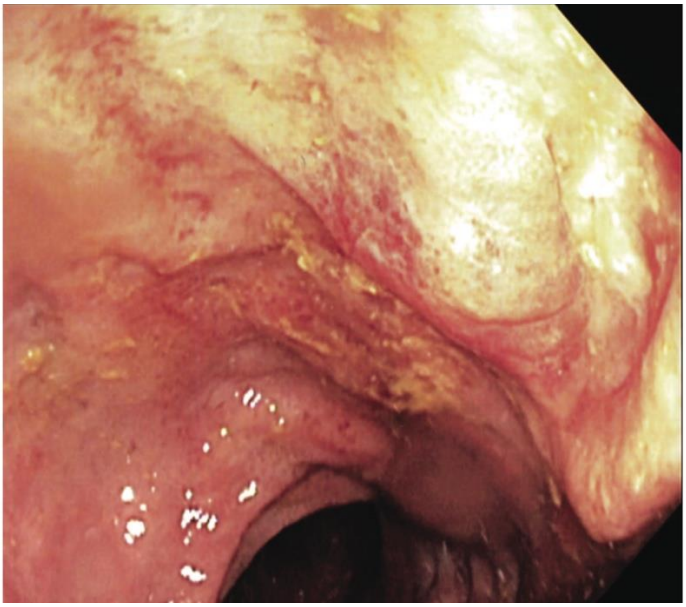
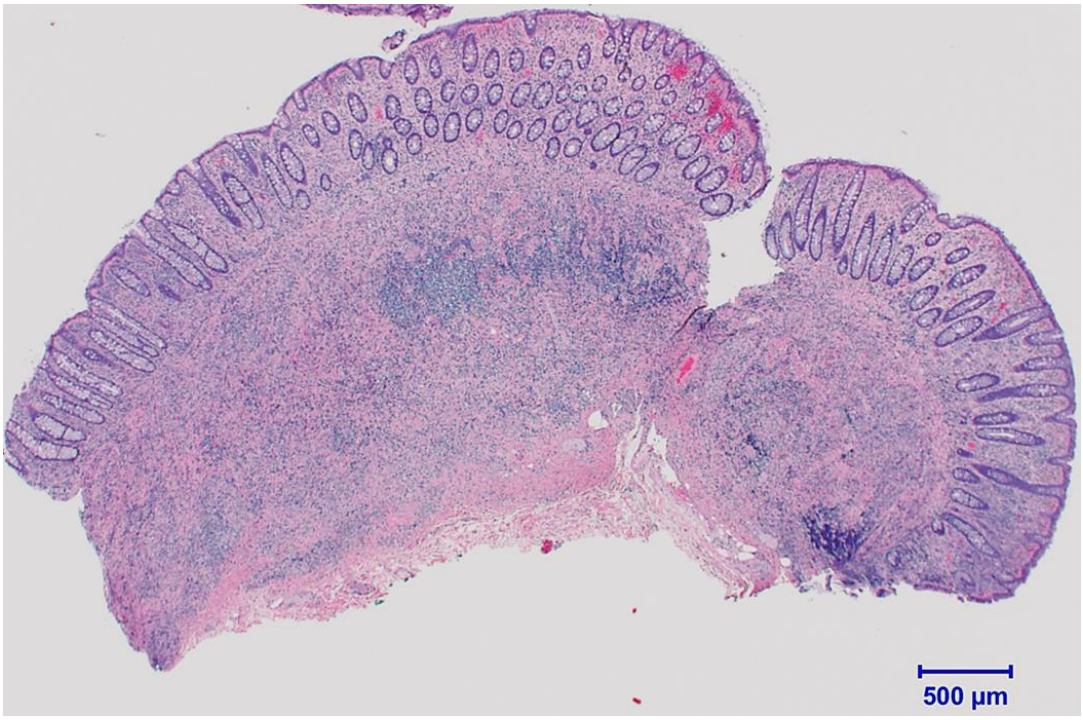
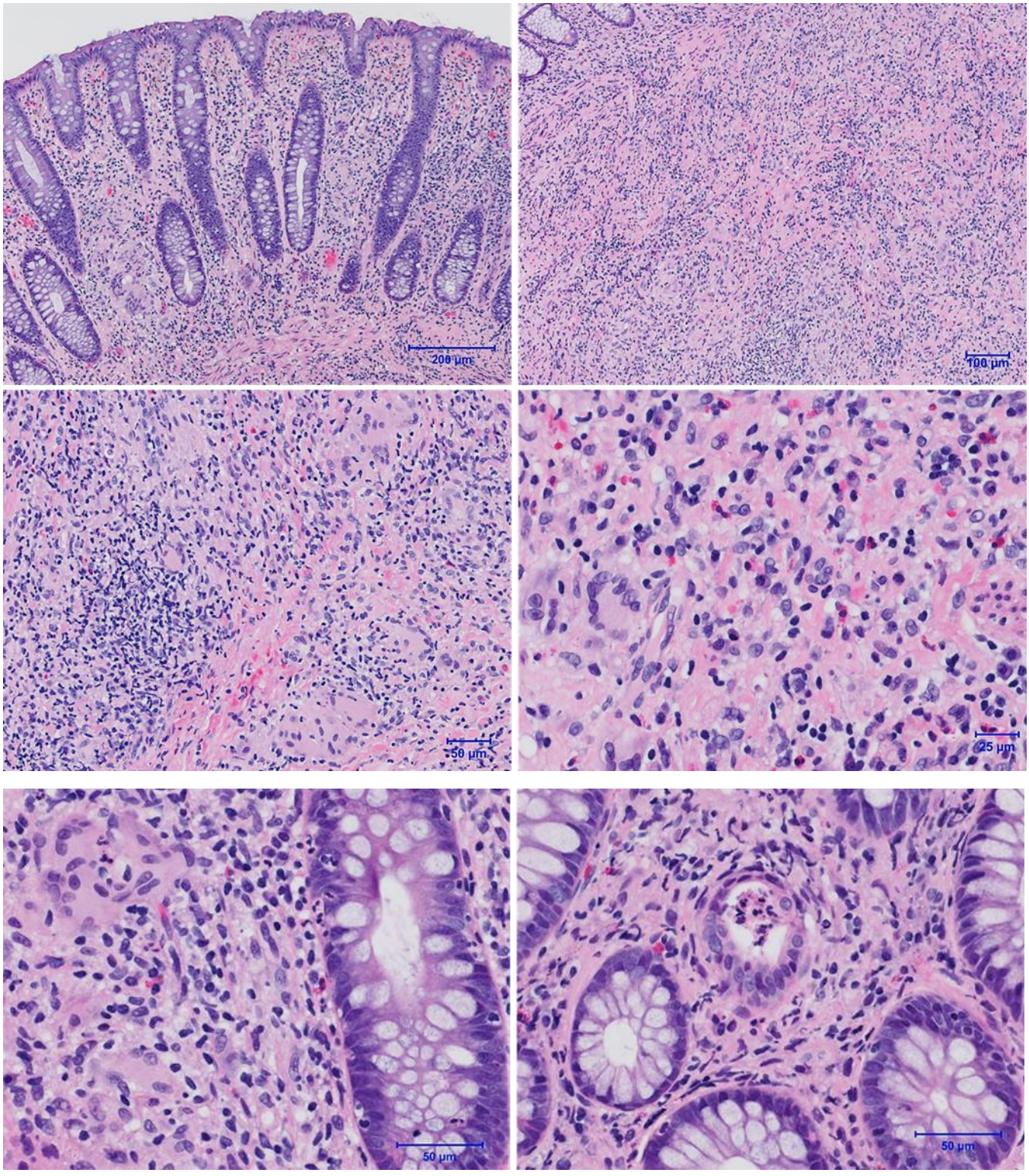
CASE HISTORY:

A 41-year-old man with no known history of malignancy was referred to our institution for evaluation of a rectal mass and pelvic lymphadenopathy. Symptoms included generalized fatigue for one month's duration, pelvic pain, a rash on the palms and soles, as well as macular rash on the abdomen. By report, previous colonoscopies with biopsies were negative for malignancy (slides not available for review). A proctoscopy was performed at our institution and biopsies were taken. A representative endoscopic image is provided below. AFB (acid fast bacteria), Fite and GMS (Grocott's Methenamine Silver) stains and a CMV immunostain were negative. The patient tested negative for HIV antibodies.



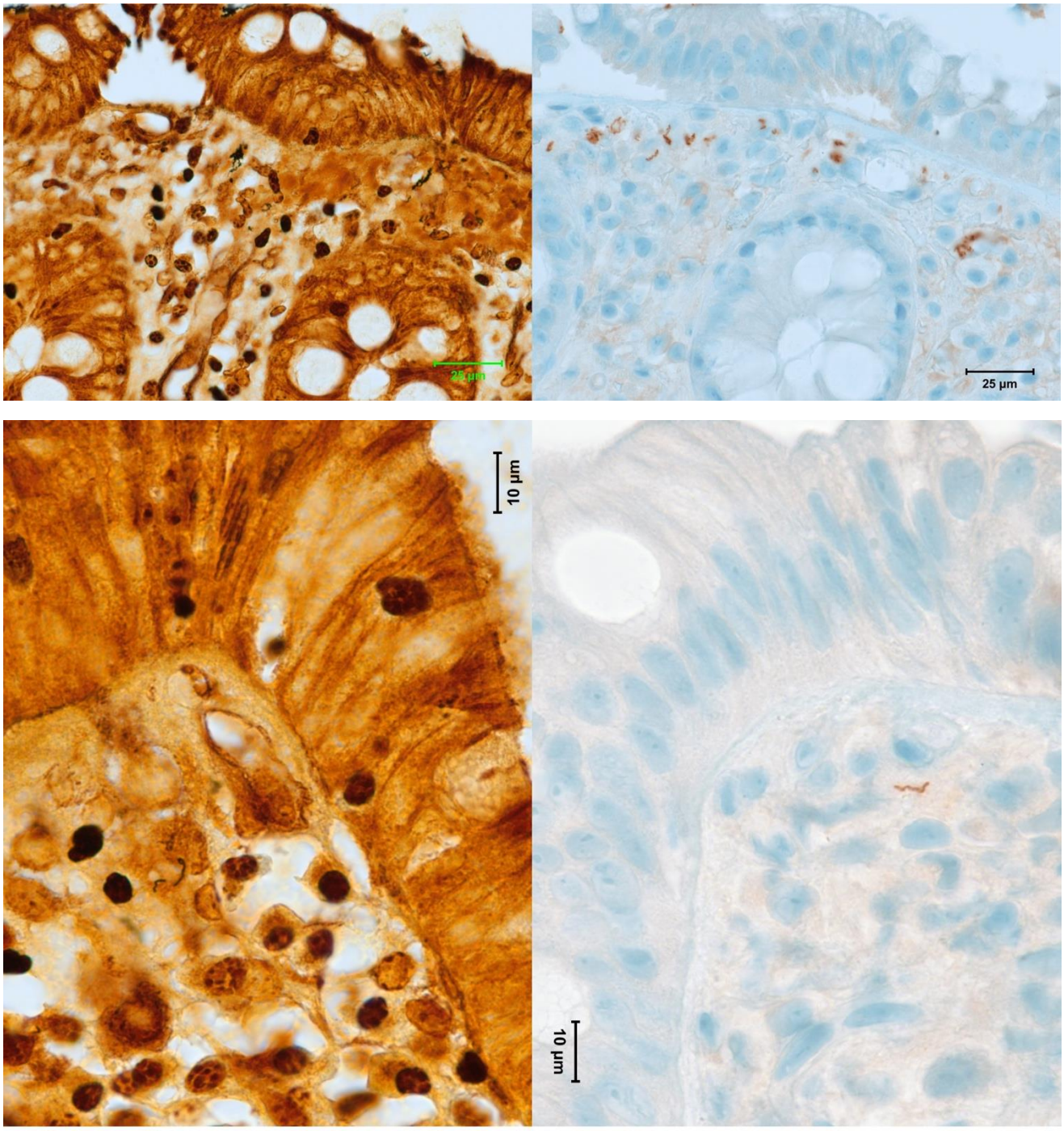



200 µm
100 µm
50 µm
25 µm
50 µm
50 µm

What is your preliminary diagnosis?

A. Crohn's disease
B. Radiation proctitis
C. Intestinal spirochetosis
D. Syphilitic proctitis
E. Lymphogranuloma venereum proctitis

Additional stains were performed (see next page).



Wartin-Starry stain

Immunohistochemistry

1. What immunostaining was likely performed?
2. What is your final diagnosis?

Answers

1. Anti- *Treponema pallidum* immunohistochemistry was performed
2. Final diagnosis is D. Syphilitic proctitis

Discussion:

D. Sections demonstrate rectal mucosa with foci of cryptitis, rare crypt abscesses and minimal basal plasmacytosis. The lamina propria shows moderate expansion by lymphocytes, histiocytes, plasma cells, occasional eosinophils and rare neutrophils. The muscularis mucosa and submucosa show marked expansion by predominantly lymphohistiocytic inflammation with occasional poorly-formed, non-necrotizing granulomas and fibrosis. Scattered plasma cells are seen in the submucosa. A Warthin-Starry stain and *Treponema pallidum* immunostain highlight spirochetes within the superficial lamina propria. These findings are consistent with syphilitic proctitis.

Syphilis is a sexually transmitted disease caused by the bacterium *Treponema pallidum* and is associated with significant complications if left untreated. The incidence of syphilis has increased in every region of the United States since 2000, which underscores the importance of its recognition [1]. Primary and secondary anorectal syphilis is a rare presentation of the disease. Typical histologic findings on rectal biopsy include an intense lymphohistiocytic infiltrate with prominent plasma cells and lymphoid aggregates. Ulcerations and erosions can be seen, as well as mild cryptitis and crypt abscesses. Submucosal fibrosis can lead to the clinical appearance of a mass lesion. *Treponema pallidum* immunostain reveals spirochetes that may be within the epithelium or, as in our case, in the lamina propria [2]. Our case was unusual in that plasma cells were not prominent in the submucosa. This lack of a dense plasma cell infiltrate appears to be rare but can occur in syphilitic proctitis [3].

A. Crohn's disease: There are histologic findings in syphilitic proctitis that can mimic Crohn's disease, as seen in our case, including expansion of the lamina propria, basal plasmacytosis, cryptitis and crypt abscesses, and non-necrotizing granulomas. However, the extent of architectural crypt disarray typically seen in cases of established inflammatory bowel disease is not appreciated in this case [2,4].

B. Radiation proctitis: The rectal location, the appearance of the lesion on endoscopic exam, focal cryptitis and crypt abscesses, epithelial injury and areas of fibrosis raise the possibility of radiation proctitis, however there is no history of radiation therapy in this case.

C. Intestinal spirochetosis: The most common microorganisms reported in intestinal spirochetosis include members of the *Brachyspira* genus [5]. *Brachyspira* sp. can be highlighted by Warthin-Starry stain and have been reported to be positive on *Treponema pallidum* immunostains, possibly due to shared or similar antigenic epitopes that are crossreactive to some clones of anti-*Treponema pallidum* antibodies [6,7]. However, microorganisms of intestinal spirochetosis have a different morphologic appearance and are found at the luminal surface of colonocytes.

E. Lymphogranuloma venereum (LGV) proctitis: LGV proctitis, caused by *Chlamydia trachomatis*, can have similar histologic findings to syphilitic proctitis and is an important consideration in the differential diagnosis [2]. A concurrent infection with *Chlamydia trachomatis* is possible, but in our case, the patient's symptoms and the rectal lesion resolved after treatment for syphilis.

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