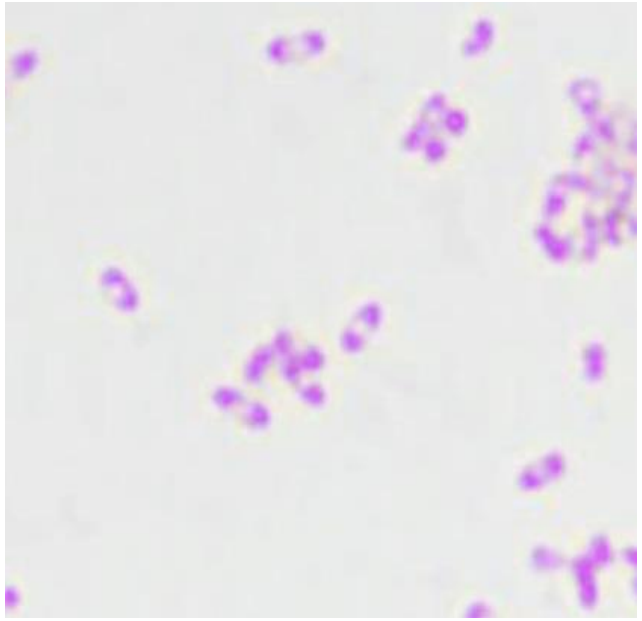
Q16: A 60-year-old male sheep farmer from Northern Australia developed pneumonia on day 4 of travel in Thailand.

He was initially treated with piperacillin-tazobactam without significant response.

Blood culture as shown in the figure.

Which of the following is the most likely source of infection?

A. Soil from his farm
B. Sick sheep from his farm
C. Contaminated food in Thailand
D. Aircraft environment
E. Water source from the hospital



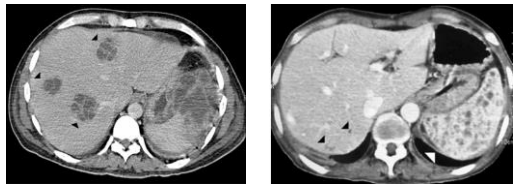
Melioidosis

Risk factors

Factors	OR
Thalassemia	11.8
DM and high soil/water exposure	6.3
Diabetes mellitus	4.8
High soil/water exposure	2.6
Pre-existing renal disease	2.6

Clinical manifestation

- Septicemia
- Acute & chronic pneumonia
- Hepatosplenic abscess (Cartwheel/Swiss cheese)



- Parotid & prostatic abscess, mycotic aneurysm

Treatment

- Induction therapy: ceftazidime 10-14 days (alternative: meropenem/imipenem)
- Maintenance therapy: co-trimoxazole 12-20 weeks

Q17: A 50-year-old man with uncontrolled DM and gangrenous cholecystitis underwent cholecystectomy 2-week ago.

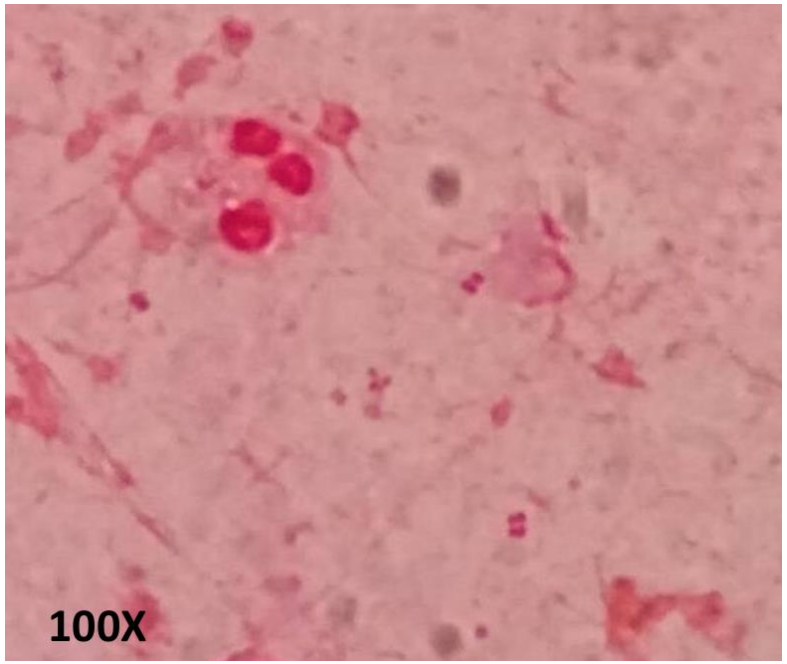
He was discharged with 7-day course of cefixime and metronidazole.

He presents on F/U visit with fever & pus discharge from surgical wound.

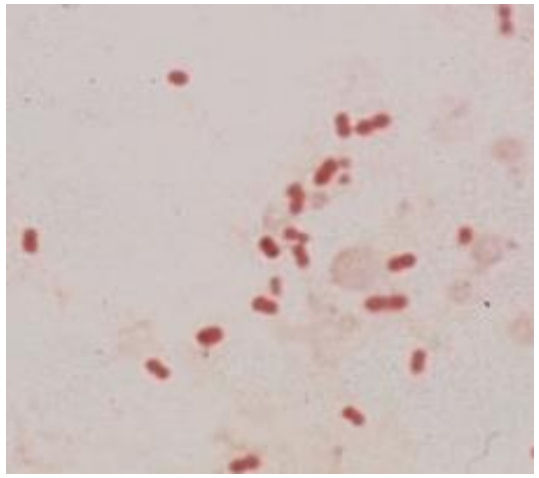
Pus gram stain as shown.

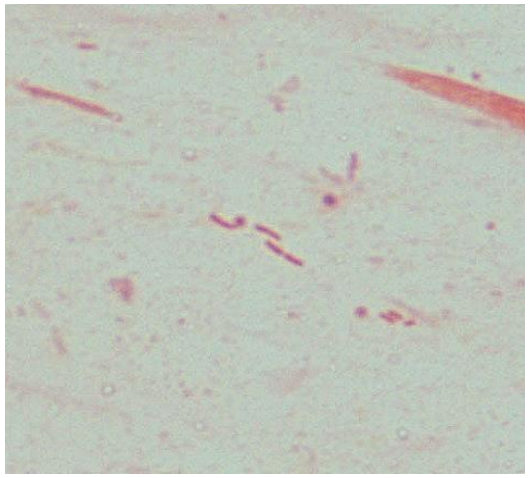
Which of the following is the most appropriate management?

A. Fosfomycin
B. Colistin
C. Vancomycin
D. Ceftazidime-avibactam
E. Meropenem



Acinetobacter & Stenotrophomonas





Gram negative coccobacilli	Gram negative slender rod
HAP/VAP CRBSI UTI	HAP/VAP CRBSI
• Sulbactam-durlobactam • Colistin • Tigecycline	**Combination of** • Co-trimoxazole • Levofloxacin • Alt: Minocycline

Q18: A 60-year-old man with COPD, presented with fever, productive cough, and progressive dyspnea for 2 days.

PE: fine crackles at left lower lung.

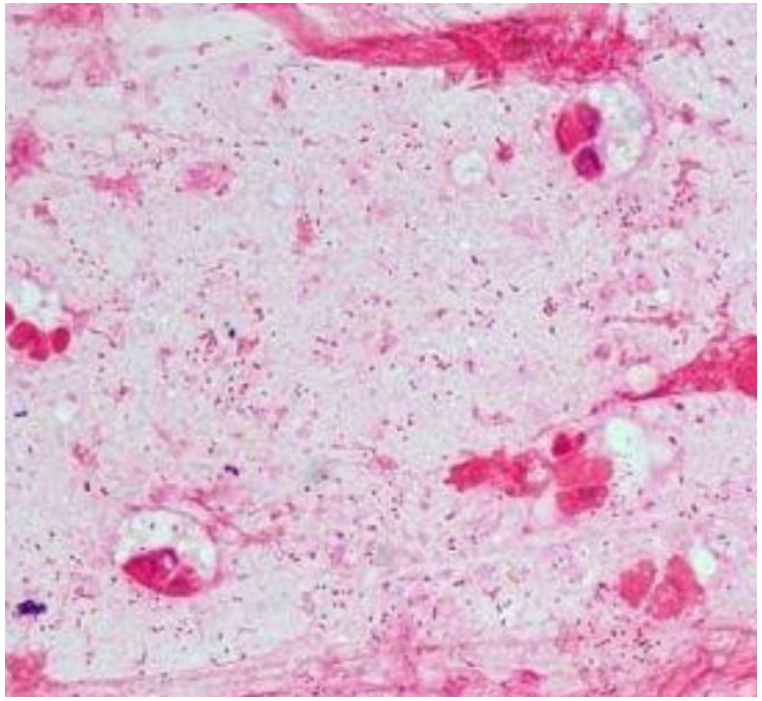
CXR revealed left lower lung infiltration.

Sputum Gram stain as picture.

Which of the following

is the most likely causative agent?

A. *Klebsiella pneumoniae*
B. *Pseudomonas aeruginosa*
C. *Burkholderia pseudomallei*
D. *Haemophilus influenzae*
E. *Moraxiella catarrhalis*



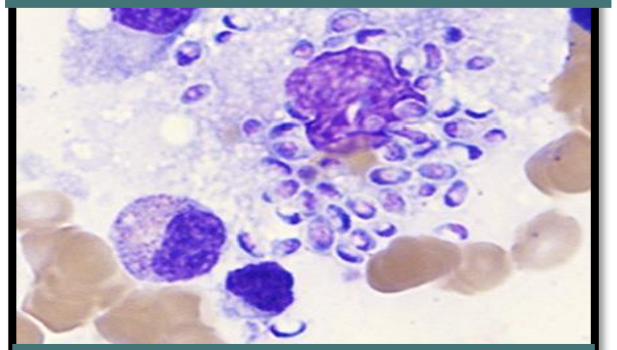
Common fungal infections

Common fungal infections

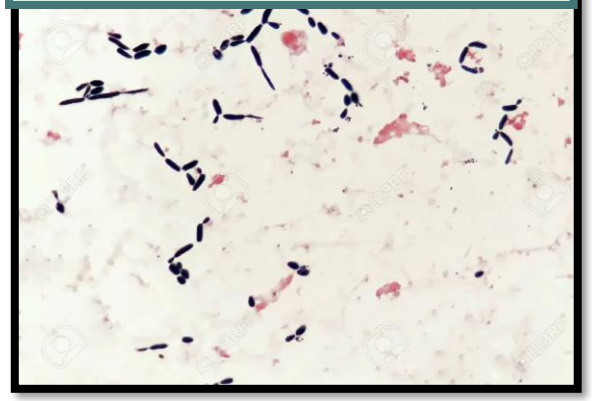
Cryptococcus
Encapsulated round budding yeast

Aspergillus
Dichotomous branching septate hyphae

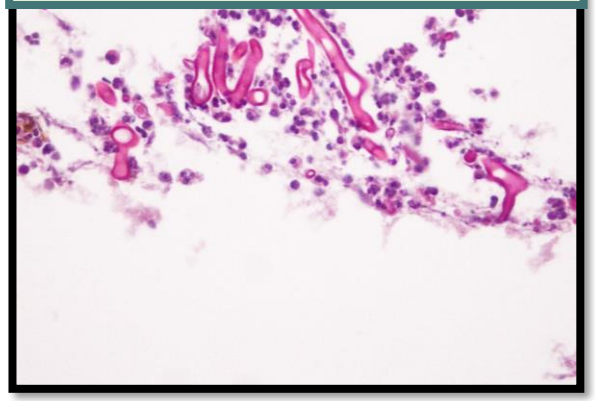
Histoplasma
Small oval budding yeasts



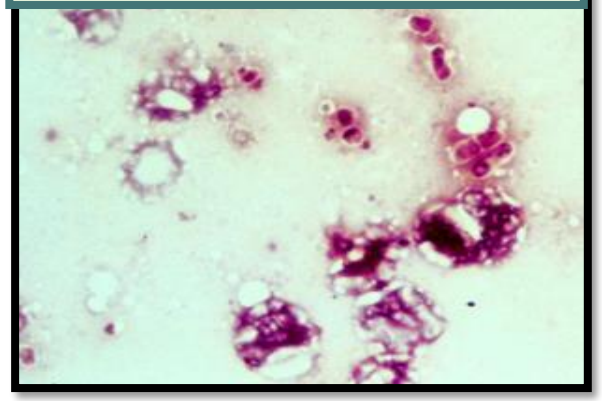
Candida
Oval budding yeast with pseudohyphae

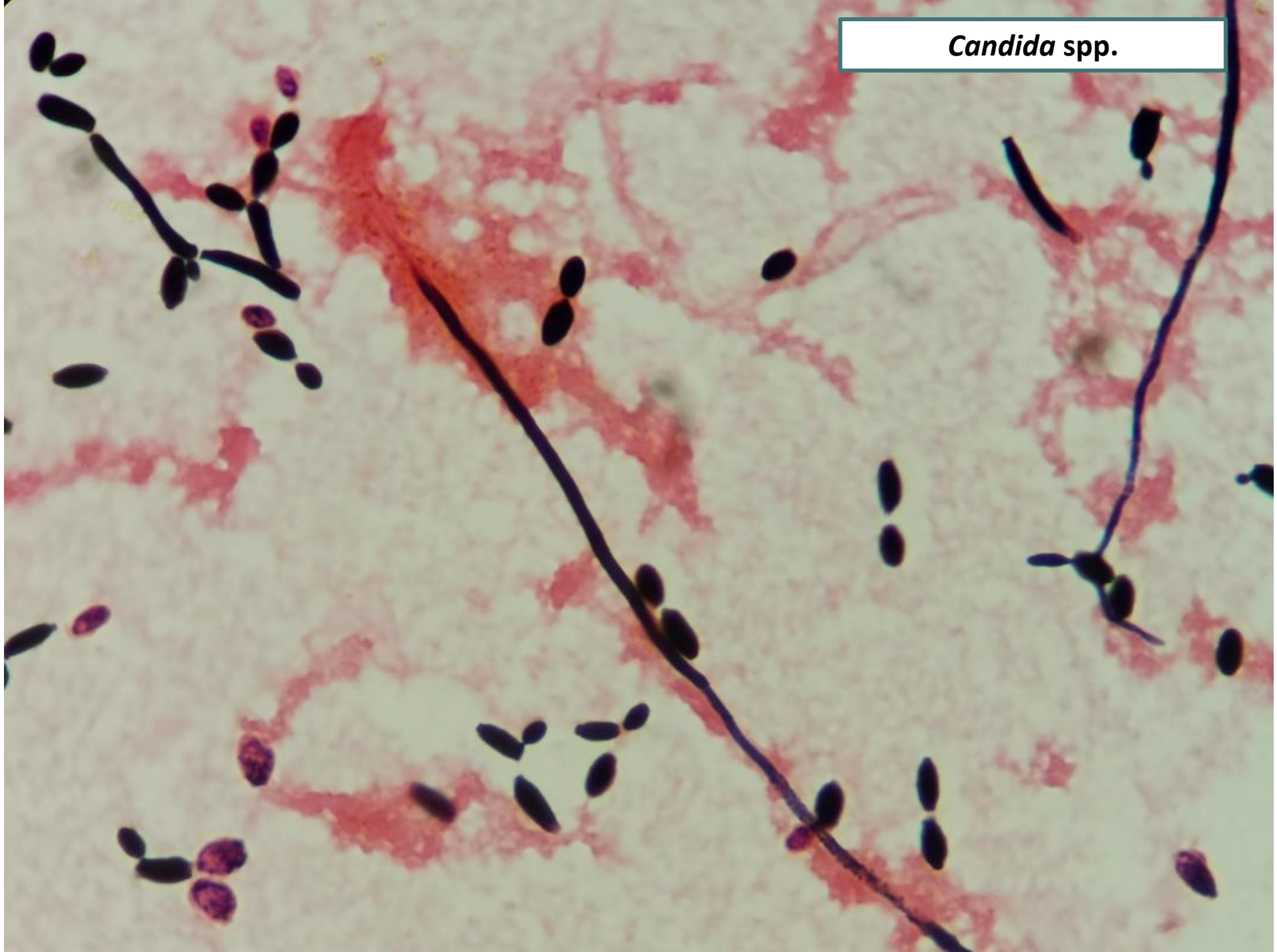


Mucorales
Broad non-septate hyphae



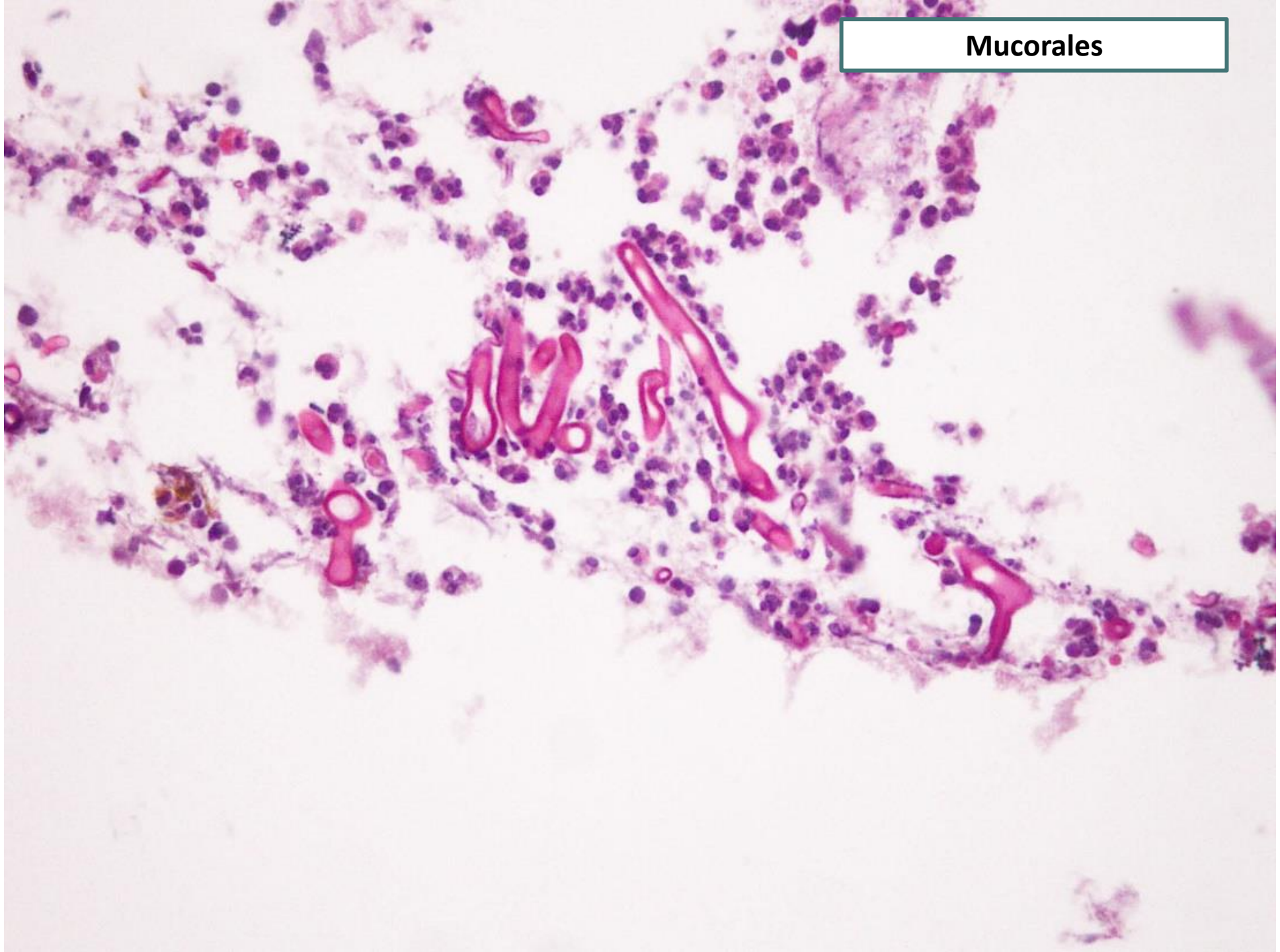
Talaromyces marneffei
Elongated yeast with binary fission

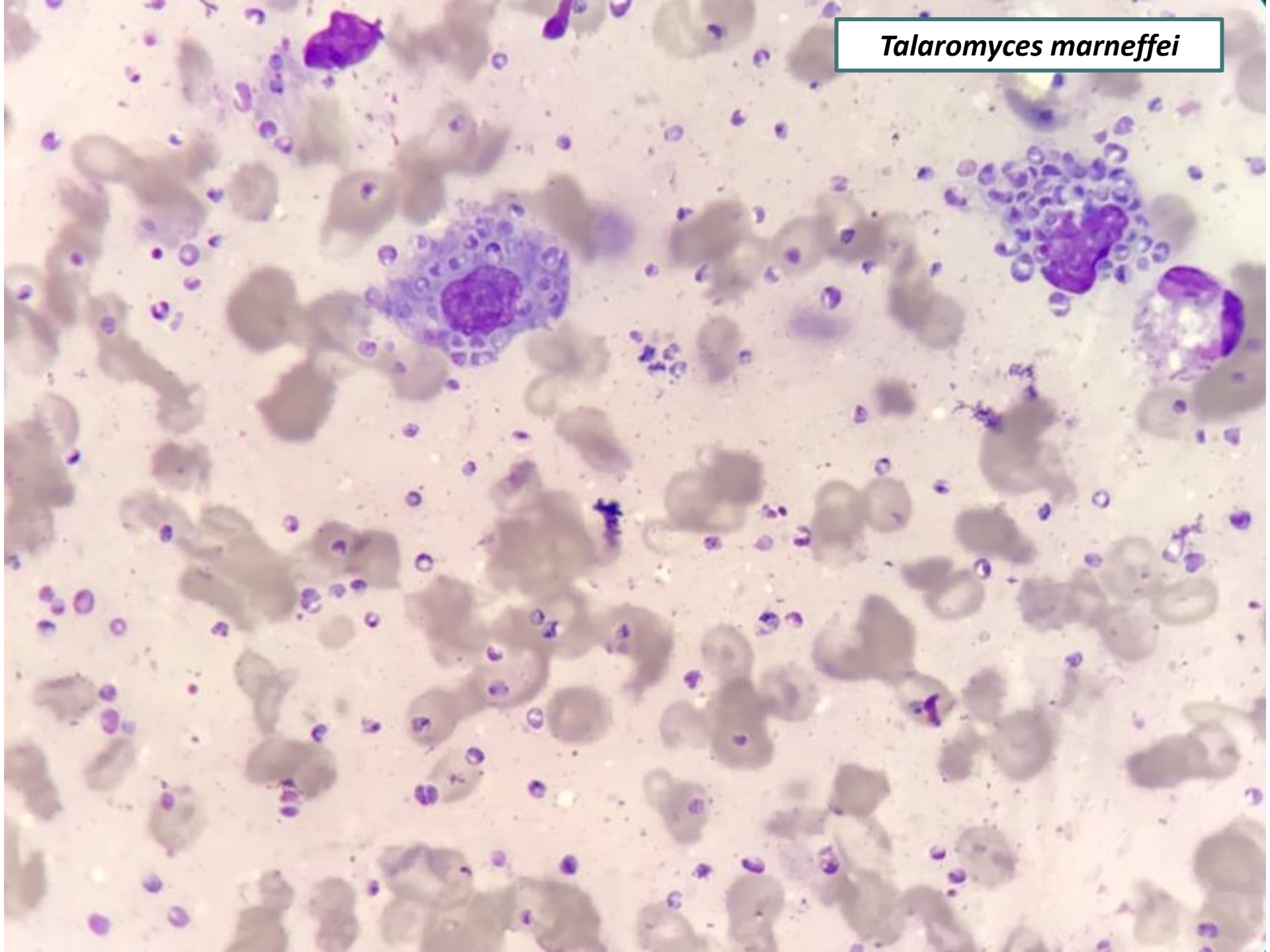


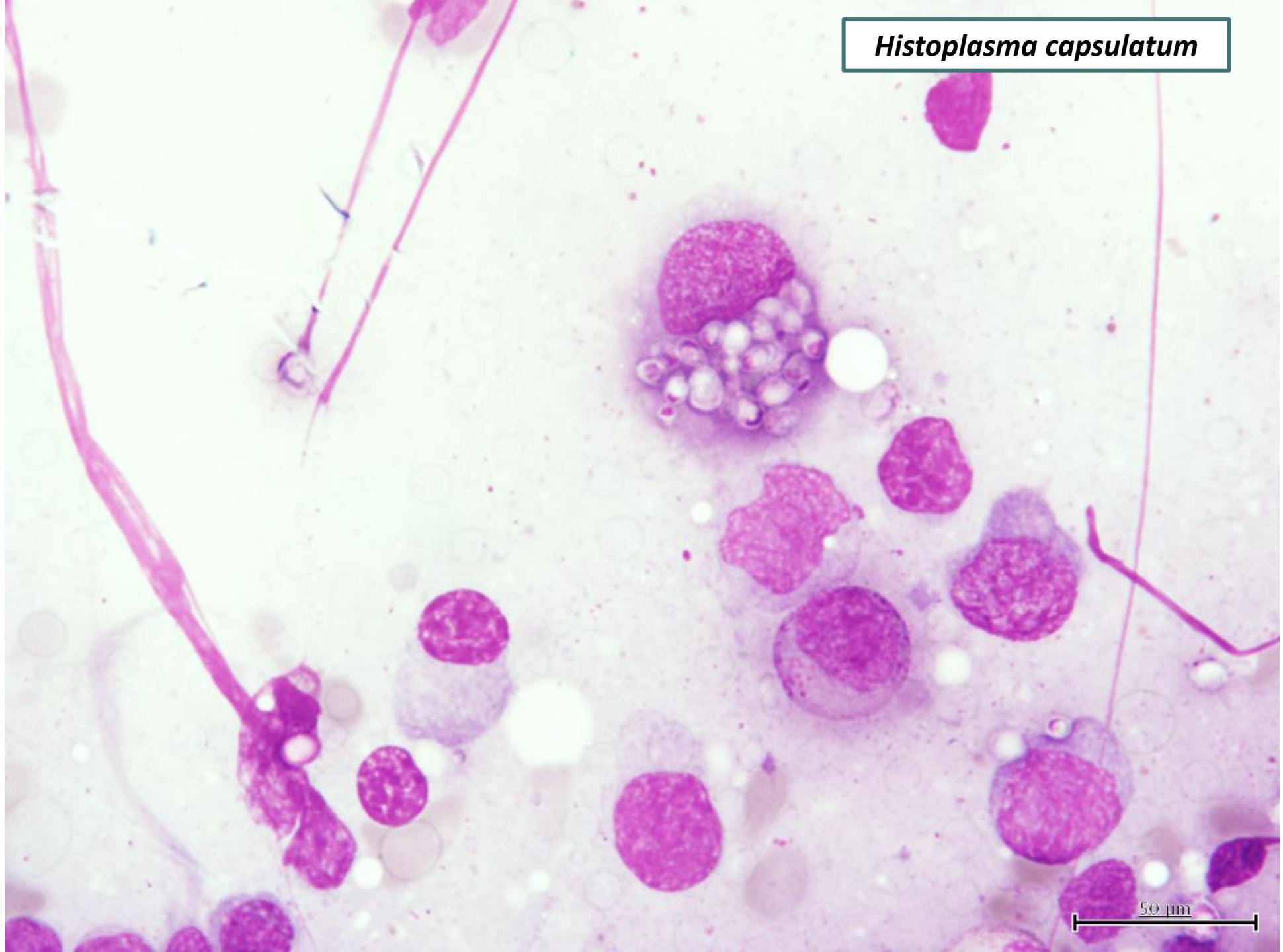

Candida spp.


Cryptococcus spp.


Aspergillus spp.


Mucorales


Talaromyces marneffei

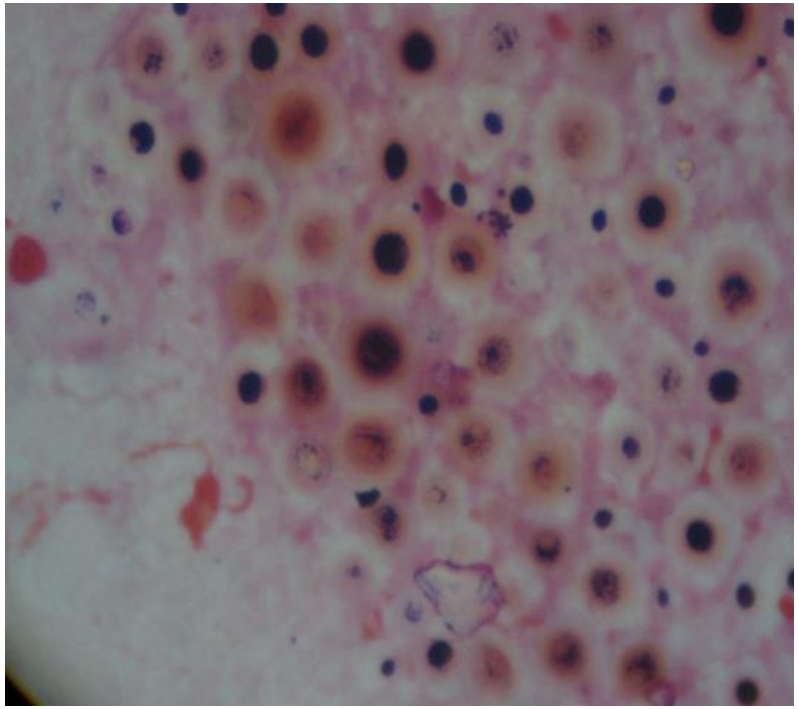

Histoplasma capsulatum
50 µm

Q19: A 60-year-old man with DM & chronic alcoholic drinking presented with fever, productive cough & dyspnea for 10 days.

PE: BP 140/90 mmHg, RR 26/min; fine crackles and egophony at RLL.

Chest x-ray: consolidation of right lower lung.

Sputum Gram stain as shown.



Which of the following is the most appropriate investigation?

A. Sputum AFB and modified AFB stains
B. Sputum bacterial and mycobacterial cultures
C. Serum cryptococcal antigen
D. Serum galactomannan antigen
E. Chest CT

Common IFIs

Fungal infection	Common susceptible hosts	Common clinical syndrome	Drug of choice
Candidiasis	Neutropenia, ICU	Candidemia	Echinocandin
Cryptococcosis	HIV (CD4 < 100) AOID, Transplant	Meningoencephalitis	AMB + 5-FC → Fluconazole
Aspergillosis	Neutropenia, Transplant	Invasive pulmonary aspergillosis	Voriconazole
Mucormycosis	DM, Neutropenia Transplant	Rhinocerebral mucormycosis	AMB→ isavu/posaconazole
Talaromycosis Histoplasmosis	HIV, AOID	Disseminated form with molluscum-like lesions	AMB→ itraconazole
Sporotrichosis	Cat owner	Subcutaneous lesions	Itraconazole

Q20: A 65-year-old man with RA treated with methotrexate 7.5 mg/week, prednisolone 30 mg/day presented with low-grade-fever & fatigue for 2 months.

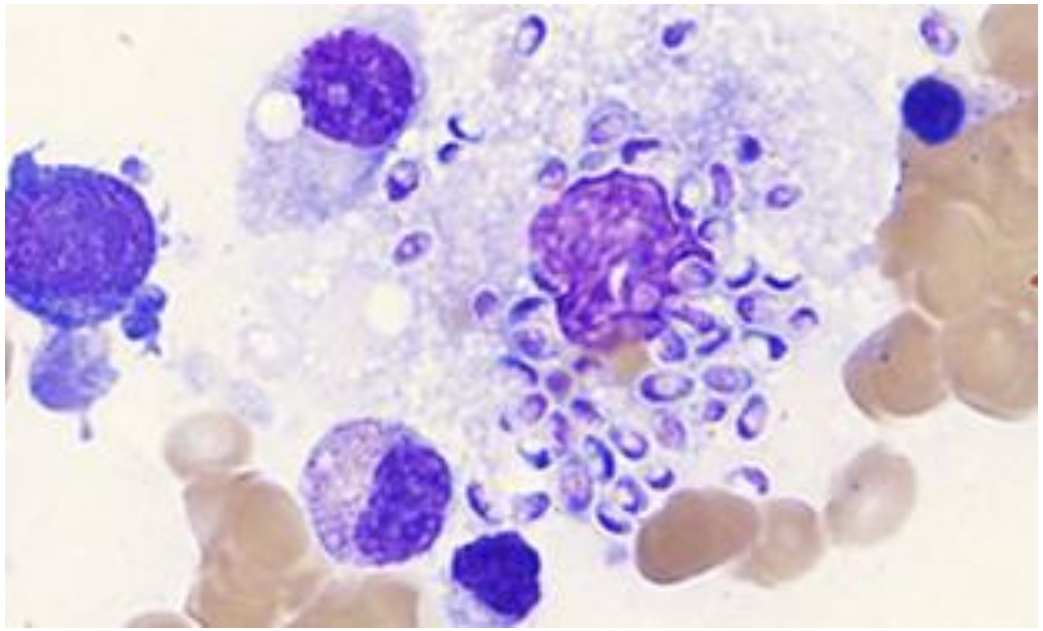
PE: T 38^{o}C, moderate pale conjunctiva.

CBC: Hct 20%, WBC 3200 cells/mm^3 (N 75%), platelet 100,000 cells/mm^3

Bone marrow smear as shown.

Which of the following is the most appropriate initial treatment?

A. Echinocandin
B. Amphotericin
C. Fluconazole
D. Voriconazole
E. Itraconazole



Histoplasmosis & talaromycosis

Progressive disseminated histoplasmosis = most common form

- Lung: pneumonia, hilar/mediastinal lymphadenopathy
- GI: oropharyngeal ulcer, diarrhea, hepatosplenomegaly
- Blood: cytopenia
- Skin: molluscum like lesion
- Adrenal: enlargement

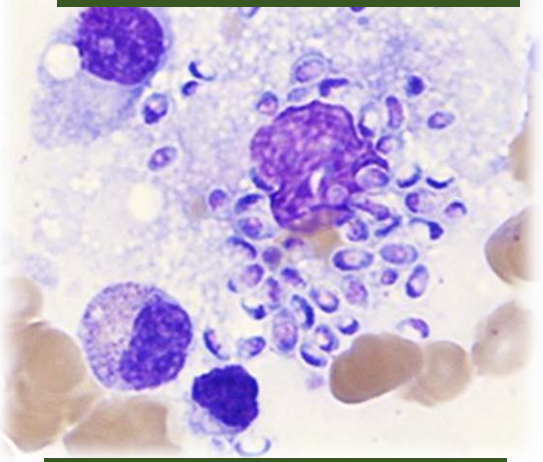
Diagnosis

- C/S (prolonged incubation)
- *Histoplasma antigen*

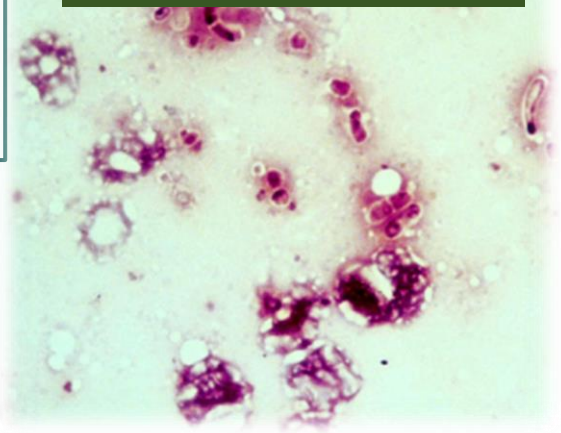
Treatment

- LAMB 3 mKD IV x 2 weeks (AMB-D 0.7 mKD)
- Itraconazole 200 mg PO BID x 12 months

Histoplasma



Talaromyces



Disseminated = most common form

- More skin lesions (50-80%) & fungemia

Diagnosis

- C/S
- H/C: septate hyphae (red pigment in colony)

Treatment

- AMB 0.6 mKD iv X 2 weeks
- Itraconazole 200 mg PO BID x 10 weeks

Infect Dis Clin North Am 2016;30:207-27, MMWR Recomm Rep 2009;58:1-207.

Histoplasmosis

- Found in soil, bird and bat dropping
- Susceptible hosts: AIDS, HM/transplant recipients

Most common clinical syndromes: progressive disseminated histoplasmosis

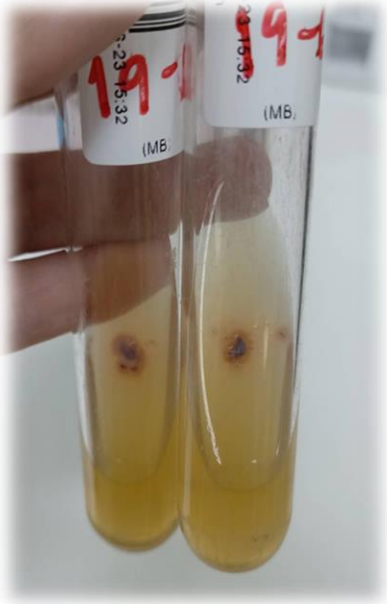
- Lung: pneumonia, hilar/mediastinal lymphadenopathy
- GI: oropharyngeal ulcer, diarrhea, hepatosplenomegaly
- Blood: cytopenia
- Skin: molluscum like lesion
- Adrenal: enlargement

Talaromycosis

- Found in soil
- Commonly found in North region of Thailand
- Susceptible hosts: same has histoplasmosis

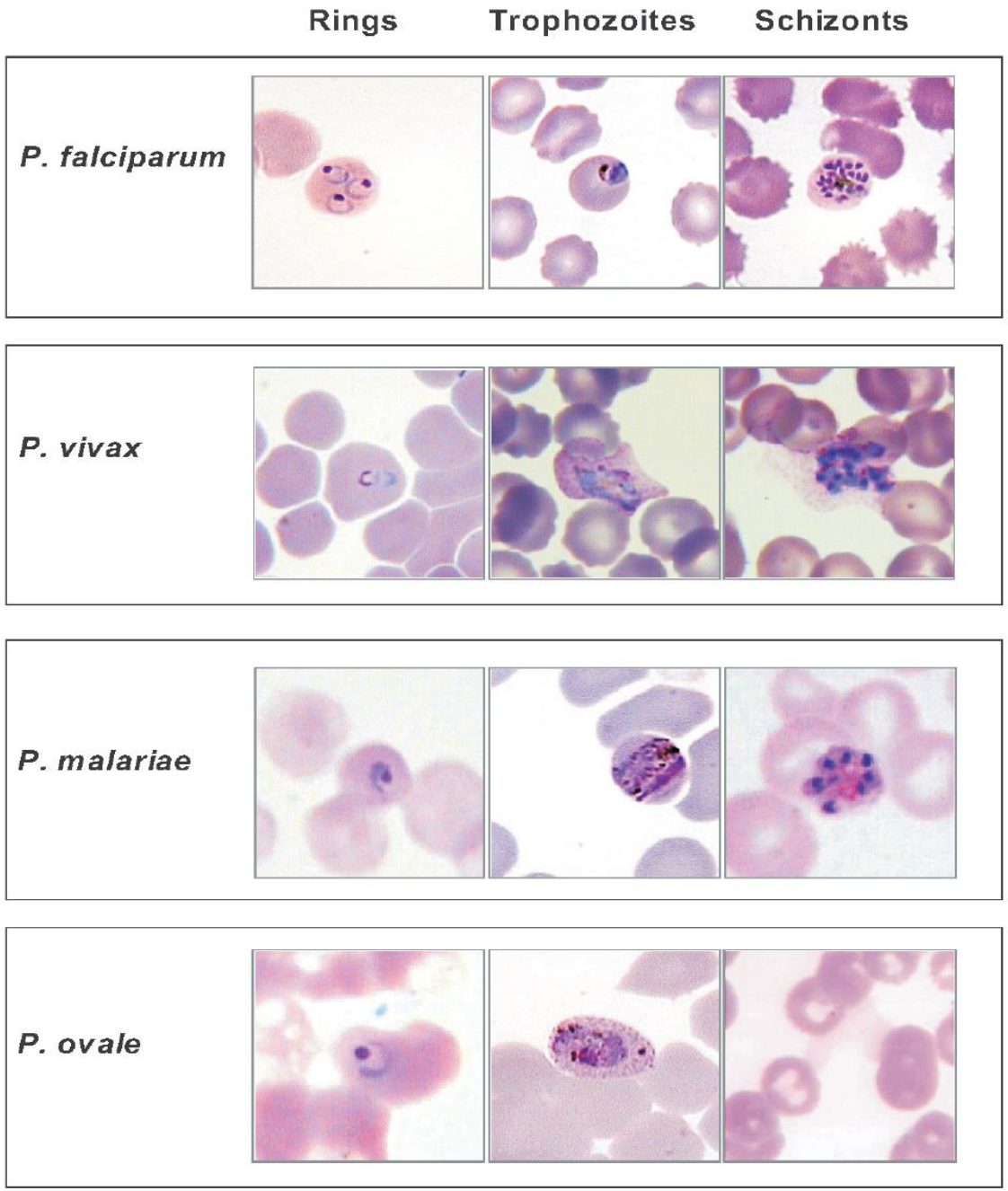
Most common clinical syndromes: disseminated form

- More skin lesions (50-85%)
- Fungemia is common in HIV patients



Common parasitic infections

Malaria

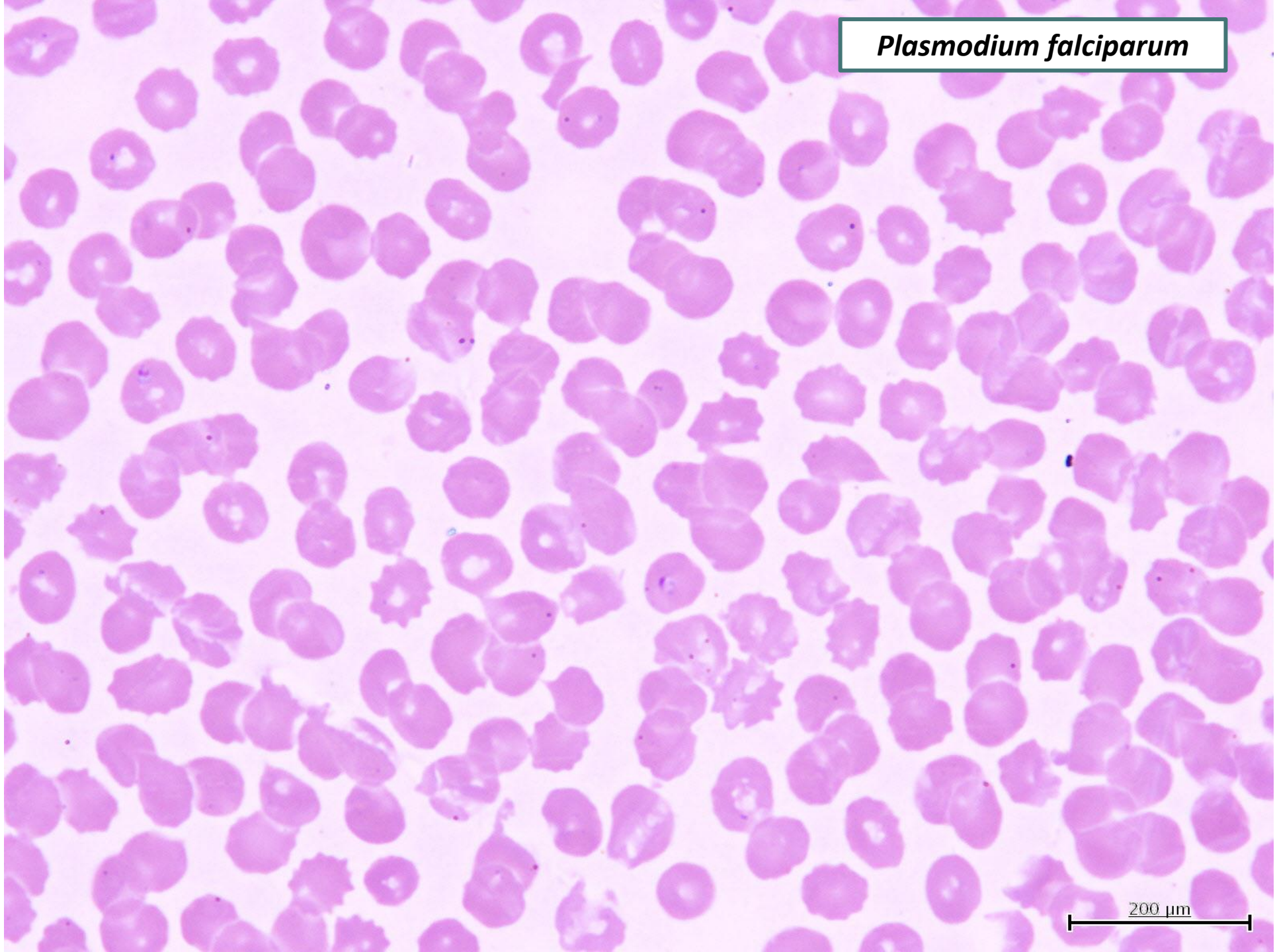


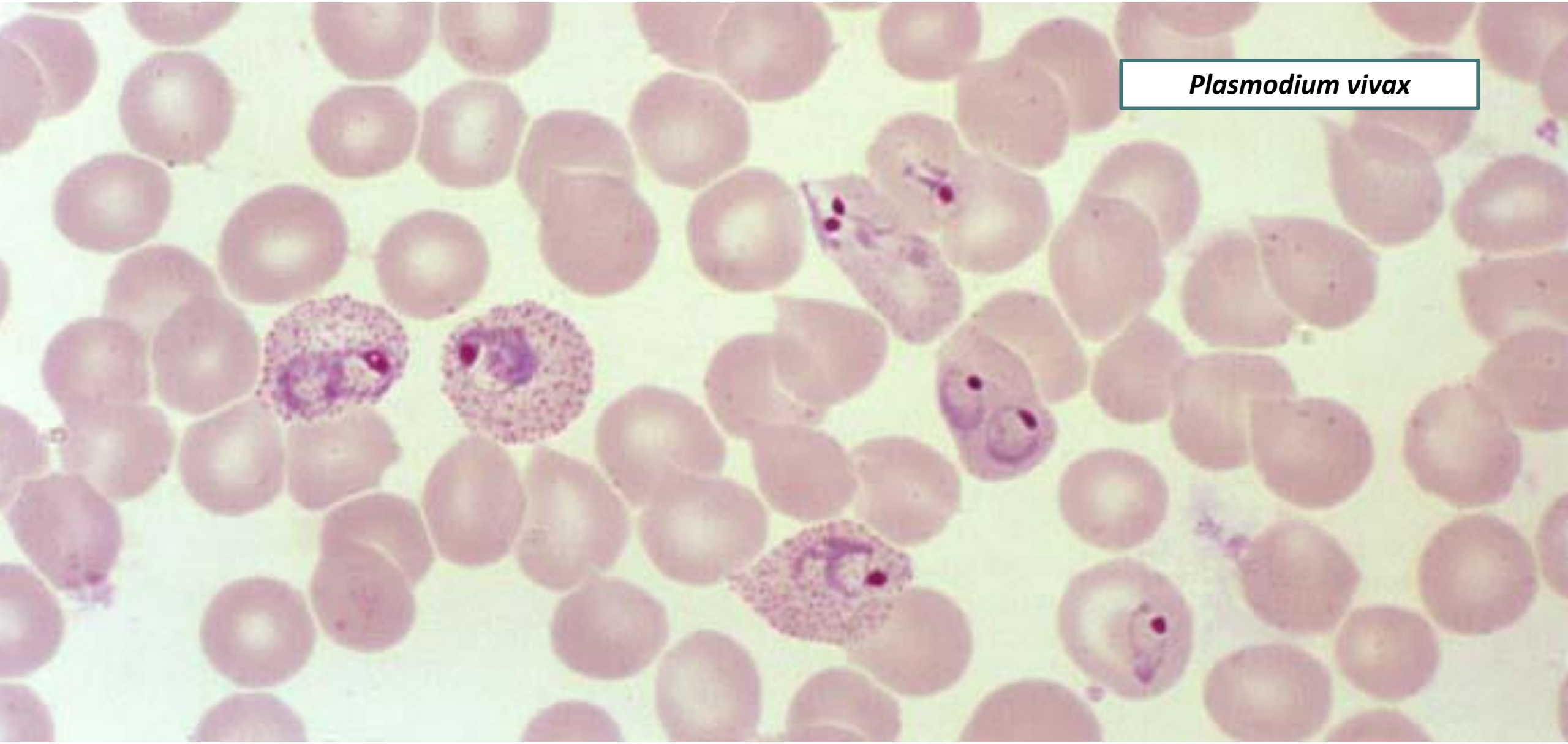
- Normal size infected RBC
- Thin ring form
- Multiple infections
- Double chromatin ring

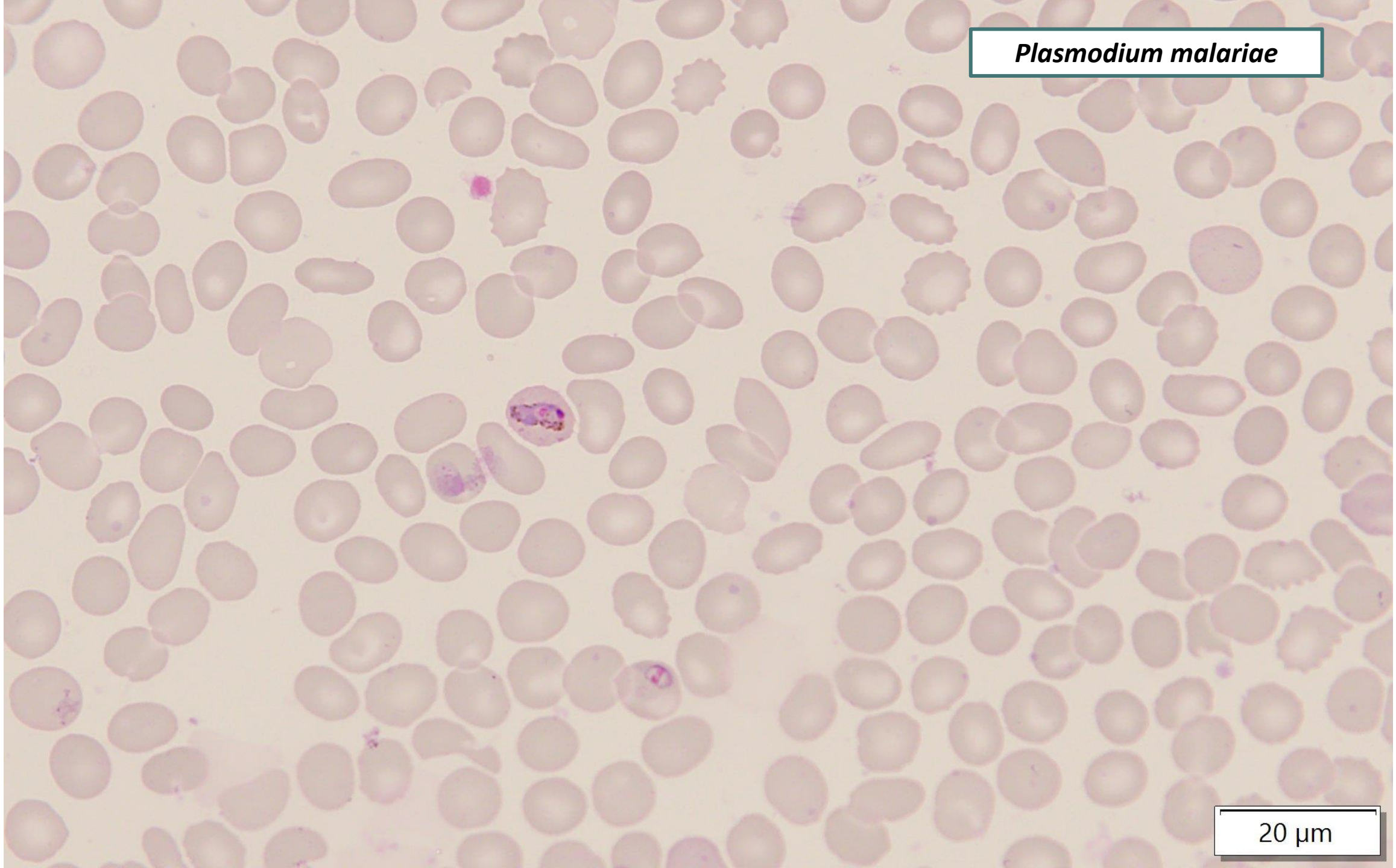
- Enlarged infected RBC
- Amoeboid form
- Schüffner's dots

- Normal size infected RBC
- Band form trophozoites
- Rosette schizonts

- Enlarged infected RBC
- Trophozoite: Fimbriation
- Schüffner's dots


Plasmodium falciparum
200 µm


Plasmodium vivax

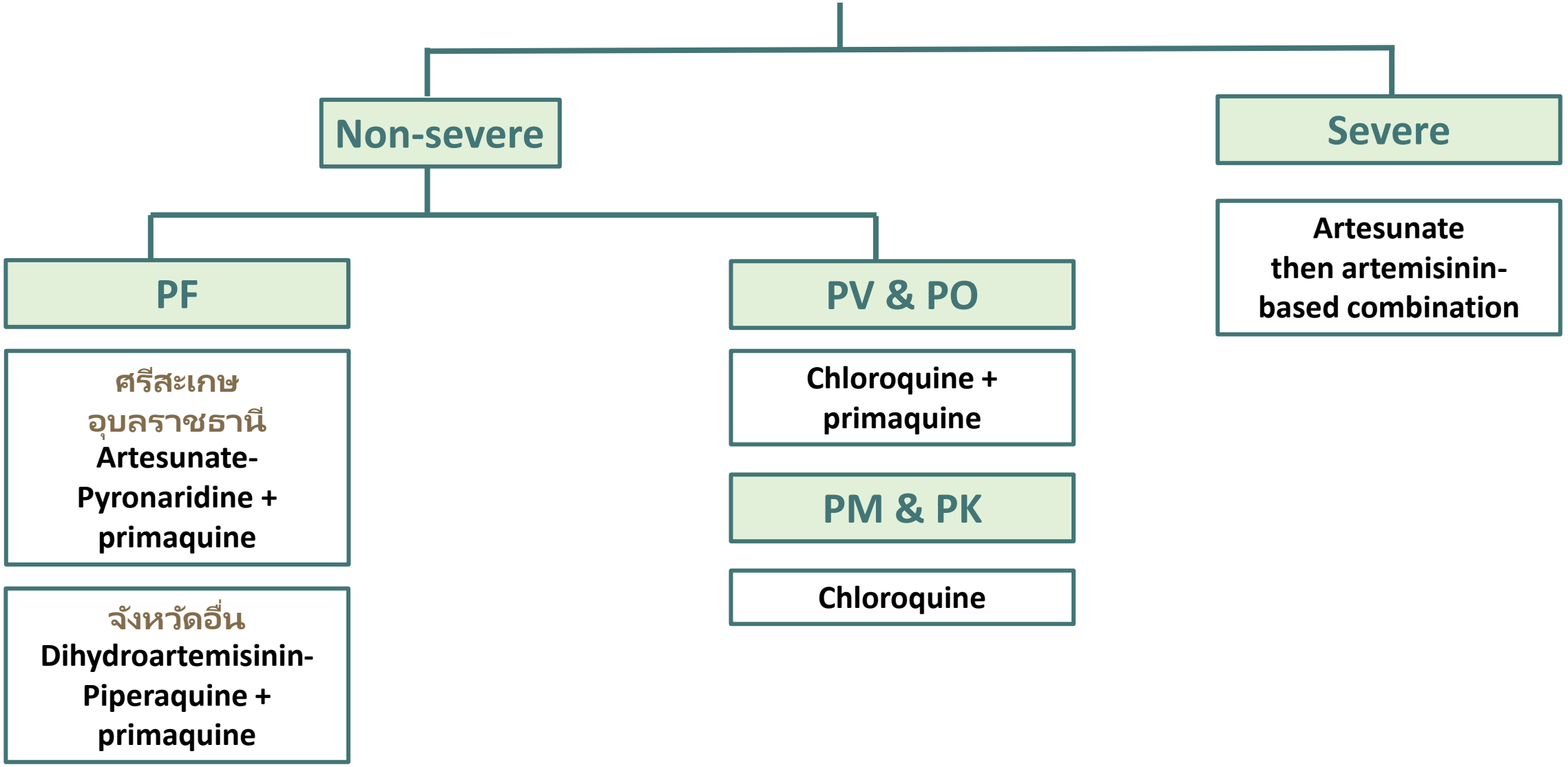

Plasmodium malariae
20 µm

Malaria: severity assessment

B. ผู้ป่วยโรคไข้มาลาเรียที่มีภาวะแทรกซ้อนหรืออาการรุนแรง

- มีระดับสติสัมปชัญญะลดลงหรือหมดสติ
- อ่อนเพลียมาก จนไม่สามารถนั่ง เดิน หรือยืนเองได้
- ชัก มากกว่า 2 ครั้ง ใน 24 ชั่วโมง
- หอบเหนื่อย หายใจเร็ว
- ตัวเหลืองตาเหลือง ระดับ Bilirubin สูง ร่วมกับจำนวนเชื้อมาลาเรียในเลือดมากกว่า 100,000/µl
- มีภาวะโลหิตจาง ร่วมกับจำนวนเชื้อมาลาเรียในเลือดมากกว่า 10,000/µl
- มีภาวะช็อค
- ปัสสาวะออกน้อย หรือไม่มีปัสสาวะภายใน 4 ชั่วโมง หรือมีภาวะไตวาย
- เลือดออกผิดปกติ เช่น เหงือก จมูก อาเจียนหรือถ่ายเป็นเลือด
- ระดับน้ำตาลในเลือดต่ำ
- ภาวะเลือดเป็นกรด ระดับแลคเตทสูงหรือระดับไบคาร์บอเนตต่ำ
- มีภาวะน้ำท่วมปอด
- ตรวจพบเชื้อมาลาเรียจำนวนมาก:
  - *P. falciparum:* >10% ของเม็ดเลือดแดงที่ติดเชื้อ
  - *P. knowlesi:* >100,000/µl หรือตัวเหลืองตาเหลืองร่วมกับพบเชื้อ >20,000/µl

Malaria: treatment



Q21: A 35-year-old male farmer in Si Sa Ket presented with fever & chills for 4 days.

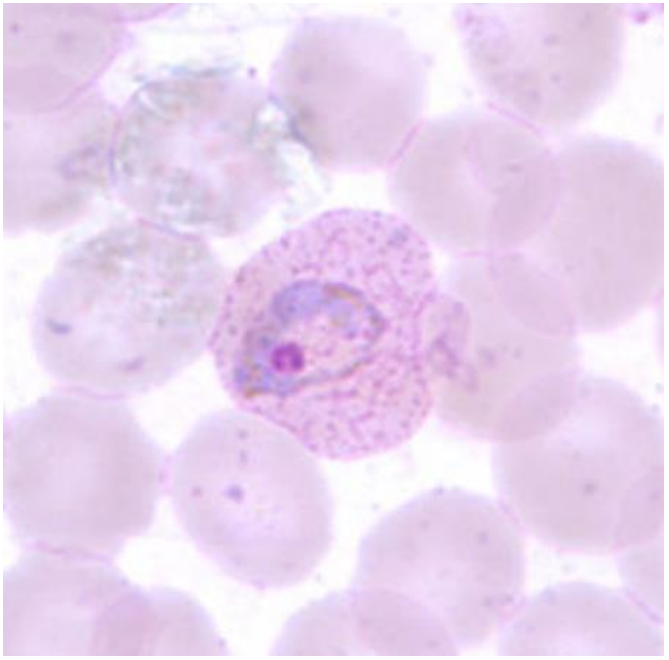
PE: T 39 ^{o}C, HR 125/min.

Laboratory results were unremarkable except mild hypokalemia.

Blood smear as shown.

Which one of the following is the most appropriate treatment?

A. Chloroquine
B. Dihydroartemisinin-piperaquine
C. Artesunate-pyronaridine
D. Chloroquine + primaquine
E. Artesunate-pyronaridine + primaquine



Q22: A 40-year-old man presented with fever & chills 1 day.

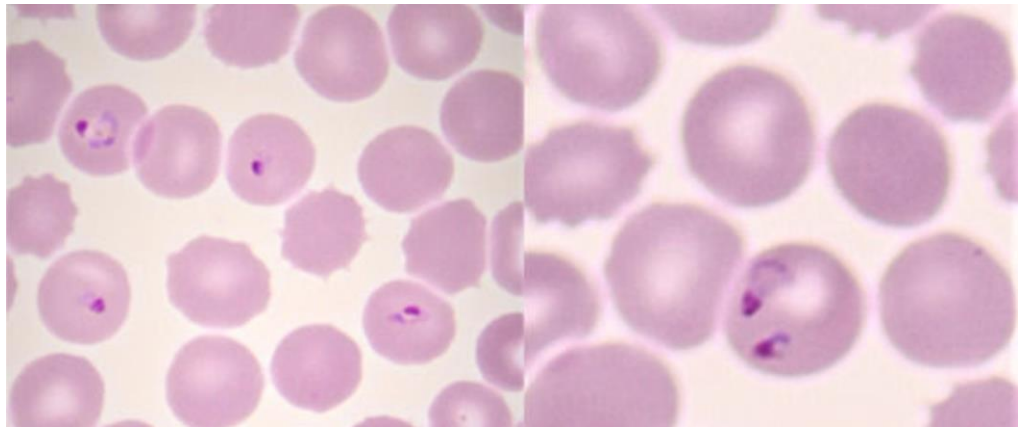
He had recently returned from Ubon Ratchatani last week.

PE: T 39.0 ^{o}C, P 90/min, BP 130/80 mmHg, R 16/min, not pale, no icteric sclerae.

Blood smear is shown in figure. The parasite count was 3%.

Which of the following

is the most appropriate treatment?



A. Chloroquine and primaquine
B. Chloroquine
C. Initial treatment with artesunate IV
D. Artesunate-Pyronaridine & primaquine
E. Dihydroartermisinin-piperaquine & primaquine

Q23: A 20-year-old Thai soldier who worked in Tak presented with fever & chills for 3 days.

PE: BP 120/80 mmHg, PR 100/min, RR 22/min

CBC: Hct 32%, WBC 8,000/cu mm (N75%, L20%), platelet 80,000/cu mm.

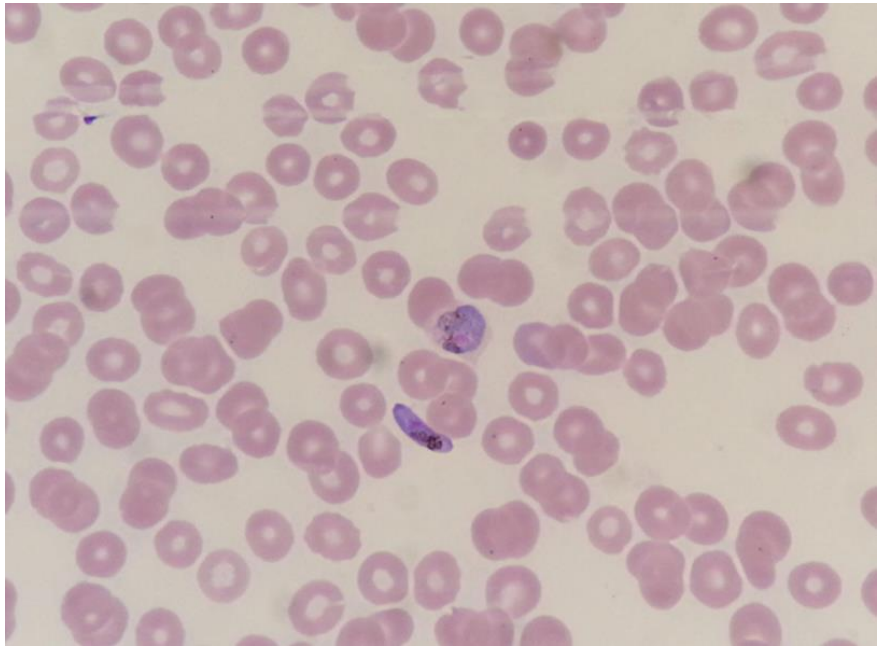
LFT: TB/DB 3.0/2.5 mg/dL, SGPT/SGOT 60/80 U/L.

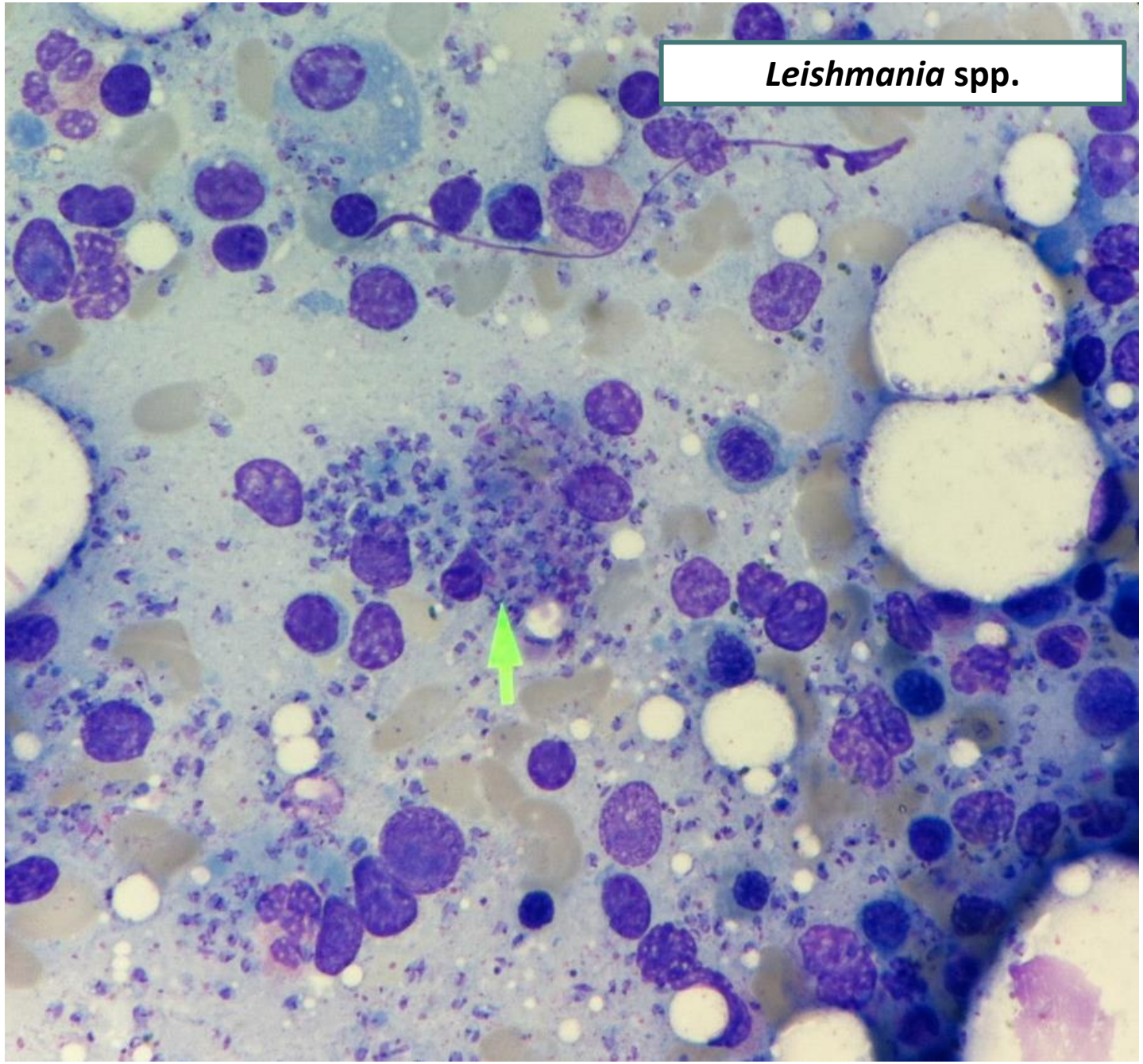
BUN 20 & Cr 1.2 mg/dL.

Which of the following

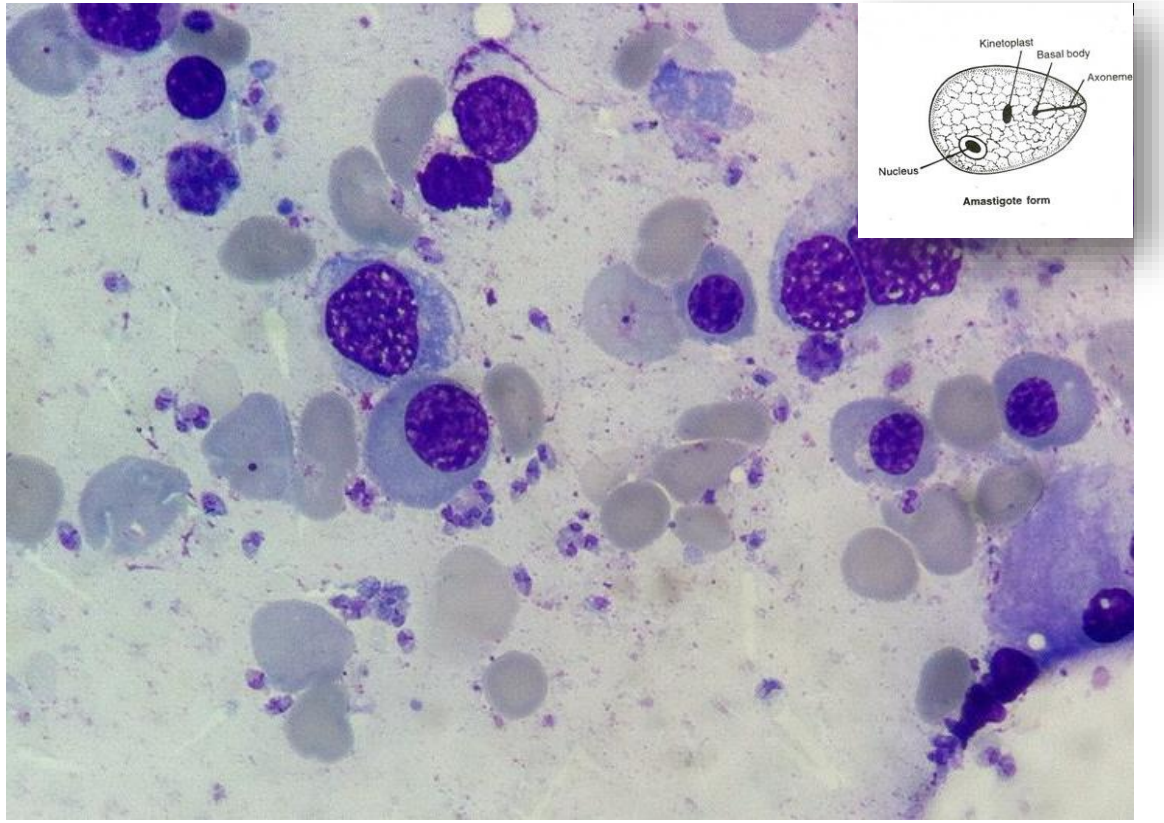
is the most appropriate treatment?

A. Artesunate + mefloquine
B. Artesunate + doxycycline
C. Dihydroartemisinin/piperaquine + chloroquine
D. Artesunate/pyronaridine + chloroquine
E. Dihydroartemisinin/piperaquine + primaquine




Leishmania spp.

Leishmaniasis



- Common in southern region
- Species: *L. martiniquensis, L. siamensis*

Clinical syndromes: prolonged fever, hepatosplenomegaly, pancytopenia, skin ulcers

Treatment: liposomal amphotericin B, miltefosine


H
ABDOMEN, UPPER
V PHASE V-PHASE/Coronal.1
14/03/2023, 15:34:27
VISIPAQUE320
LOC: -26.35
THK: 3 SP: ---
FFS
Vol:
R
L
V-PHASE\Coronal.26

ID_STATION
Z: 1.0
C: 50
W: 360
DFOV: 40.0x 40.0cm
IM: 26 SE: 14
RD: 400.39
Tilt: 0
mA: 415
KVp: 120
Acq no: 7
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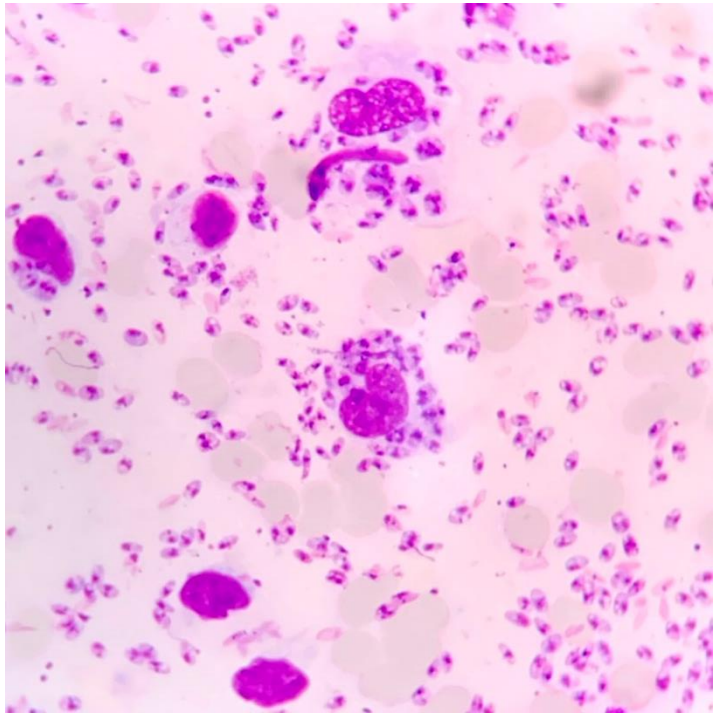
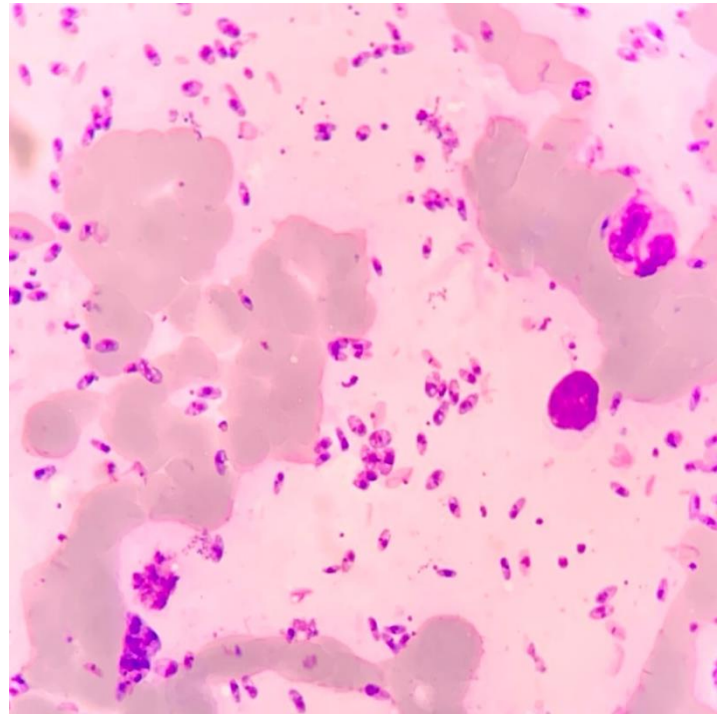
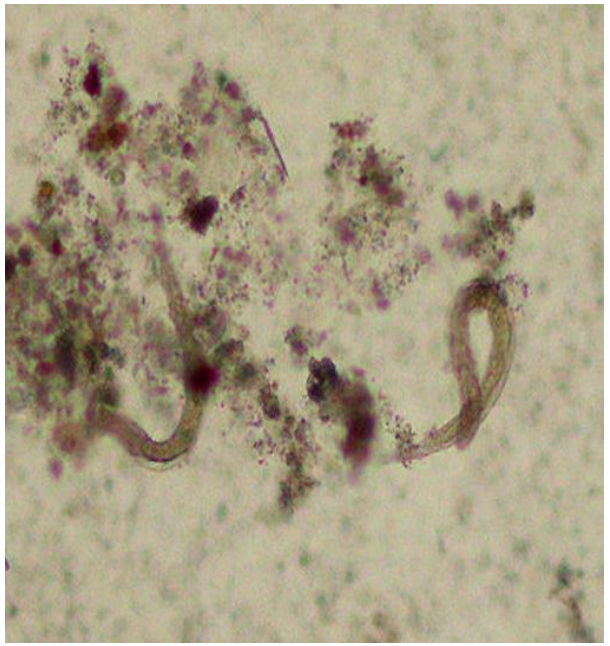




Q24: A 25-year-old male presented with watery diarrhea for 2 weeks. Fresh fecal sample showed the organism with 20 X 100 micrometer.

Which of the followings
is the most appropriate treatment?

A. Mebendazole
B. Albendazole
C. Thiabendazole
D. Ivermectin
E. Praziquantel



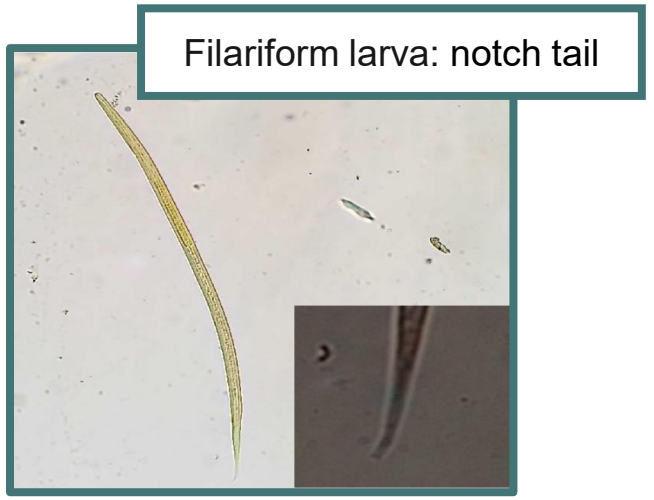
Strongyloidiasis

Susceptible host: steroid user

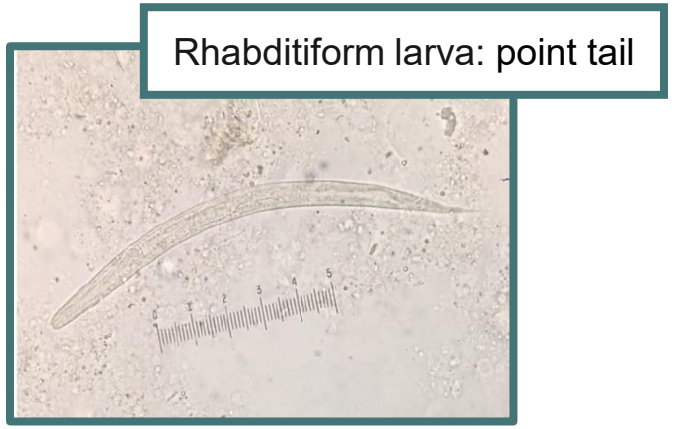
Clinical manifestation

- GI: diarrhea, malabsorption syndrome
- Larva currens
- Hyperinfection & disseminated infection
- Unexplained source of GNR sepsis

Thumbprint purpura



Filariform larva: notch tail



Rhabditiform larva: point tail

Investigation

- Sputum & stool fresh smear, antibody (EIA)

Treatment

- Ivermectin (200 mcg/kg x 2 days for GI, 14 D after –ve smear for severe disease)

Q25: A 30-year-old man presented with 1-day history of fever, dry cough and dyspnea. He had recurrent meningioma and was treated with dexamethasone.

Sputum gram stain was shown in the figure after ivermectin was given for 2 days.

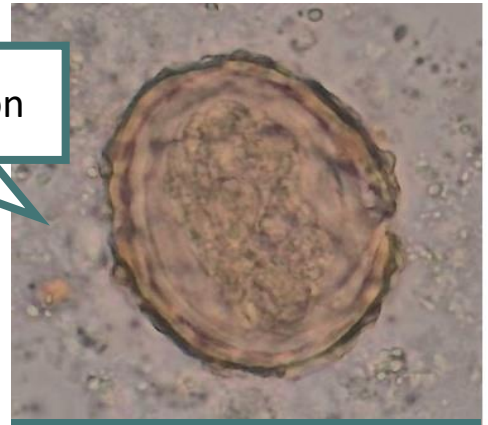
Which of the following

is the most appropriate management?

A. Add praziquantel
B. Add albendazole
C. Add diethylcarbamazine
D. Extend duration of ivermectin
E. Increase dose of ivermectin

Intestinal helminth

Intestinal obstruction

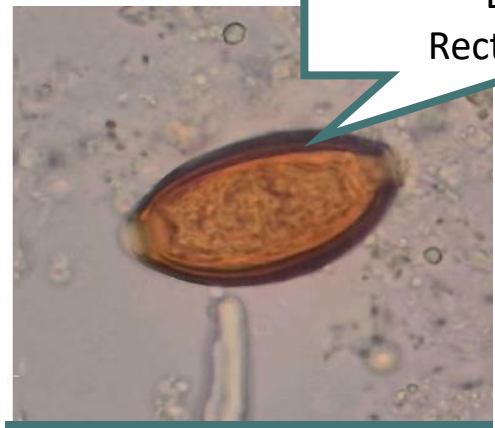


Ascaris lumbricoides

Iron deficiency anemia

Hookworm

Diarrhea
Rectal prolapse



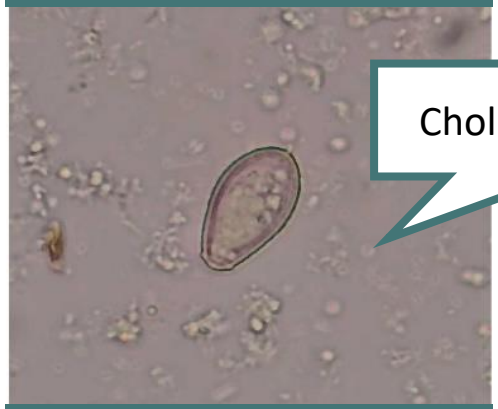
Trichuris trichiura

Chronic diarrhea
Malabsorption

Capillaria phillippinensis

Taenia spp.

Cholangiocarcinoma



Opisthorchis viverrini

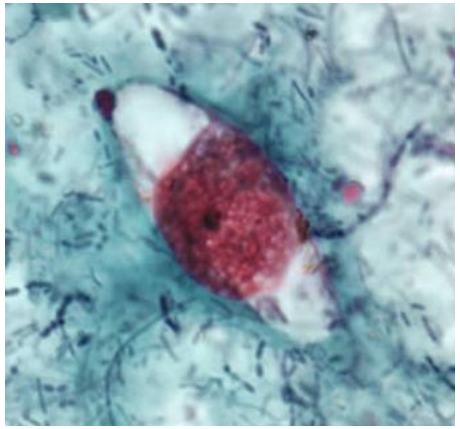
Antiparasitic agents

Parasitic infection	Drug of choice
Hookworm *Ascaris lumbricoides* *Capillaria phillippinensis* *Trichuris trichiura*	Albendazole
Filaria	DEC + doxycycline
Strongyloides stercoralis	Ivermectin
Taenia spp.	Praziquantel
Paragonimus spp. *Fasciolopsis buski* *Opisthorchis viverrini*	
Fasciola hepatica	Triclabendazole

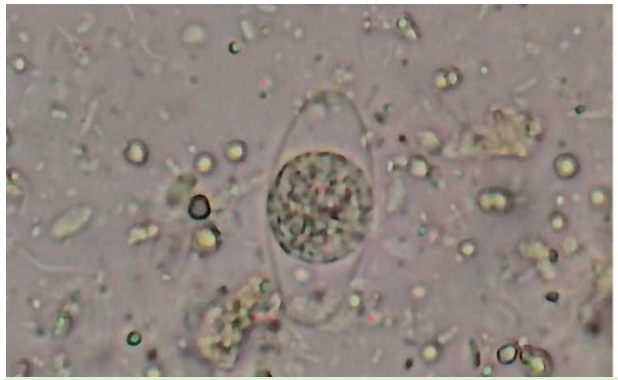
Q26: A 28-year-old male living with HIV presented with chronic watery diarrhea. Stool MAFB is shown in this figure.

Which of the following agent is the most appropriate treatment?

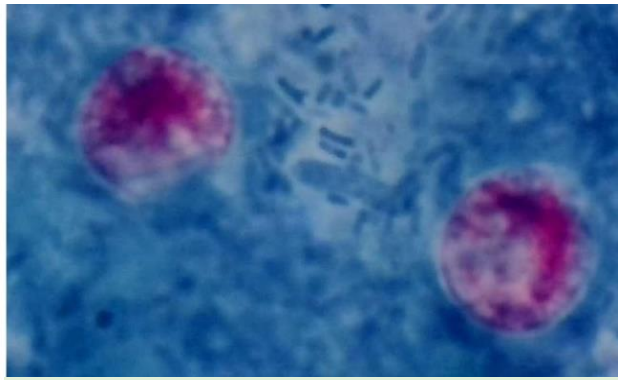
A. Nitazoxanide
B. Paromomycin
C. Fumagillin
D. Albendazole
E. Trimethoprim/sulfamethoxazole



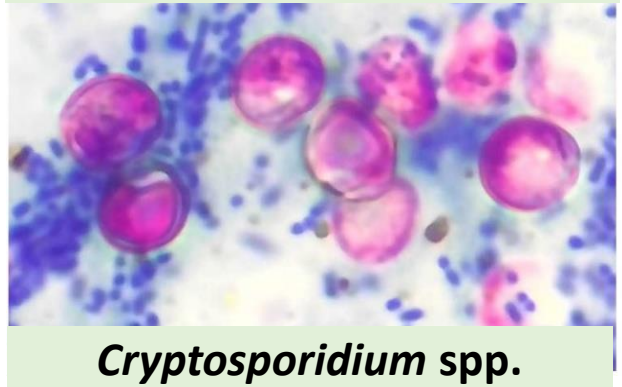
Intestinal protozoa



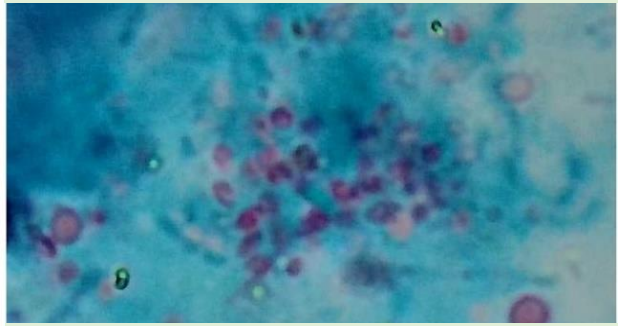
Cystoisospora belli
Rx: cotrimoxazole



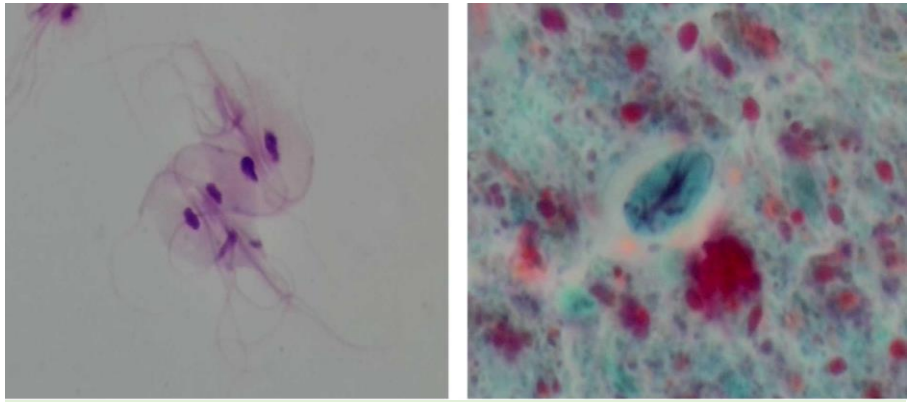
Cyclospora cayetanensis
Rx: cotrimoxazole



***Cryptosporidium* spp.**
Rx: ART (HIV), nitazoxanide (non-HIV)



Microsporidia
Rx: ART



***Giardia* spp.**
Rx: metronidazole

Tropical infections

Q27: An 18-year-old pregnant woman living in Kanchanaburi presented with fever chills, headache, diffused eye pain and muscle pain.

Examination showed a 0.5-cm lesion with necrotic area in her left breast.

Dengue NS1, IgG and IgM were negative. Other serology was pending.

Which of the following is the most appropriate treatment?

A. Wait for the result of the tests

B. Azithromycin

C. Doxycycline

D. Ceftriaxone + azithromycin

E. Ceftriaxone + doxycycline

Rickettsial infections

Clinical syndrome: AUFI (acute fever, headache & myalgia, MP rash)

	Orientia tsusugamushi	*Rickettsia typhi*
Vector	Chigger	Rat flea
Disease	Scrub typhus	Murine typhus
Eschar	May be found (50-80%) 	No
Complications	Aseptic meningitis, encephalitis, pneumonitis, hepatitis (↑AST/ALT)	
Investigation	IFA, Weil-Felix test (non-specific and rarely used)	
Treatment	Doxycycline 100 mg po bid x 7 D or azithromycin 500 mg po OD x 3 D	

Leptospirosis

Anicteric leptospirosis

- Fever with myalgia esp. calf & back
- Conjunctival suffusion & hemorrhage
- May have aseptic meningitis

Weil's syndrome

- Jaundice
- Acute renal failure
- Myocarditis
- Pulmonary hemorrhage & ARDS

Investigation

- Gold standard: Microagglutination test
- Widely available test: IFA
- PCR

Treatment

- Mild form: doxycycline or azithromycin
- Severe form: PGS/ceftriaxone IV 7 D

Q28: A 30-year-old man presented with high fever, headache, muscle pain for 4 days.

PE: T 38.5°C, BP 110/70 mmHg, HR 100/min, swelling at right hands. No petechiae or rash.

CBC: Hct 40%, WBC 3,000 /cumm. (5% atypical lymphocyte), platelets 150,000 /cumm.

Cr 1 mg/dL, AST 70 mg/dL, ALT 100 mg/dL

NS-1 antigen: negative, Dengue IgM: positive, Dengue IgG: negative

Which of the following is the most likely diagnosis?

A. Dengue fever
B. Chikungunya
C. Infectious mononucleosis
D. Acute retroviral infection
E. Zika viral infection

Arthropod borne viral infections

	Dengue	Chikungunya	Zika
Fever	**+++**	++	+/-
Headache	**+++**	+	+
Myalgia	**+++**	++	+
Arthralgia	+/-	**+++**	+
Maculopapular rash	+	++	**+++**
Non-purulent conjunctivitis	-	++	**+++**
Thrombocytopenia	**+++**	+/-	+/-
Shock syndrome	**+++**	-	-
Neurological complications	Encephalitis	Encephalitis/ GBS	GBS, microcephaly

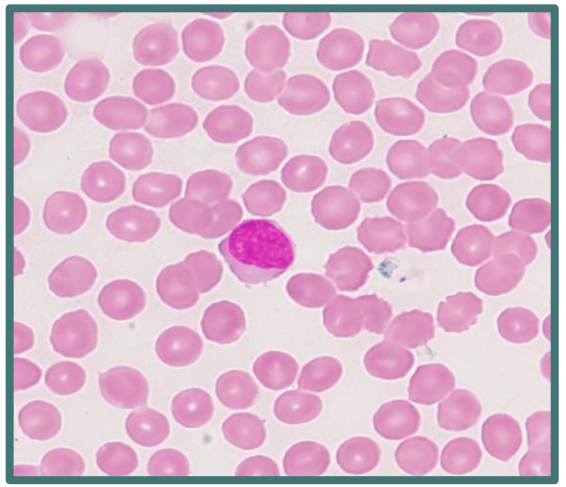
Dengue infection

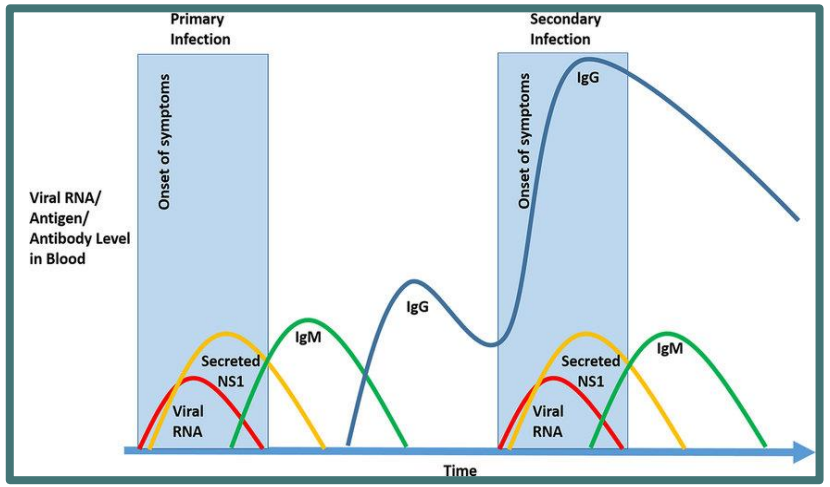
Dengue fever (DF)

- Fever with myalgia
- Headache and retro-orbital pain
- Hemorrhagic manifestation

Dengue hemorrhagic fever (DHF)

- Evidence of plasma leakage
  (↑Hct >20%, pleural effusion
  ascites, hypotension)





CBC: leukopenia (band), thrombocytopenia, ↑Hct

PBS: Atypical lymphocyte

1º infection: High Sn of NS1 in 3-5 days
Dengue IgM +ve after D5-14
2º infection: False -ve NS1
False –ve IgM

Treatment: supportive treatment

Prevention: DEET, dengue vaccine (Qdenga at 0, 3 M)

Fever with rash

Viral pathogen	Characteristics	Other clues
Measles	Morbiliform maculopapular rash Starts at hairline and spread downward	3C: cough, coryza, conjunctivitis Koplik spot
Rubella	Pink maculopapular rash Starts at face and spread downward	Postauricular + occipital LN Forchheimer spots
Parvovirus B19	Slapped cheek facial erythema Lacy/reticular rash on body	Arthralgia
Epstein-Barr virus	Maculopapular rash after amoxicillin	Pharyngitis & tonsillar exudates Posterior cervical LN, splenomegaly
Zika virus	Diffuse maculopapular rash, pruritic	Non-purulent conjunctivitis, arthralgia
HIV	Diffuse maculopapular rash, non-pruritic Can include palms and soles	Sore throat, mucocutaneous ulcer Generalized lymphadenopathy

Q29: A previously healthy 18-year-old male presented with fever, muscle ache and joint pains for one week. He had a rash for four days.

Physical examination revealed posterior auricular, cervical lymphadenopathy, and a maculopapular rash on his face, torso, and arms.

Which of the following is the most likely diagnosis?

A. Fifth disease
B. Zika virus infection
C. Infectious mononucleosis
D. Rubella
E. Measles

Q30: A 30-year-old 24-week pregnant woman presented with fever, generalized joint pain, and rash on both cheeks for 5 days.

PE: moderate pallor, macular rash at both cheeks, and no arthritis.

CBC: Hb 8 g/dL, WBC 4,000/cu.mm. (PMN 60%, L 35%, M 5%), platelets 120,000/cu.mm.

Which of the following is most likely causative pathogen?

A. Cytomegalovirus
B. Zika virus
C. Epstein-Barr virus
D. Chikungunya virus
E. Parvovirus B 19

Good luck!