“Leg weakness” in a 2-year-old pig
Case # 63
L12-1849
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Signalment and History

- Pig, crossbred, 2-year-old, male
- Recently orchiectomized

- The clinical signs were mostly attributed to a left hind limb disorder
Porcine bone growth plate

• Closure at 3.5 years of age in:
  – Domestic pigs
  – Yucatan minipigs
  – Yucatan micropigs
Morphologic Diagnoses

• Proximal femoral physeal endochondral ossification defect with cartilage retention, necrosis, epiphysiolysis and femoral head detachment

• Microfractures of cartilage and bone, multifocal, chronic

• Osteomyelitis, necrotizing, locally extensive, severe
Diagnosis

• Osteochondrosis with epiphysiologic and femoral head detachment
Discussion

• This is a case of “leg weakness” caused by epiphysiolysis which is a form of osteochondrodrosis.

• Traumas and consequent microfractures significantly contributed to the retention of a thick and irregular epiphyseal cartilage and to fibrous tissue formation.

• Physeal fragmentation and loss occurred after the physeal detachment.

• Osteomyelitis could have been predisposed by necrosis of bone and cartilage or could have been present before (neonatal infection).

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“Leg weakness”

- **Locomotor disability** of pigs unassociated with infectious arthritis.
- It is a combination of **noninfectious arthropathy and osteopathy**, and is a significant cause of mandatory culling in pig herds.
- **Causes:**
  - Defects of conformation
  - Osteochondrosis (including epiphysiolysis)
  - Arthrosis
  - Lumbar intervertebral disk degeneration
  - Spondylosis
- The **clinical syndrome** varies from lameness to difficulty in rising to recumbency.

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Osteochondrosis

• Defined as a *focal disturbance of enchondral ossification*.

• Regarded as having a *multifactorial etiology*, with no single factor accounting for all aspects of the disease.

• **Leading theory:** *focal ischemic necrosis of growth cartilage initiated by necrosis of cartilage canal blood vessels*.

• Because the necrotic cartilage does not undergo mineralization or vascular penetration, *focal failure of endochondral ossification occurs when the ossification front approaches the lesion*.

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Osteochondrosis Classification

- *Latens*: lesion confined to epiphyseal cartilage
- *Manifesta*: lesion accompanied by delay in endochondral ossification
- *Dissecans*: cleft formation through articular cartilage

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Epiphysiolysis

• **Epiphysiolysis** is a *form of osteochondrosis* and is the *separation of an epiphysis from metaphyseal bone*.

• It is a traumatic lesion predisposed by a defect in growth cartilage of the physis.
Conclusion

• The pathogenesis of physeal osteochondrosis in pigs is still poorly elucidated.
• Failure of blood supply, either from the epiphyseal or metaphyseal side of the plate, may be involved.