

## Introduction

- ❖ Differentiate COVID diarrhea vs other causes, especially in the HIV/AIDS population
- ❖ Diarrhea in individuals with HIV is often caused by infection but also due to infiltrative disease, inflammatory, and neoplastic GI disease
- ❖ Small Intestine biopsy is essential in making the diagnosis

## Objectives

- ❖ Differential diagnosis of diarrhea
- ❖ Accurate diagnosis diarrhea etiology will help manage GI complications and reduce mortality in HIV infected patients

## Patient presentation

### History of present illness:

- A 39-year-old male presented with two months of epigastric abdominal pain, severe diarrhea, and dehydration during the first surge of Coronavirus disease (COVID 19) pandemic in Fall 2020.
- **Symptoms:** watery diarrhea, diffuse abdominal pain, 20-pound unintentional weight loss for eight weeks.
- **3 days before presentation**, he had worsening watery diarrhea with intermittent left sided abdominal pain
- **On day of presentation**, syncope while using the restroom after explosive diarrhea

**PMH:** HIV/AIDS, AIDS wasting syndrome, Pneumonia ( 4 weeks ago), Anemia with a Hg of 5.4 g without active gastrointestinal bleeding

**Social:** No tobacco use, alcohol use, abstinence from illicit drug 28 months

**Medication:** none

### Physical exam:

- Vital sign: severely hypotensive BP 75/44, HR 122, O2 Sat 87% on RA
- Exam: mild epigastric tenderness, hepatomegaly, and splenomegaly; otherwise, exam normal

### Laboratory data:

- CBC: Hg 4.3 and Hct 15.4%. Iron study: Anemia of chronic disease
- (+) Covid 19
- (-) GI panel PCR
- (-) fecal occult blood test.
- CD4 count 1; HIV viral load 48,700
- MRI abdominal and pelvic: diffuse bowel wall thickening in the distal jejunum and ileum and mild retroperitoneal adenopathy without dominant nodal mass

## Management

- Transfused 3 g/dL (Unit) RBC. Hemodynamic was stable with BP 112/74, HR 80, RR 18, O2 Sat 96% on RA
- Admitted as an inpatient. EGD and Colonoscopy with biopsy were scheduled for the next day
- **EGD** finding abnormal variegated mucosa and scattered white plaques in the duodenum
- **Colonoscopy** finding a normal mucosal appearance
- **Pathology reported:**  
Duodenal biopsy showed
  - Markedly expanded lamina propria with macrophages in lamina propria (Fig.1).
  - Lamina propria with numerous histocytes having finely granular chromatin pattern (Fig.2).
  - Hematoxylin and eosin stain showed collections of macrophages filled with bacilli (Fig. 3).
  - The Ziehl-Neelsen stain highlights the acid-fast bacilli (Fig 4).
  - The organisms were also positive for PAS (Periodic acid-Schiff) (Fig. 5).
- Colon was normal finding.
- **The patient was diagnosed with Mycobacterium avium-intracellulare enteritis**

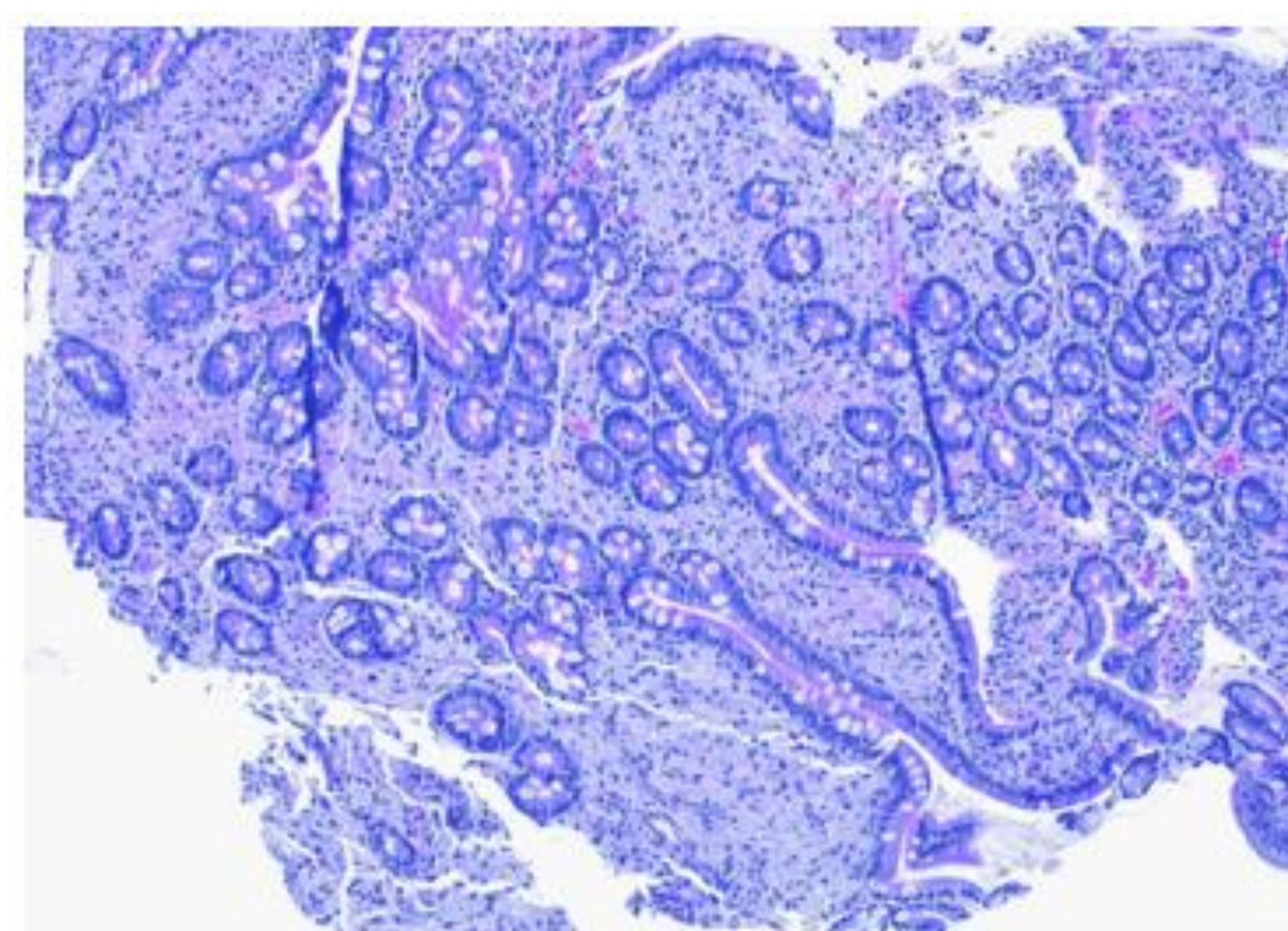


Fig. 1: Duodenal biopsy marked expanded lamina propria

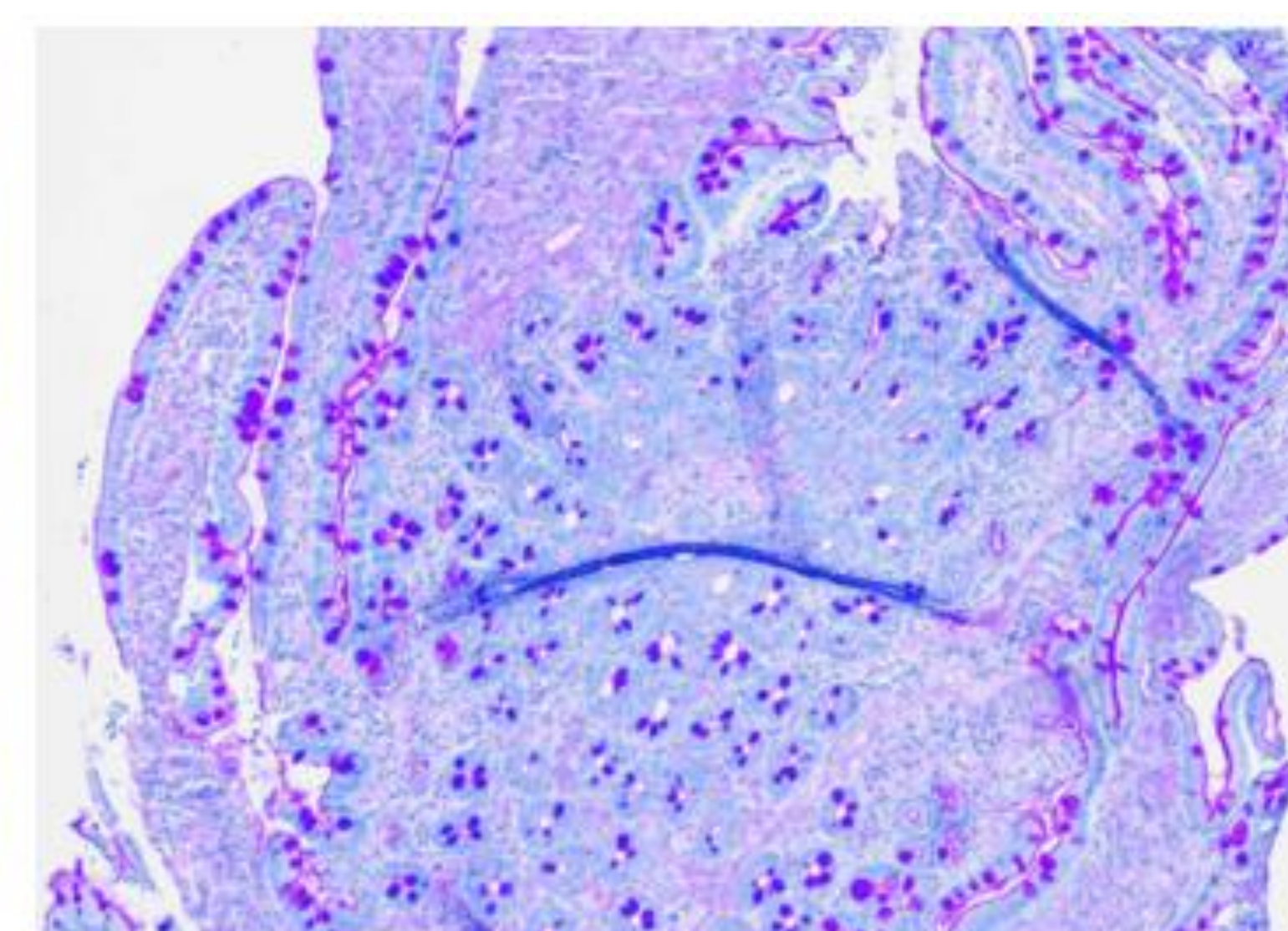


Fig. 2: Expanding of lamina propria by numerous histocytes having finely granular chromatin pattern

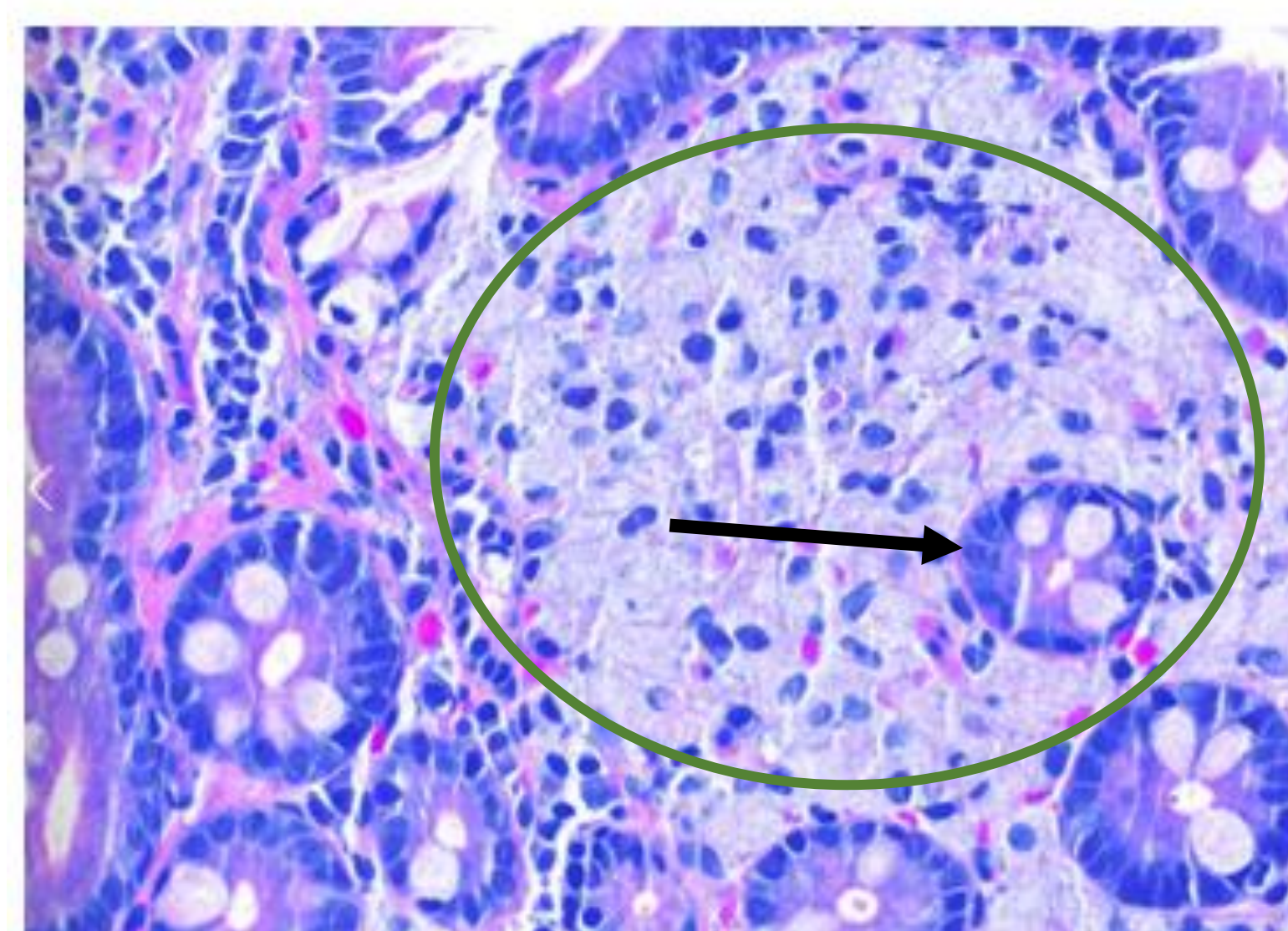


Fig. 3: hematoxylin and eosin stain showed collections of macrophages filled with bacilli

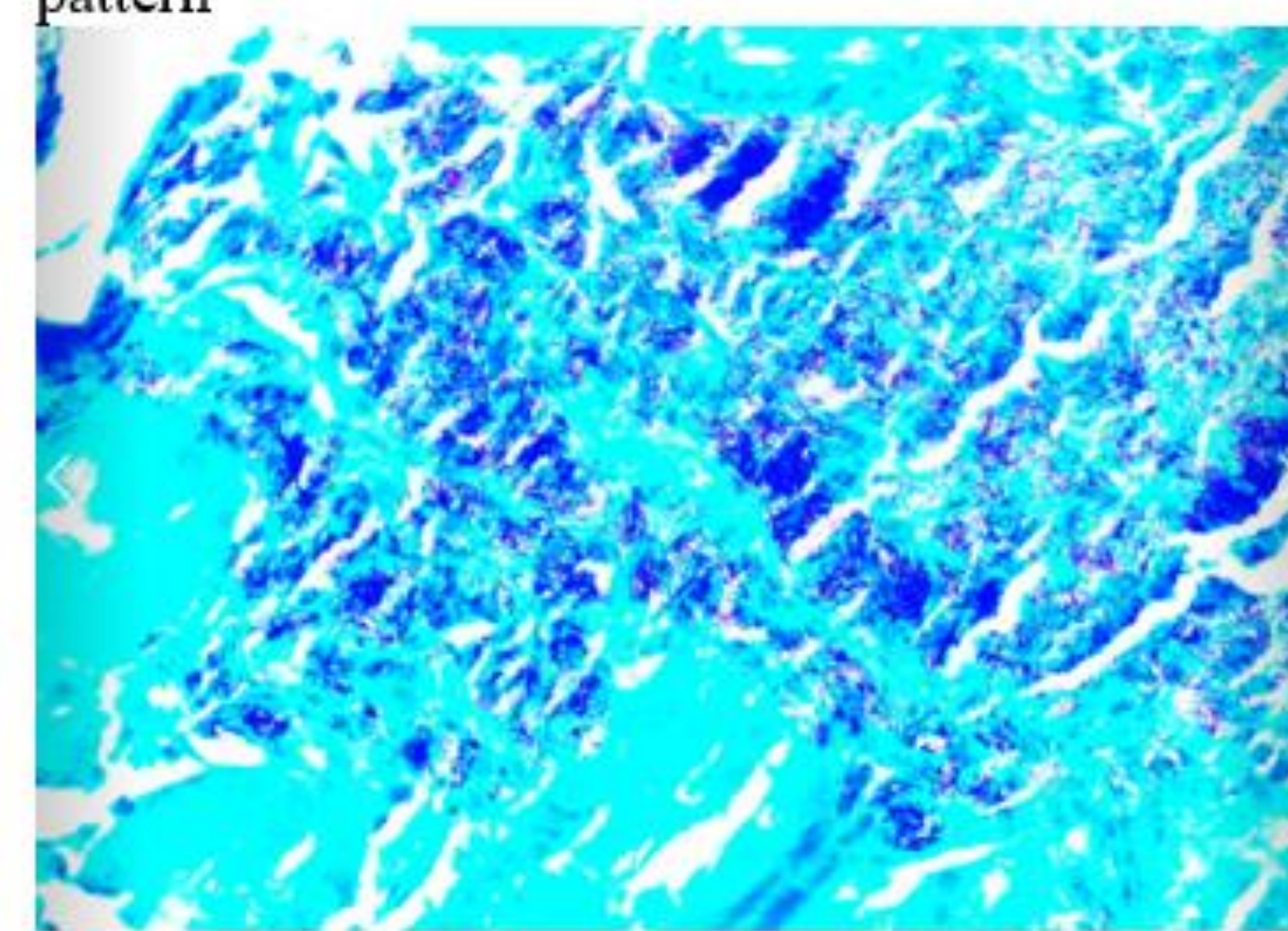


Fig. 4: Ziehl-Neelsen stain highlights the acid-fast bacilli

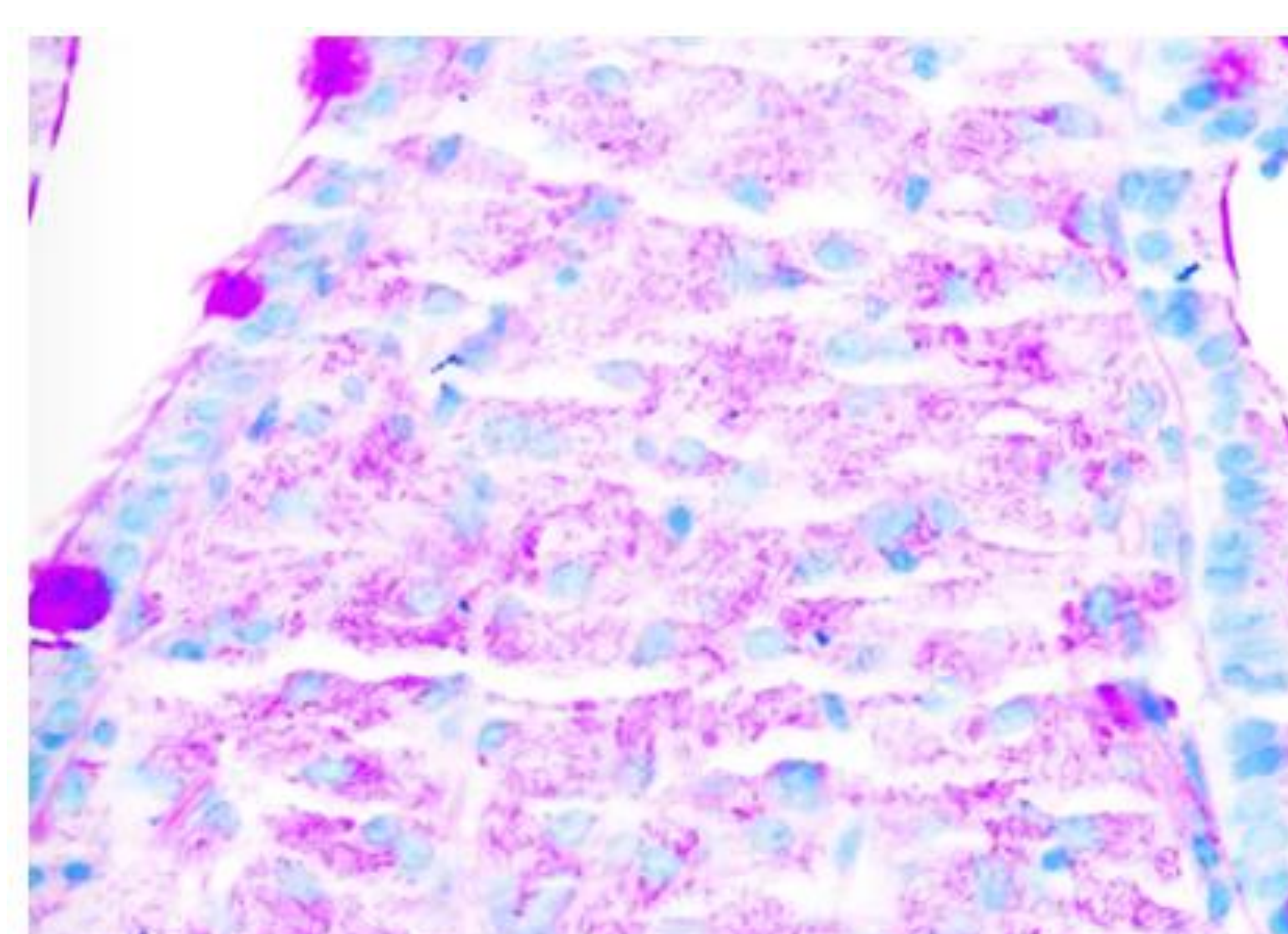


Fig 5: Organisms also positive PAS

## Discussion

- ❖ MAC infection of the small intestines was disseminated. This is an AIDS defining illness in those with a CD4 count less than 50 and those who do not use prophylaxis against MAC infection (1).
- ❖ Important to differentiate MAC from other diseases with a macrophage infiltration or inclusions such as Whipple's disease, Histoplasmosis/Cryptococci, and Macroglobulinemia
  - **MAC: (+) AFB , (+) PAS, macrophage infiltration (2).**
  - **Whipple's disease: (-) AFB , (+) PAS , Diastase-resistance, inclusions are round/sickle shape**
  - **Histoplasmosis/Cryptococci: (-) AFB, (+) PAS, (+) GMS , H & E stain** basophilic yeast cytoplasm separate from surrounding tissue.
  - **Macroglobulinemia: weak (+) PAS**
- ❖ MAC infection is thought to be from inhalation or ingestion of the MAC organism including water and soil. HIV patients with low CD4 counts can be infected through indoor pool, bronchoscopy, repeated consumption of raw or partially cooked fish or shellfish (3).
- ❖ Treatment MAC (4):
  - Dual therapy Antimicrobial therapy (Macrolide + Ethambutol) + Antiretroviral therapy (ART)
  - Adding Rifabutin if failure ART or high Mycobacterial burden

## Conclusions

- ❖ This 39-year-old male presented with chronic diarrhea without fever or respiratory symptoms with COVID infection.
- ❖ The most pertinent question for the health care team was whether COVID 19 caused the diarrhea in the setting when we knew little about COVID infection causing GI symptoms like diarrhea and we did not list other etiologies such as MAC infection high on the differential diagnosis.
- ❖ Endoscopy with biopsy of the small intestine was essential for an accurate diagnosis.
- ❖ Disseminated MAC has a poor prognosis.

## References

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