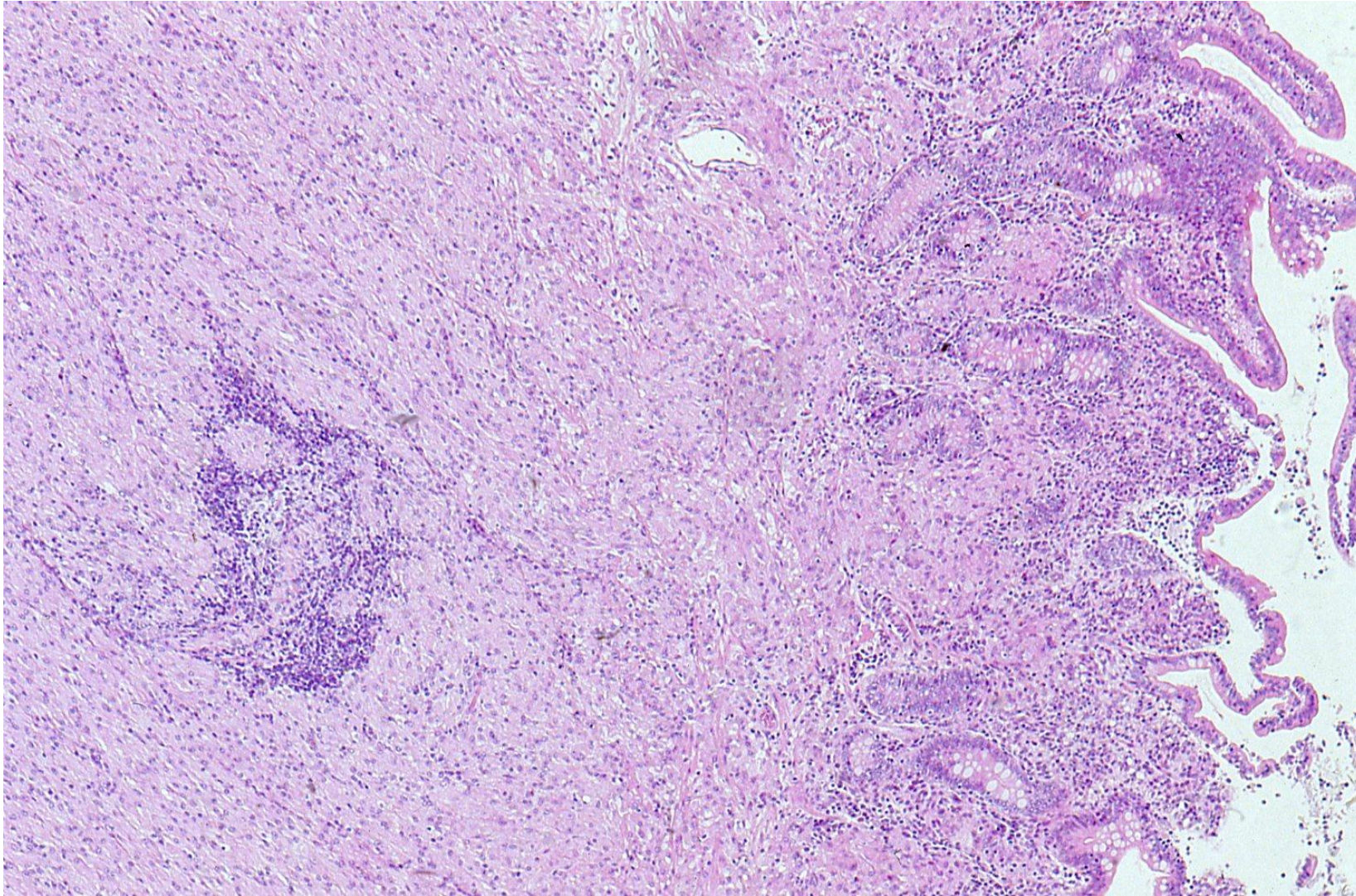


Mycobacterium paratuberculosis infection in cattle (Johne's disease)

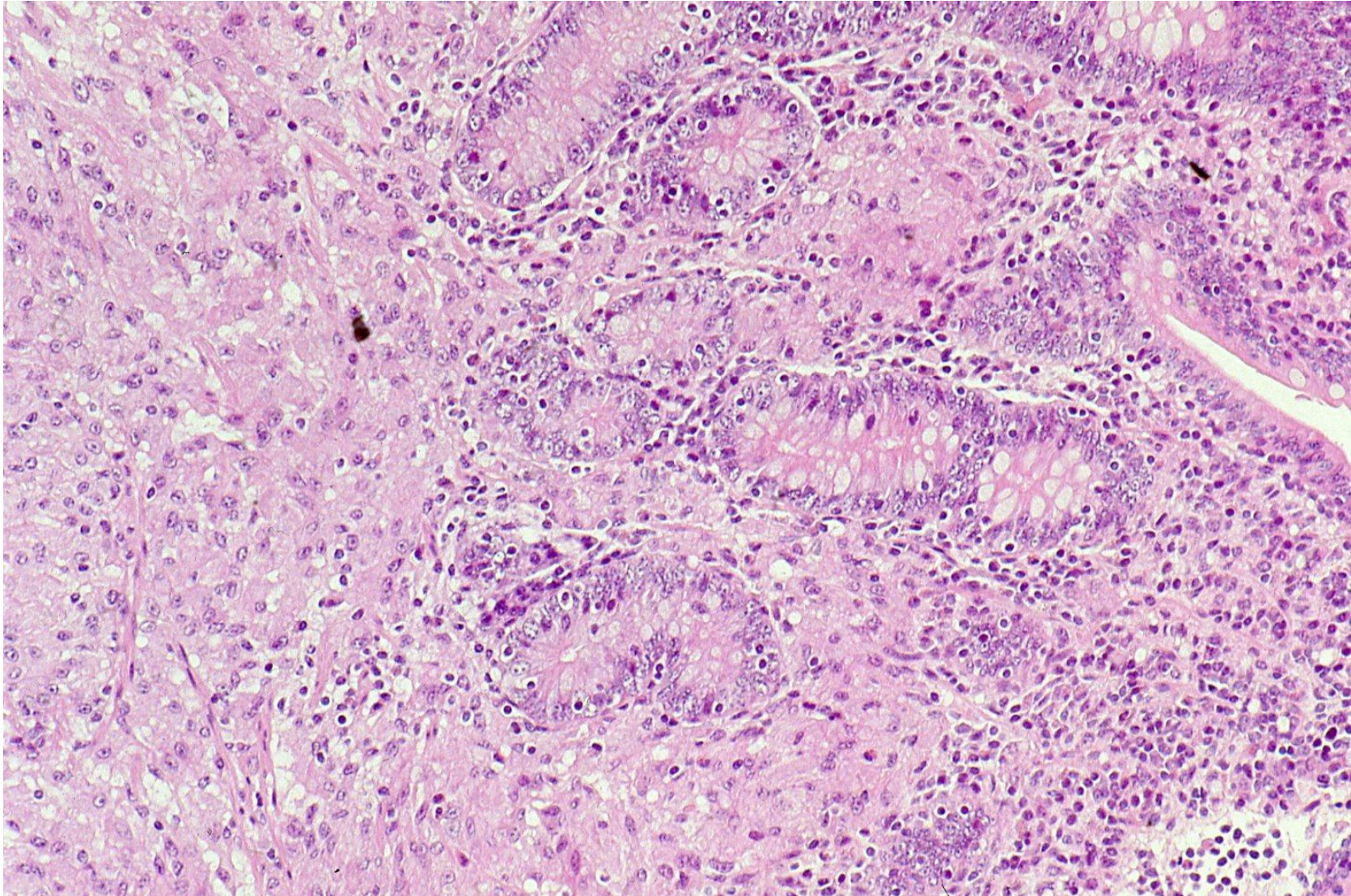
Johne's disease (*Mycobacterium paratuberculosis* infection: paratuberculosis) is a chronic, progressive diarrheal granulomatous disease caused by infection of *Mycobacterium avium* subspecies *paratuberculosis* (MAP) primarily affecting the ileum of ruminant animals, particularly dairy cattle. The involved intestine is thickened, corrugated and reddened with regional lymph node swelling. Longitudinal ulceration may be associated. Microscopically, it resembles that of multibacillary (lepromatous) leprosy. The possibility that MAP infection could be a cause of some cases of Crohn's disease in humans has long been discussed. MAP can be cultured from the peripheral mononuclear cells from 50-100% of patients with Crohn's disease, and less frequently from healthy individuals.

Ref.-1: National Research Council (US) Committee on Diagnosis and Control of Johne's Disease. Diagnosis and Control of Johne's Disease. Washington (DC): National Academies Press (US); 2003. PMID: 25032299

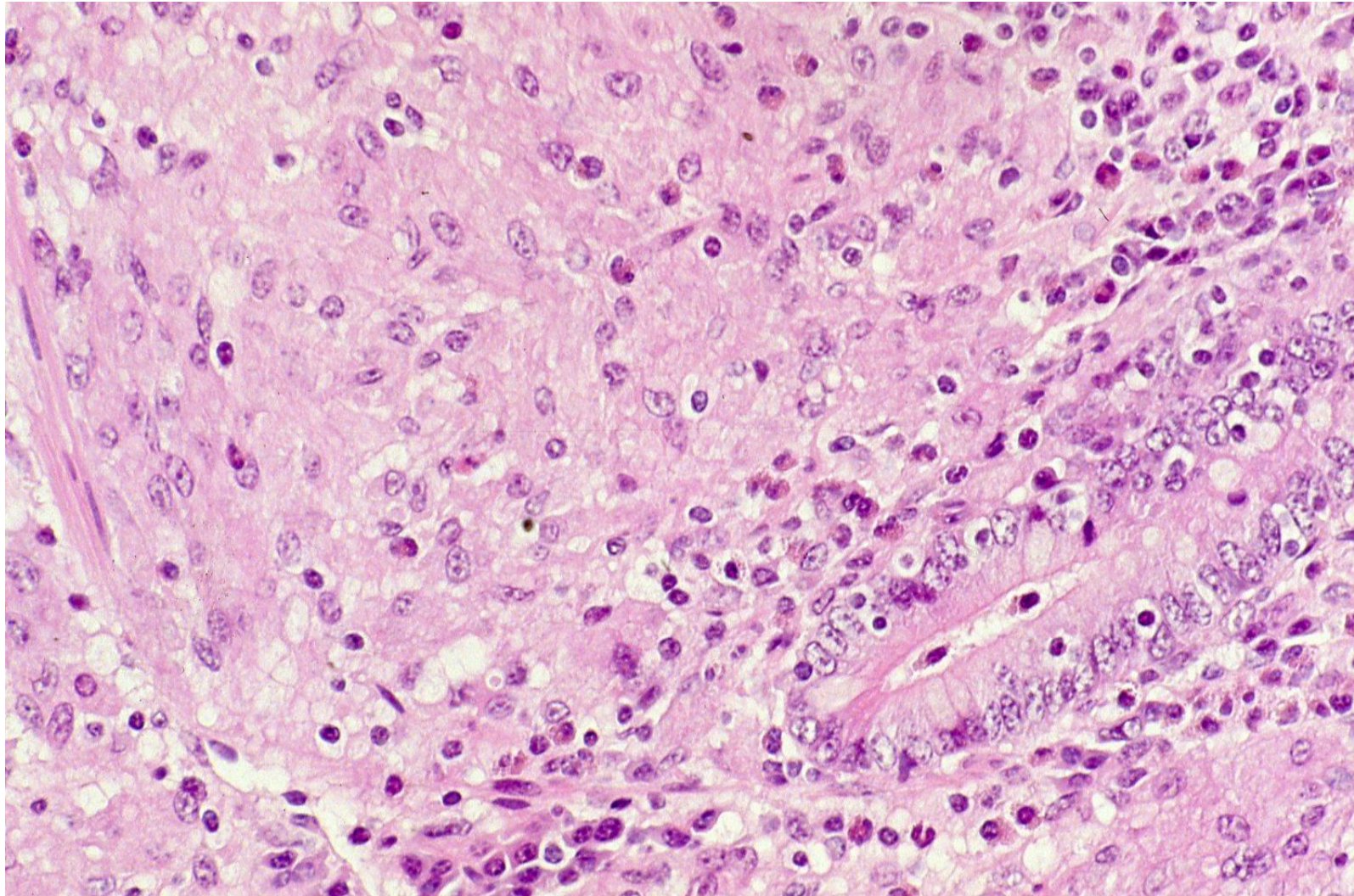
Ref.-2: McNees AL, et al. *Mycobacterium paratuberculosis* as a cause of Crohn's disease. Expert Rev Gastroenterol Hepatol 2015; 9(12): 1523-1534. doi: 10.1586/17474124.2015.1093931



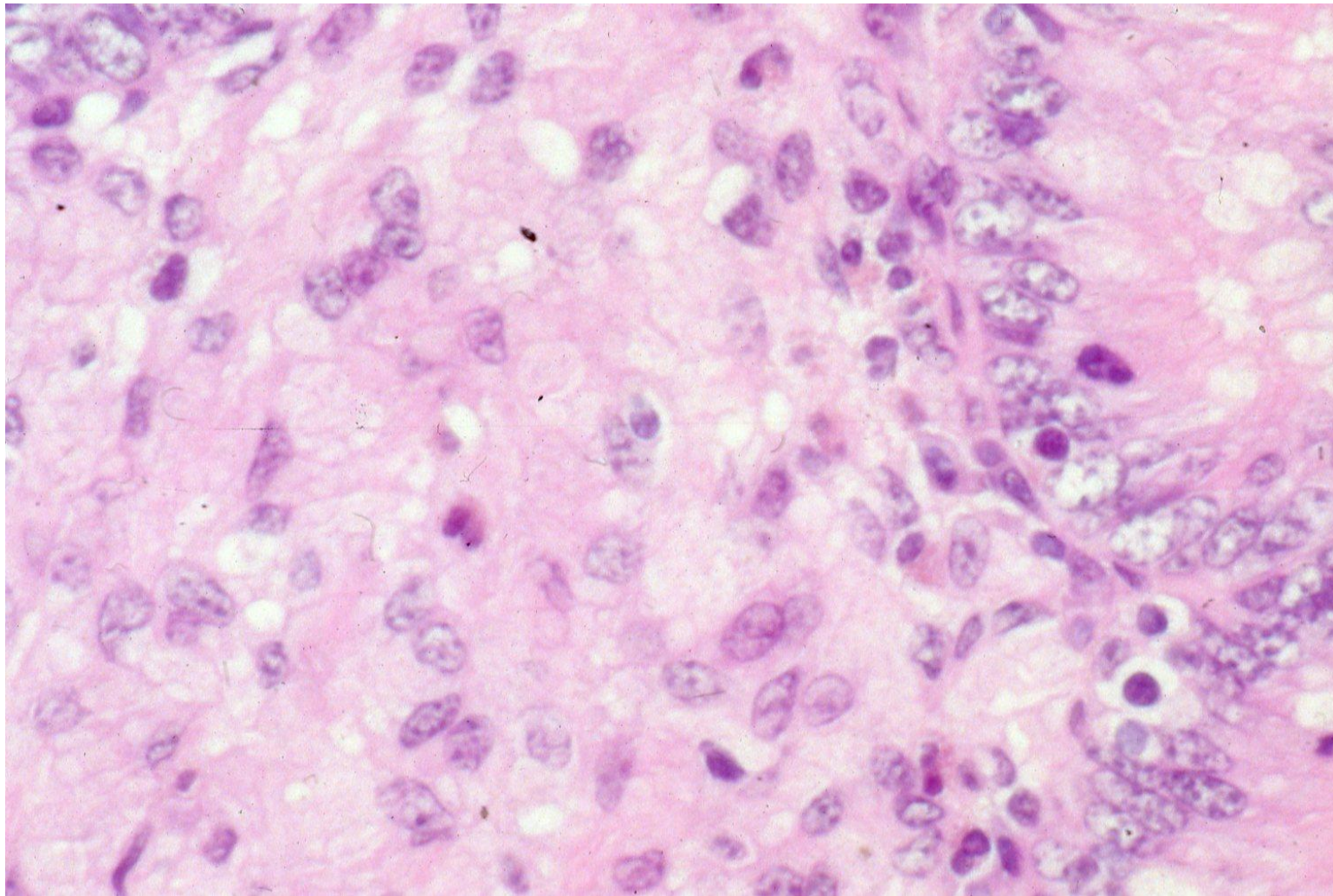
Johne's disease (*Mycobacterium paratuberculosis* infection: paratuberculosis). The ileum of a cattle shows formation of non-caseating granulomas. Lymphocytic reaction is mild. H&E-1



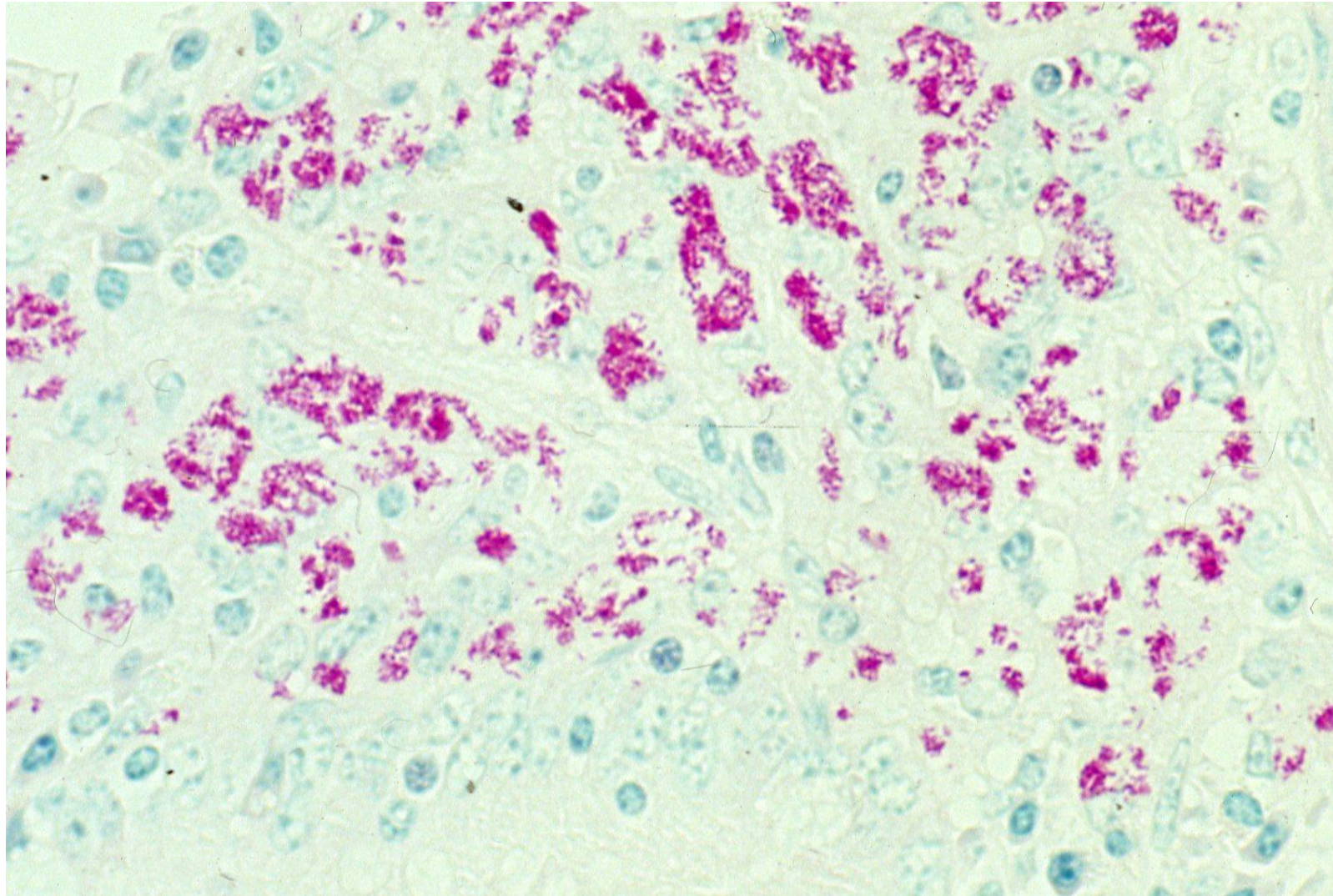
Johne's disease (*Mycobacterium paratuberculosis* infection: paratuberculosis).
The ileum of a cattle shows formation of non-caseating granulomas.
Lymphocytic reaction is mild. H&E-2



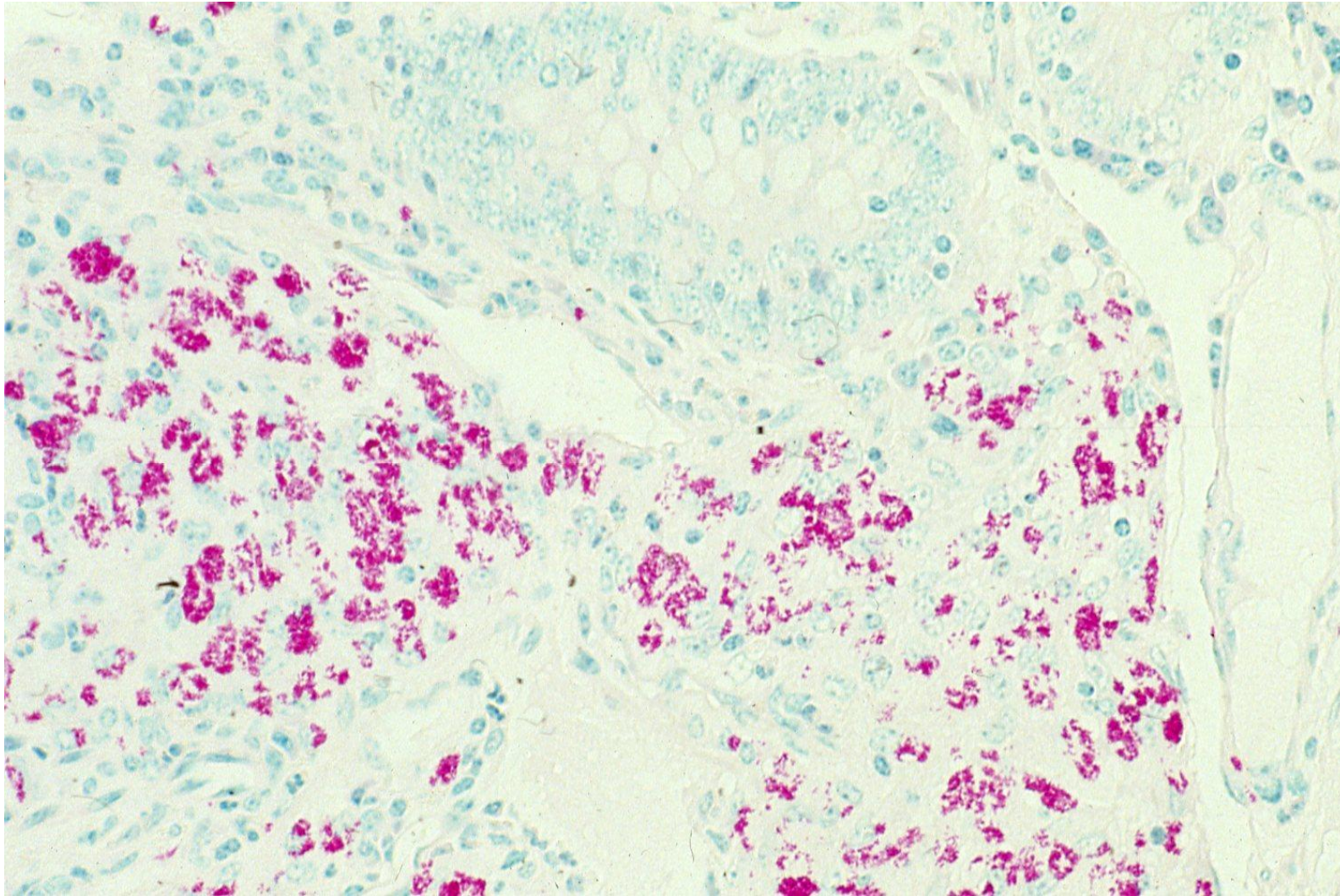
Johne's disease (*Mycobacterium paratuberculosis* infection: paratuberculosis). The ileum of a cattle shows formation of non-caseating granulomas. Lymphocytic reaction is mild. H&E-3



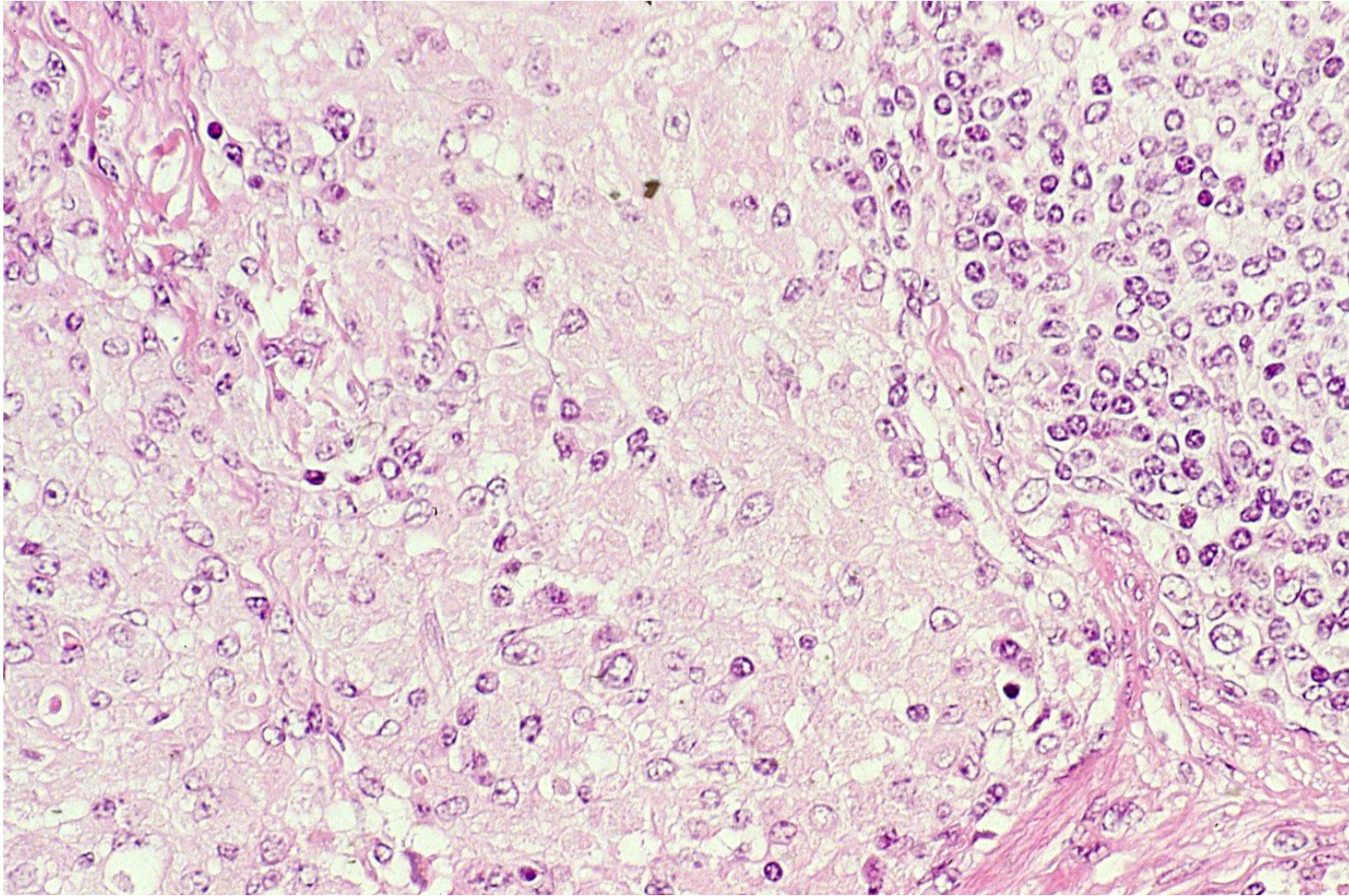
Johne's disease (*Mycobacterium paratuberculosis* infection: paratuberculosis). The ileum of a cattle shows formation of non-caseating granulomas. Lymphocytic reaction is mild. H&E-4



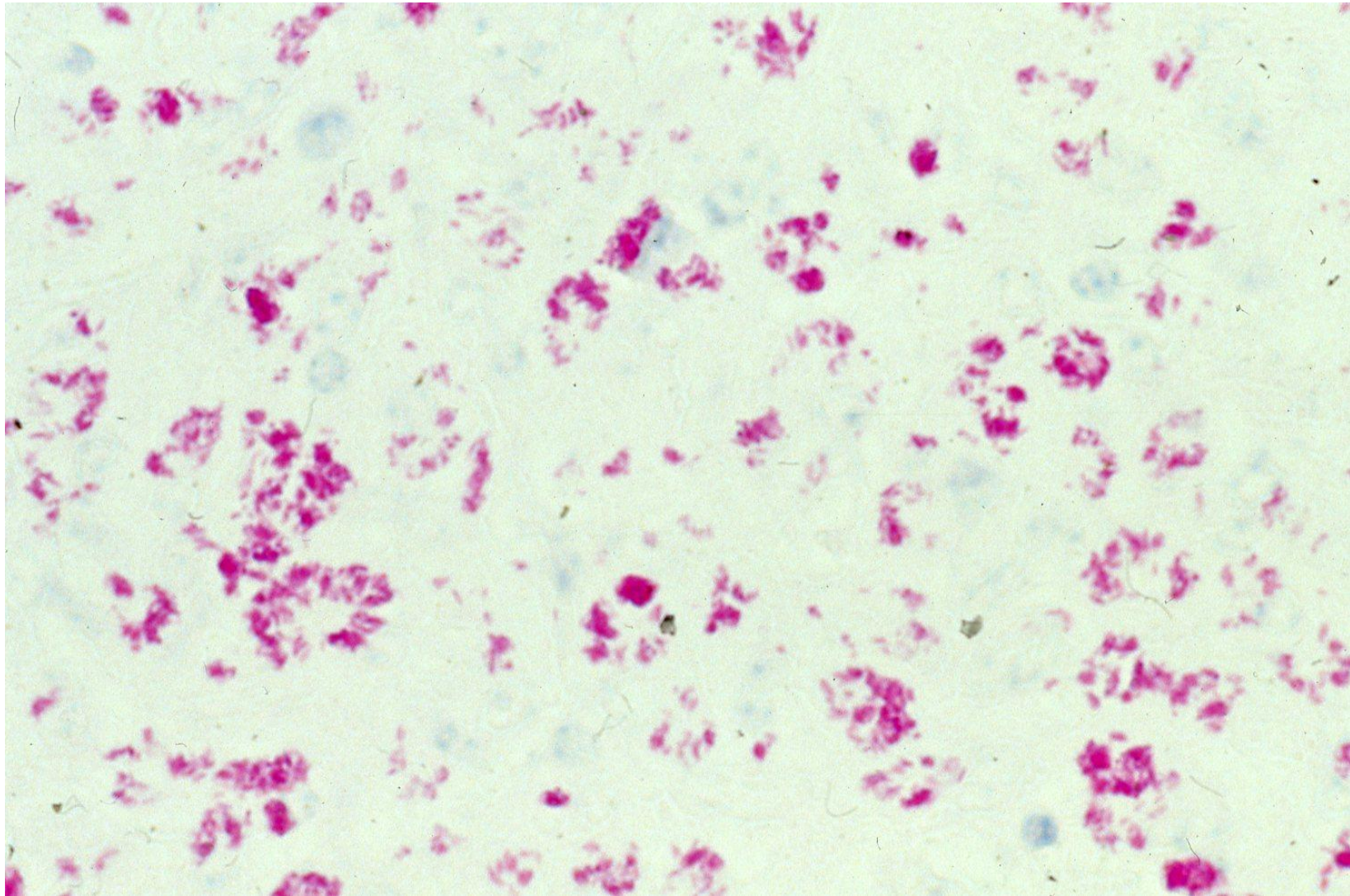
Johne's disease (*Mycobacterium paratuberculosis* infection: paratuberculosis). The ileum of a cattle shows massive infection of acid-fast bacilli in epithelioid cells consisting of non-caseating granuloma, resembling lepromatous leprosy. Ziehl-Neelsen-1



Johne's disease (*Mycobacterium paratuberculosis* infection: paratuberculosis). The ileum of a cattle shows massive infection of acid-fast bacilli in epithelioid cells consisting of non-caseating granuloma, resembling lepromatous leprosy. Ziehl-Neelsen-2



Johne's disease (*Mycobacterium paratuberculosis* infection: paratuberculosis). The regional (mesenteric) lymph node of a cattle shows formation of non-caseating granuloma. H&E-a



Johne's disease (*Mycobacterium paratuberculosis* infection: paratuberculosis). The regional (mesenteric) lymph node of a cattle shows massive infection of acid-fast bacilli in the cytoplasm of epithelioid cells consisting of non-caseating granuloma. Ziehl-Neelsen-a