



# Myotendinopathy and iliotibialis muscle rupture in broiler breeder cockerels

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## History

Case 1: Six cockerels (~19 weeks of age) had a history of increased mortality and “penguin appearance.”

Case 2: Four cockerels, 15 weeks of age, from a second farm had a history of increased mortality and “penguin stance.”

## Necropsy

Case 1: “Penguin” posture, limited mobility. Bilateral iliotibialis muscle rupture with hemorrhage, hematomas, and edema. Tenosynovitis of the digital flexor tendon in 2/6 and femoral head necrosis in 1/6.

Case 2: “Penguin” posture, lameness in 3/4 and sternal recumbency in 1/4. Bilateral (3/4) or unilateral (1/4) iliotibialis muscle rupture with hemorrhage, hematomas, and edema. Bilateral purulent gastrocnemius tenosynovitis in 1/4.

## Histology

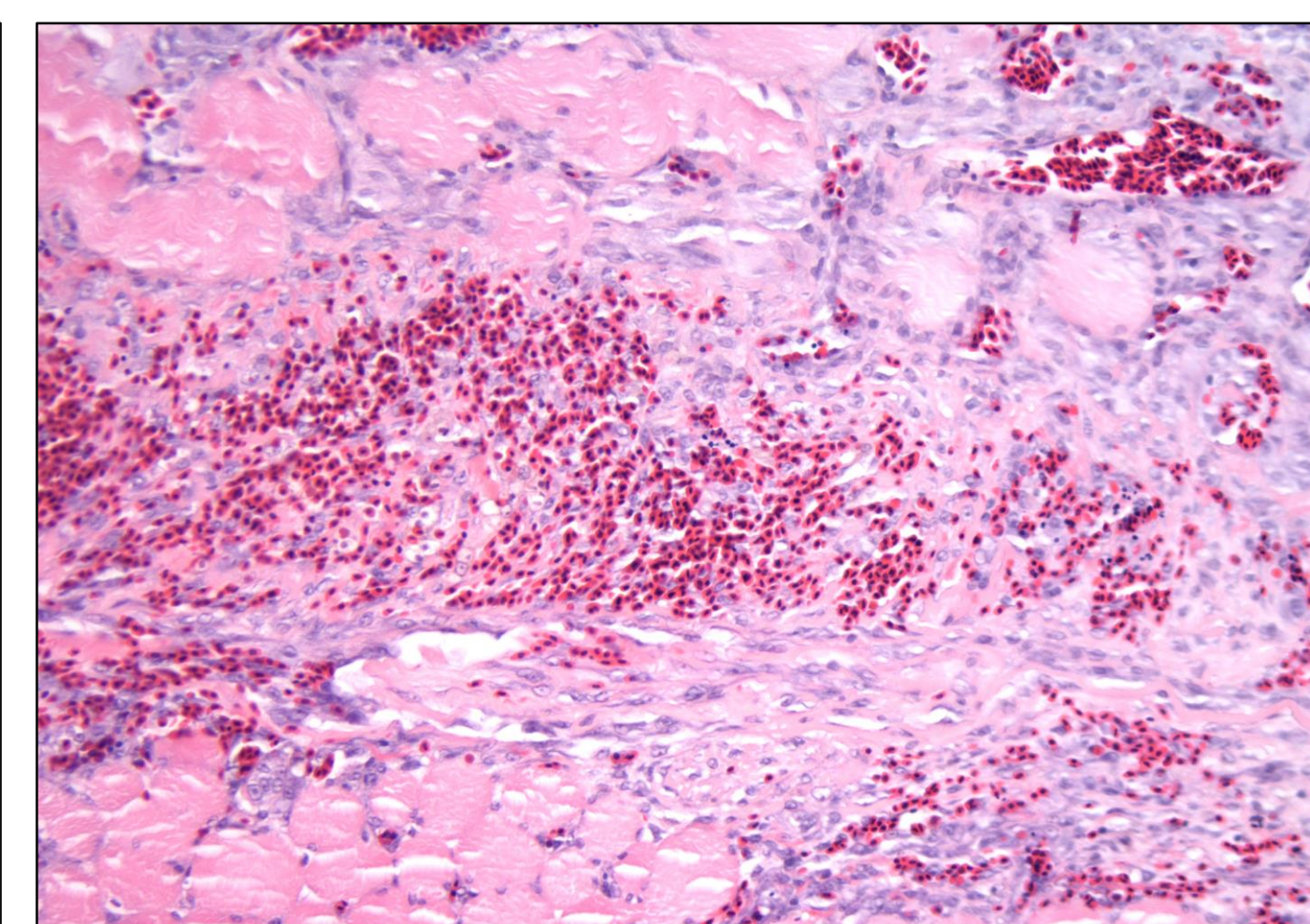
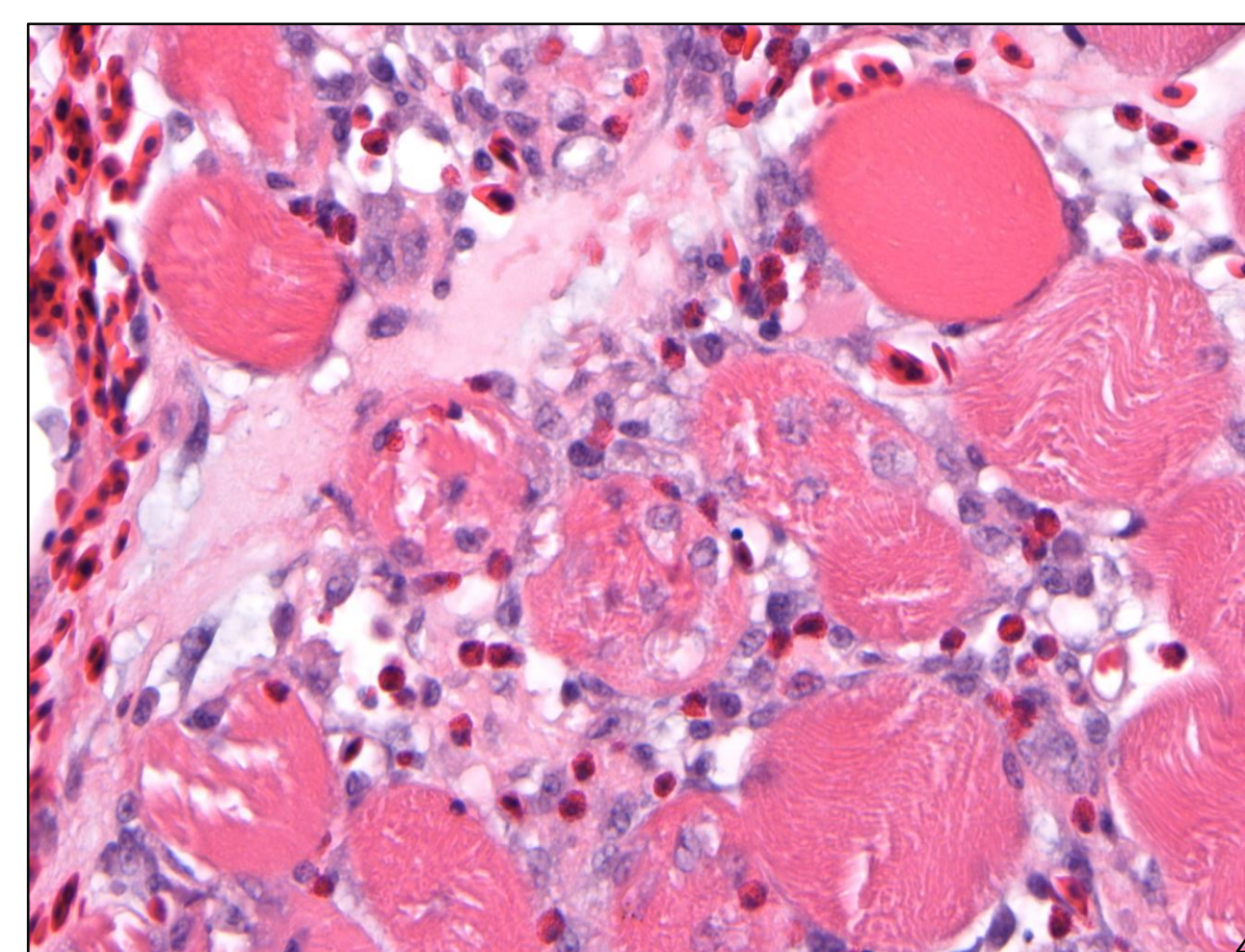
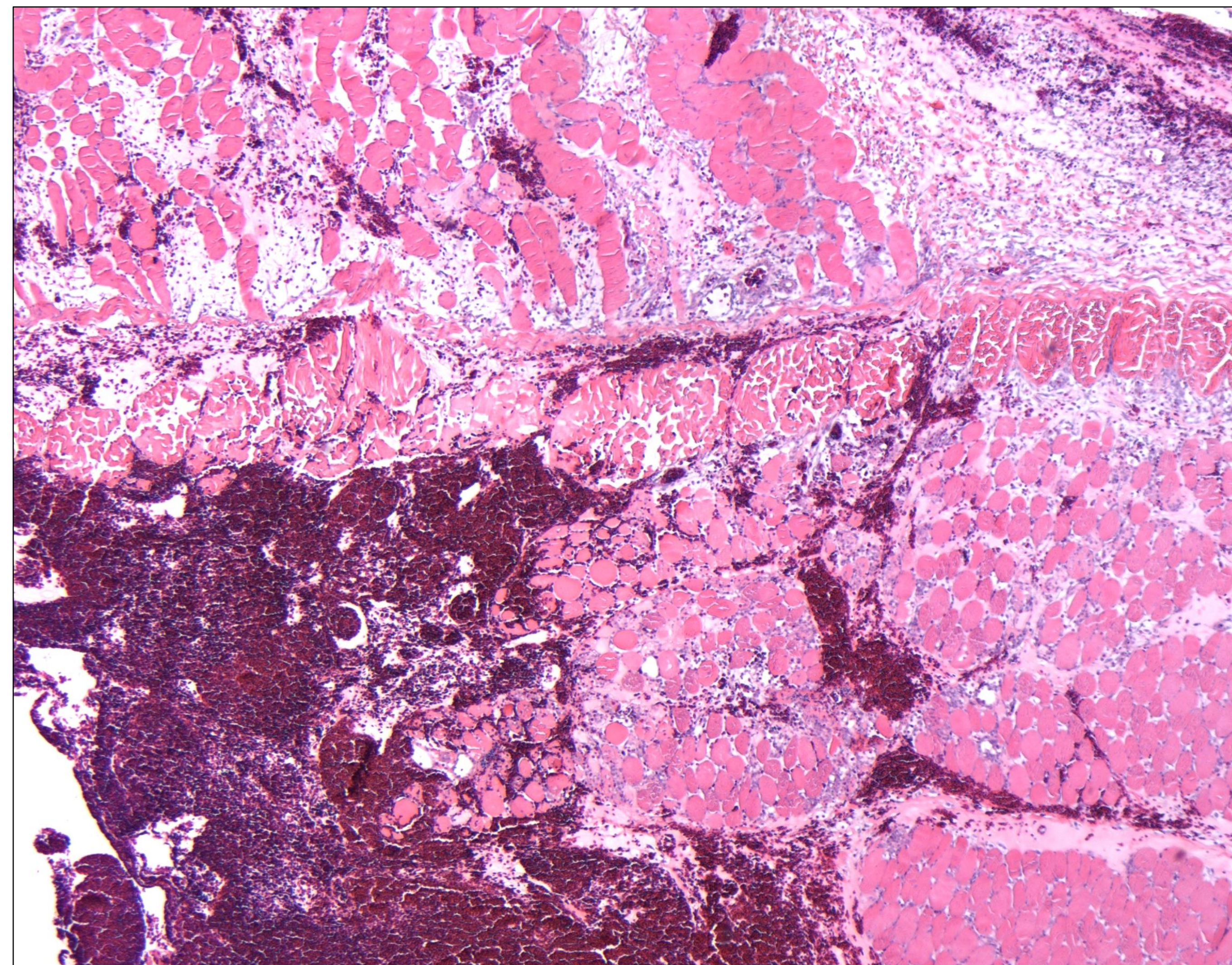
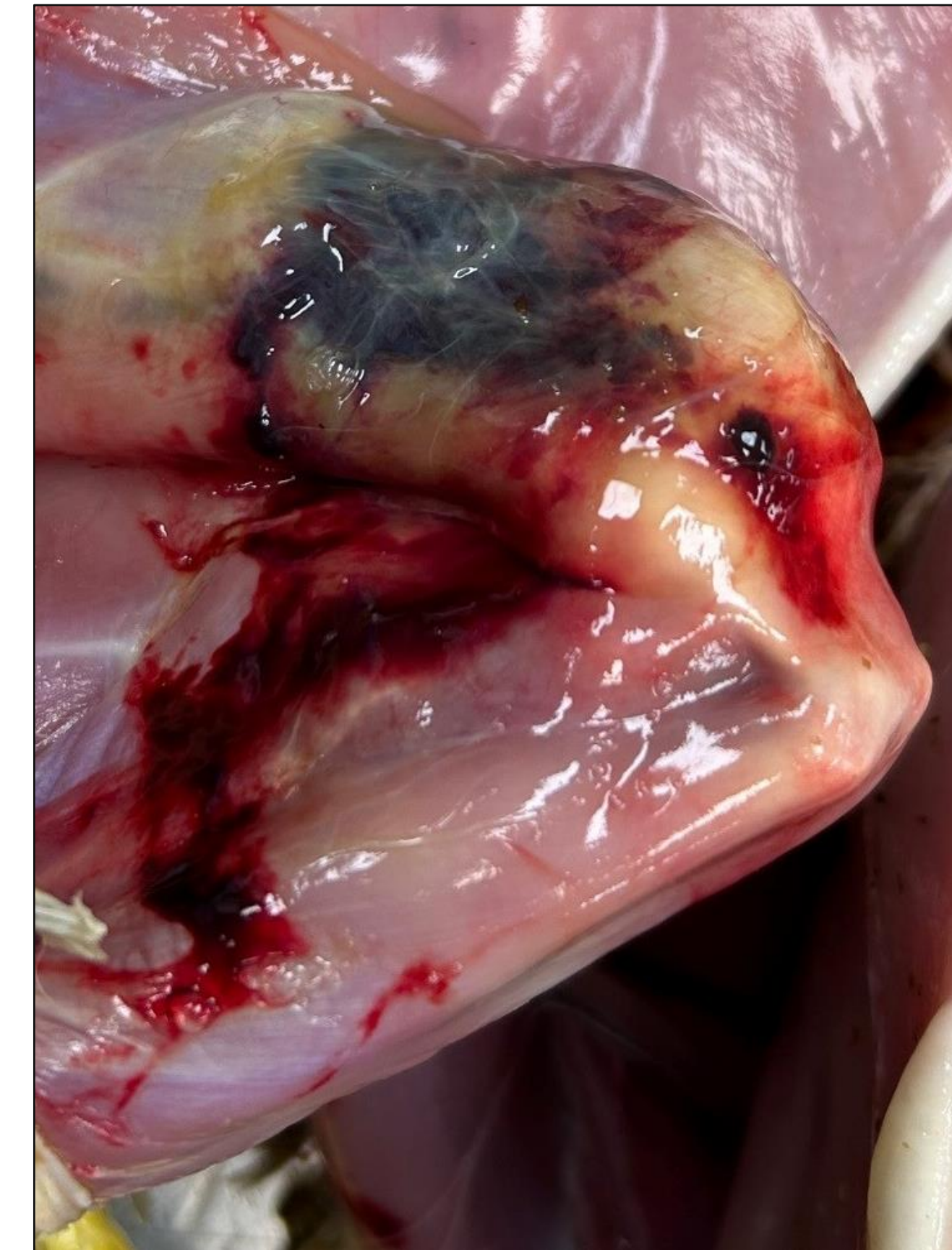
Case 1: Acute fascial and interstitial hemorrhage of the iliotibialis muscle was marked, with interstitial edema and mild, heterophilic and histiocytic interstitial myositis. Myodegeneration and myonecrosis were multifocal. Granulation tissue and fibrosis expanded the interstitium in some sections.

Case 2: Interstitial hemorrhage was acute, with mild histiocytic and heterophilic interstitial myositis. Myodegeneration and myonecrosis were multifocal, and mineralization of degenerate myofibers was rare in 1 section. Granulation tissue was mild. Heterophilic, histiocytic, and erosive tenosynovitis was present in one tendon section.

## Diagnostics

Avian reovirus was identified with virus isolation on tendon sections in case 1. Virus isolation was negative in case 2.

*Pasteurella multocida* was cultured from the gastrocnemius tendon lesion in 1 bird from case 2.



## Discussion

Penguin-stance myotendinopathy has been recently reported in male broiler breeder chickens. Male birds were affected between 13-21 weeks of age. Gross and histologic lesions included significant hemorrhage of the iliotibialis muscle and granulation tissue formation. No evidence of an infectious, nutritional, or degenerative etiology was identified.<sup>1</sup> The pathogenesis of the syndrome has not been elucidated but may be associated with chronic, increased tendon stress resulting in tendon degeneration and failure of the tendon insertion site with secondary iliotibialis rupture, hemorrhage, and necrosis (FJ Hoerr, personal communication, January 12, 2023).

The current cases included similar gross and histologic lesions of acute rupture and hemorrhage of the iliotibialis muscle with myodegeneration, myonecrosis, and secondary interstitial inflammation. Granulation tissue and fibrosis in some sections are consistent with a subacute to chronic process.

The significance of concurrent reoviral tenosynovitis in case 1 is not determined. Chronic reoviral infection may have contributed to increased tendon stress; however, reoviral tenosynovitis may have been unrelated to iliotibialis muscle rupture, as this lesion has not been reported as a sequela of reoviral infection. Purulent tenosynovitis was present in a bird in case 2; *Pasteurella multocida* was cultured from the site. The flock had been vaccinated with a live *P. multocida* vaccine at 12 weeks of age. As only 1 bird in this group was affected, rupture of the iliotibialis muscle was likely not associated with concurrent bacterial tenosynovitis. Further study is needed to determine possible genetic, mechanical, environmental, infectious, or other contributing causes of this syndrome.

## Figures

1. Case 2, 15-week-old cockerel, penguin stance.
2. Case 1, iliotibialis muscle rupture, marked hemorrhage, regional edema.
3. Case 1, skeletal muscle, 4X H&E, marked interstitial hemorrhage.
4. Case 1, skeletal muscle, 40X H&E, myodegeneration, necrosis, interstitial inflammation.
5. Case 2, skeletal muscle, 20X H&E, myodegeneration, interstitial granulation tissue.

## References

1. Hoerr FJ. Histopathology of Penguin-Stance Myotendinopathy in Broiler Breeder Males. Emerald Coast Veterinary Conference. June 2022.

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