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Necrotic Enteritis

Munseen Abdul-Aziz

Rollins Animal Disease Diagnostic Laboratory, North Carolina Department of
Agriculture and Consumer Services, Raleigh, NC, USA

H. John Barnes

College of Veterinary Medicine, North Carolina State University, Raleigh, NC, USA

American Association of Avian Pathologists

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American Association of Avian Pathologists, Inc.
12627 San Jose Blvd., Suite 202
Jacksonville, FL 32223

aaap@aaap.info
www.aaap.info

Necrotic enteritis (NE) is an enteric bacterial disease of chickens, turkeys, and a few other avian species caused by *Clostridium perfringens*. The disease is characterized by damage to the intestinal mucosa by toxins produced by the causative bacteria. It occurs worldwide and causes considerable financial losses to broiler producers due to mortality, treatment cost, and, in its milder subclinical form, poor growth and feed utilization. The disease was first reported in chickens in 1961.

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Etiology

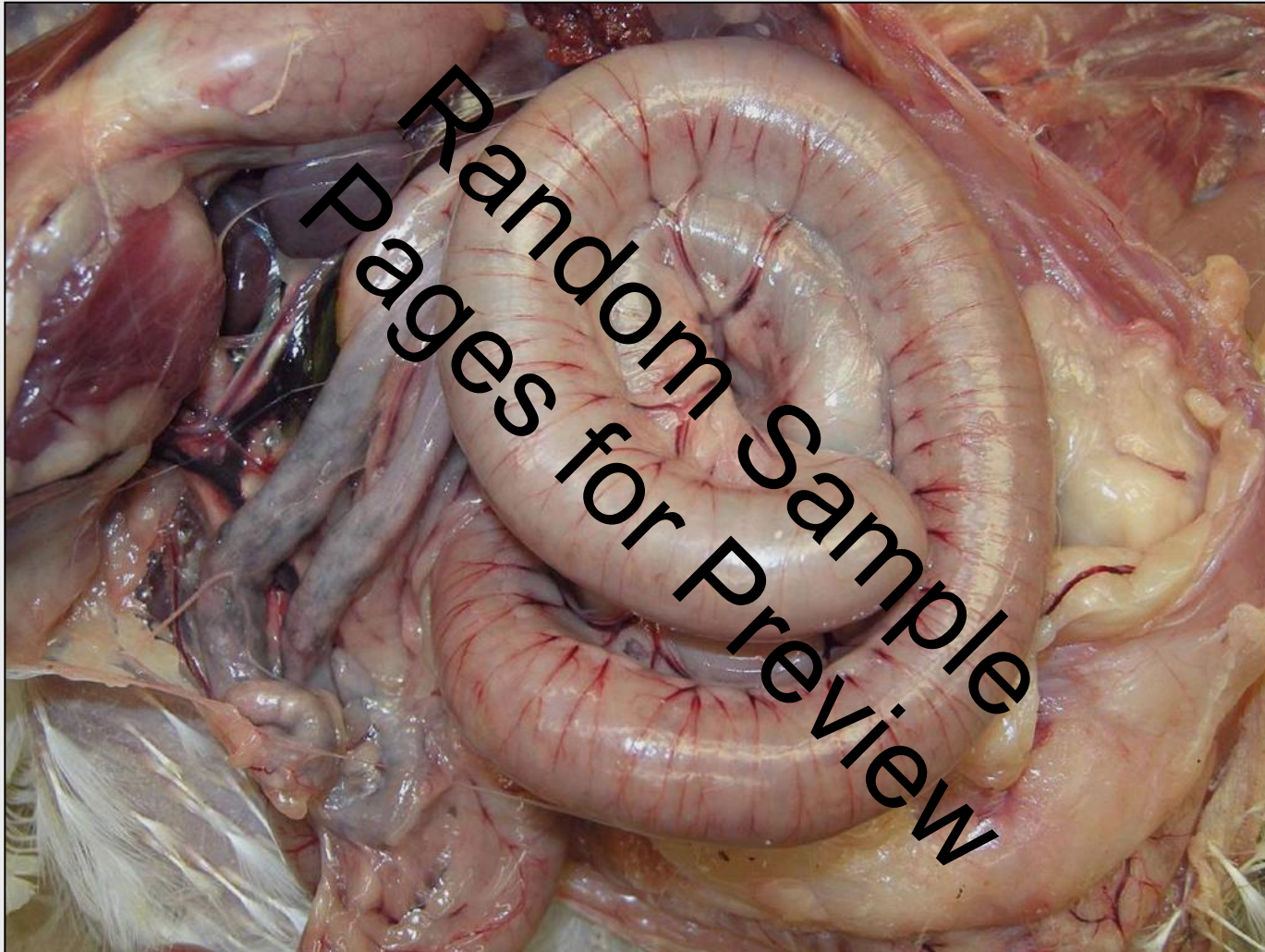
Clostridium perfringens

- Gram-positive, obligatory anaerobe, nonmotile, rod-shaped, spore-forming bacterium.
- Grows at a temperature between 15°C and 50°C, with an optimum growth at 45°C for most strains.
- Generation time for most strains is less than 20 minutes at 33°C to 49°C; a generation time of 8 minutes has been reported.
- Spores can withstand 100°C for two hours.
- On blood agar, colonies usually show double-zone hemolysis with a clear inner theta-toxin zone and a hazy outer zone caused by alpha-toxin.

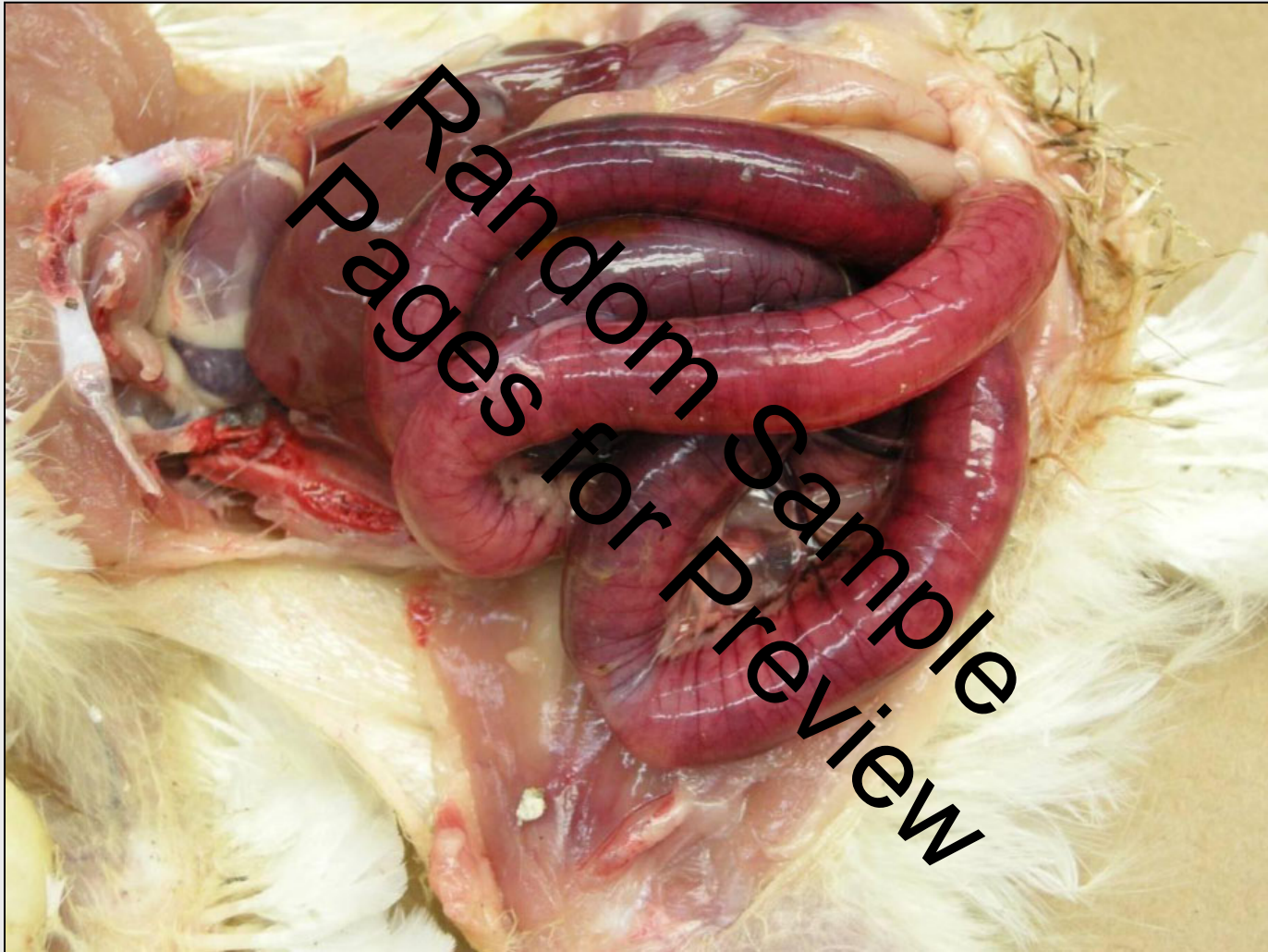
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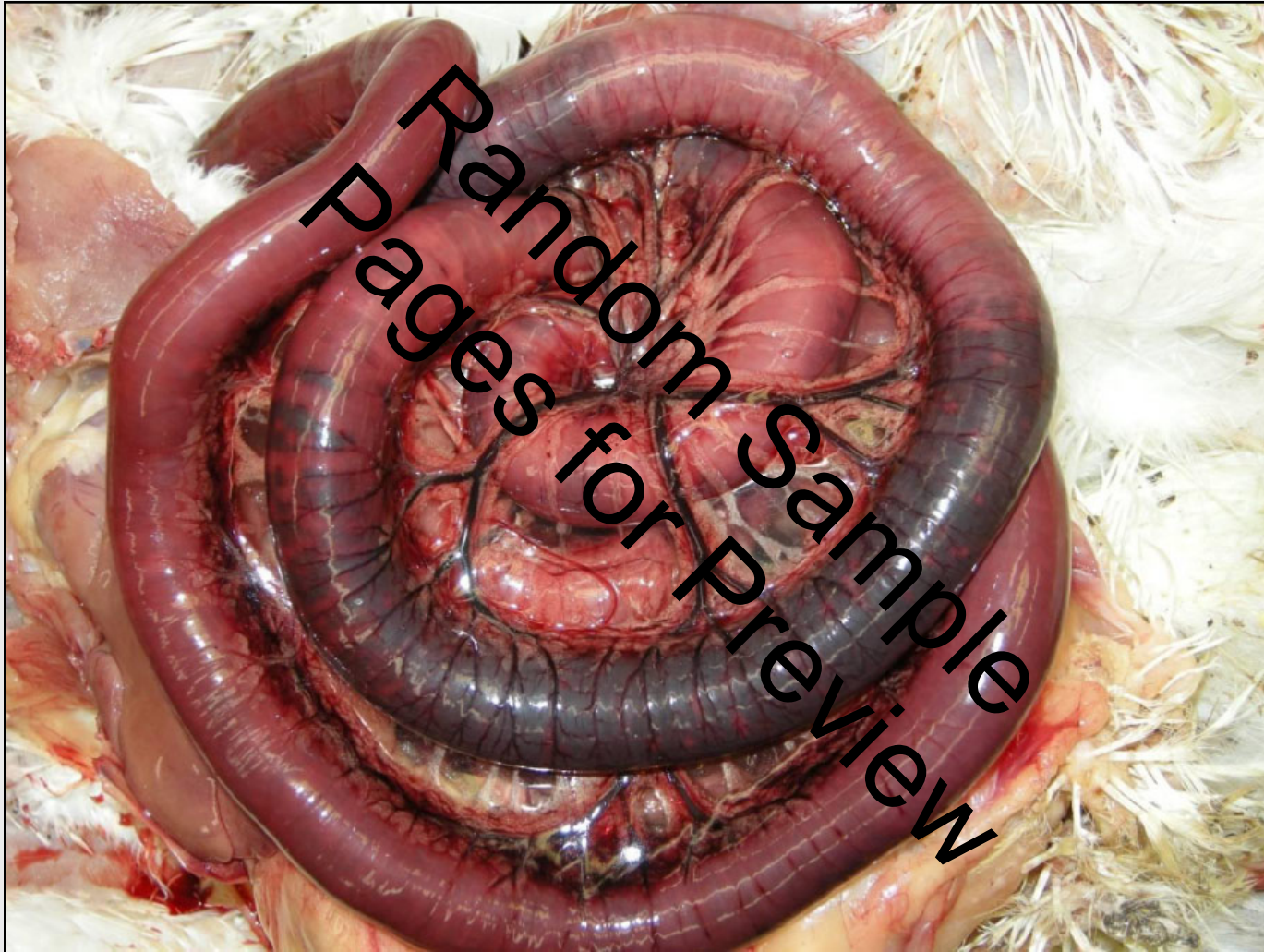
Broiler chicken, 31 days, jejunum/ileum, necrotic enteritis. Jejunum and ileum are dilated and thin-walled. Only birds that have been euthanized or died recently can be evaluated, as the changes seen here can result from postmortem decomposition because of gas that increases in the gut after the bird dies.



Broiler chicken, 35 days, jejunum/ileum, necrotic enteritis. Jejunum and ileum are dilated, have firm walls, and are distended with fluid contents.



Broiler chicken, 15 days, jejunum/ileum, necrotic enteritis. Jejunum and ileum are dilated and markedly reddened. Such an appearance for the intestine is unusual in birds with necrotic enteritis. The bird was negative for coccidiosis.



Broiler chicken, 38 days, jejunum/ileum, necrotic enteritis and coccidiosis (*Eimeria maxima*). Jejunum and ileum are dilated, markedly hemorrhagic, and filled with bloody contents.