

July 13, 2023

HESKA

A Practical Guide to Acute Hindlimb Lameness

Is it a Cranial Cruciate Ligament Rupture?

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Consultant to Heska

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Outline

- “Typical” presentation
- CrCL differentials
- Workup
- Management and referral
- Heska Canine Stifle Injury Series webinars
 - Part 1: Caring for Cruciate Ligament Deficiency (Kevin McAbee, DVM, DACVS)
 - Part 2: Post-operative Rehabilitation (Alice Baker Meuten, DVM, DACVSMR, MS-TCVM)

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Question 1: What type of veterinarian are you?

- General practice
- ER
- Practice limited to surgery
- ACVS
- Other

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History and presentation

- Acute hindlimb lameness
- Waxing and waning hindlimb lameness
- “Down dog” if bilateral
- ***CrCL rupture is the most common cause of hindlimb lameness in the dog!!!***

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Differentials

- Degenerative
- Anomalous
- Metabolic
- Neoplastic
- Inflammatory/idiopathic
- Traumatic/toxin
- Vascular



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Acute hindlimb lameness differentials

- ***CrCL***
- Trauma
- Neoplasia
- IMPA
- Rickettsial disease
- Septic joint and/or osteomyelitis
- Neurologic disease
- Worsening patellar luxation or hip dysplasia

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Questions 2: Other than CrCL rupture, what are your top differentials for hindlimb lameness?

- Trauma
- Rickettsial disease
- Neoplasia
- Non-stifle joint disease
- Other

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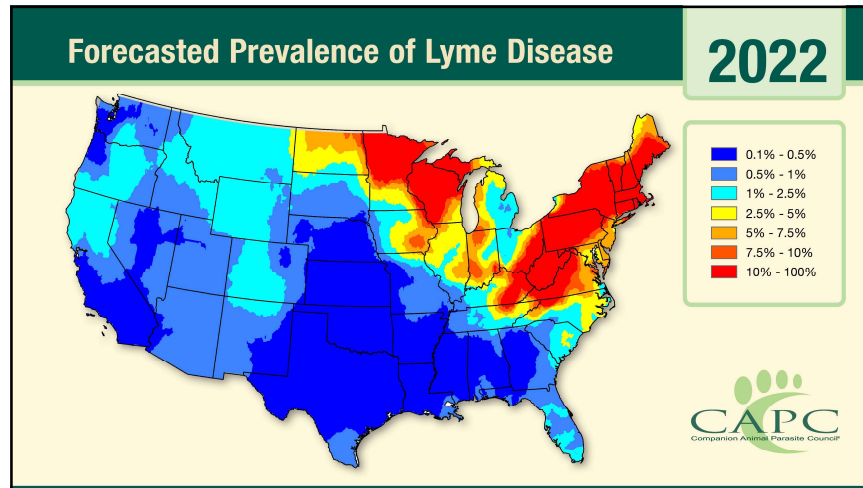
History

- Age
- Breed
- Duration of lameness
- General health?
- Apparent lameness
 - After activity vs. rest
 - Throughout the day

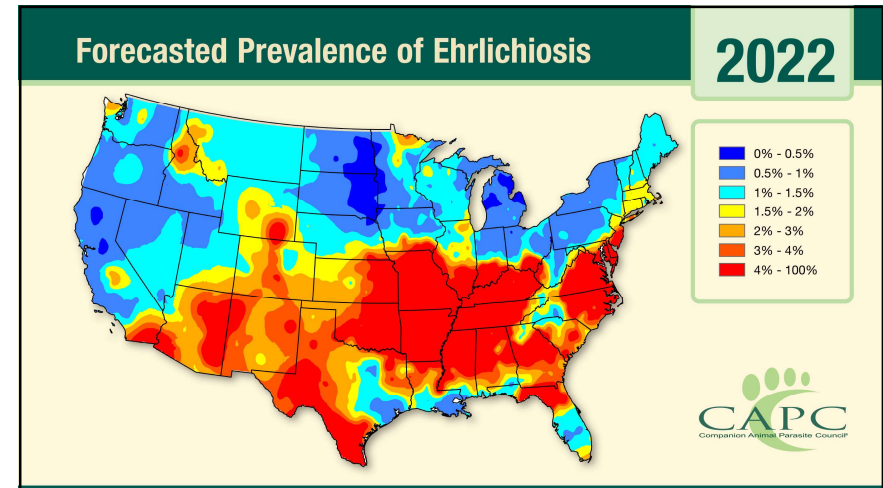


- ***CrCL***
- Trauma
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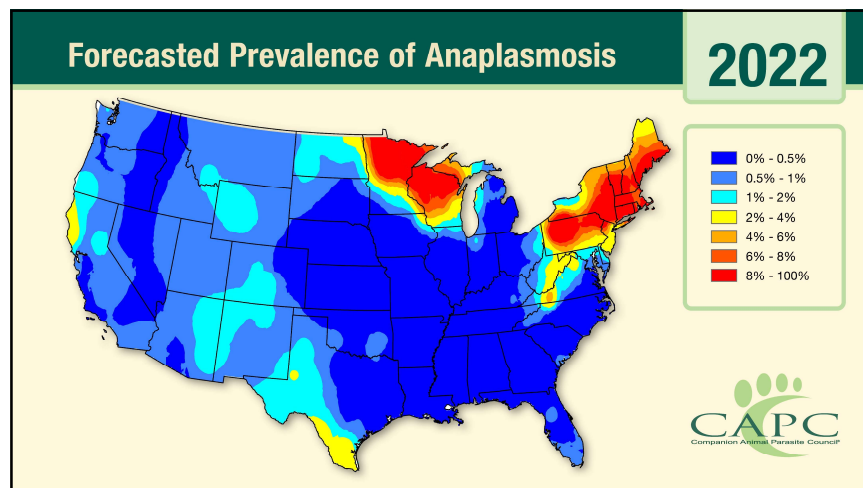
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Physical Exam

- Gait exam
- General physical exam
- Orthopedic exam
- Neurologic exam
 - Including spinal palpation!

Lab Animal volume 36, page19 (2007)

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Physical Exam Findings

- Effusion
- Muscle atrophy

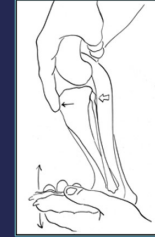


<https://dogsolutions.co.za/after-injury-will-a-dogs-muscles-return-to-normal/>

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Physical Exam Findings

- Tibial thrust



Video: Harpreet Singh, DVM, DACVS-SA

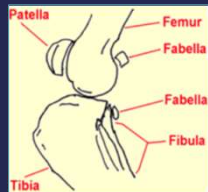
Drawing:

<https://www.vin.com/apputil/content/defaultadv1.aspx?id=11290&id=4252719&print=1>

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Physical Exam Findings

- Cranial drawer



Video: Harpreet Singh, DVM, DACVS-SA

Drawing: <https://urbananimalveterinary.com/event/cranial-cruciate-ligaments-tears-in-dogs/>

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Physical Exam Findings

- Sit test



<https://www.cliniciansbrief.com/article/top-5-signs-watch-during-orthopedic-examination>

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Physical Exam Findings

- ***CrCL***
 - Cranial drawer, tibial thrust, sit test
- Trauma
- Neoplasia
- IMPA
- Rickettsial disease
- Septic joint and/or osteomyelitis
- Neurologic disease
- Worsening patellar luxation or hip dysplasia

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Physical Exam Findings

- ***CrCL***
 - Cranial drawer, tibial thrust, sits test
- Trauma
 - Swelling, crepitus, bruising
- Neoplasia
 - Focal swelling with severe pain, +/-systemic signs
- IMPA
- Rickettsial disease
- Septic joint and/or osteomyelitis
- Neurologic disease
- Worsening patellar luxation or hip dysplasia

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Physical Exam Findings

- ***CrCL***
 - Cranial drawer, tibial thrust, sits test, medial buttress, hyperextensional stifle pain
- Trauma
 - Swelling, crepitus, bruising
- Neoplasia
- IMPA
- Rickettsial disease
- Septic joint and/or osteomyelitis
- Neurologic disease
- Worsening patellar luxation or hip dysplasia

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Physical Exam Findings

- ***CrCL***
 - Cranial drawer, tibial thrust, sits test
- Trauma
 - Swelling, crepitus, bruising
- Neoplasia
 - Focal swelling with severe pain, +/-systemic signs
- IMPA
 - Hyperthermia, +/-multiple joints involved, +/-systemic signs
- Rickettsial disease
 - Hyperthermia, +/-multiple joints involved, +/-systemic signs
- Septic joint and/or osteomyelitis
- Neurologic disease
- Worsening patellar luxation or hip dysplasia

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Physical Exam Findings

- *****CrCL*****
 - Cranial drawer, tibial thrust, sits test
- Trauma
 - Swelling, crepitus, bruising
- Neoplasia
 - Focal swelling with severe pain, +/-systemic signs
- IMPA vs. rickettsial disease
 - Hyperthermia, +/-multiple joints involved, +/-systemic signs
- **Septic joint and/or osteomyelitis**
 - **Hyperthermia, focal swelling or effusion, +/-draining tract**
- Neurologic disease
- Worsening patellar luxation or hip dysplasia

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Physical Exam Findings

- *****CrCL*****
 - Cranial drawer, tibial thrust, sits test
- Trauma
 - Swelling, crepitus, bruising
- Neoplasia
 - Focal swelling with severe pain, +/-systemic signs
- IMPA vs. rickettsial disease
 - Hyperthermia, +/-multiple joints involved, +/-systemic signs
- Septic joint and/or osteomyelitis
 - Hyperthermia, focal swelling/effusion, +/-draining tract
- Neurologic disease
 - Weakness, loss of proprioception or other reflexes, nerve root signature, paraspinal pain
- **Worsening patellar luxation or hip dysplasia**

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Physical Exam Findings

- *****CrCL*****
 - Cranial drawer, tibial thrust, sits test
- Trauma
 - Swelling, crepitus, bruising
- Neoplasia
 - Focal swelling with severe pain, +/-systemic signs
- IMPA vs. rickettsial disease
 - Hyperthermia, +/-multiple joints involved, +/-systemic signs
- Septic joint and/or osteomyelitis
 - Hyperthermia, focal swelling or effusion, +/-draining tract
- **Neurologic disease**
 - **Weakness, loss of proprioception or other reflexes, nerve root signature, paraspinal pain**
- Worsening patellar luxation or hip dysplasia

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Physical Exam Findings

- Worsening patellar luxation usually accompanied by CrCL rupture



Video courtesy Harpreet Singh, DVM, DACVS-SA

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Physical Exam Findings

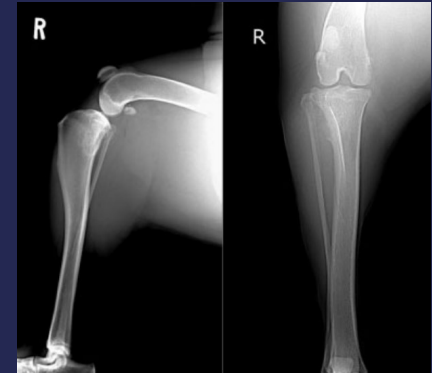
- Hip dysplasia
 - Similar bilaterally
 - Muscle atrophy
 - Limited ROM, pain on ROM
 - Crepitus
 - Asymmetric greater trochanters if luxated



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Radiographic considerations

- Surgical planning
- Screening for other disease
- Consider lateral stifle radiograph if working up other joint lameness



Obringer et al. VCOT Open n 2021;4:e86-e91.

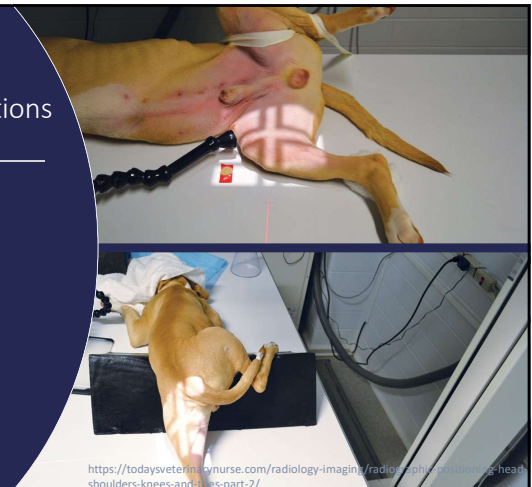
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What about diagnostics?

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Radiographic Considerations

- SEDATION!
- Appropriate positioning
 - Orthogonal radiographs
 - Include stifle and tarsus
 - Calibration
- Remember ALARA

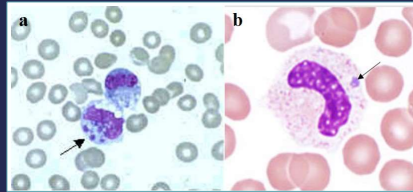


<https://todaysveterinarynurse.com/radiology-imaging/radiograph-techniques-for-the-head-shoulders-knees-and-tails-part-2/>

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Other Diagnostics

- CBC/chem/UA
- Rickettsial disease testing
- Arthrocentesis (fluid analysis and cytology, culture and sensitivity)
- Consider endocrine workup



Credit: a: Centers for Disease Control and Prevention; b: Bobbi S. Pritt, Mayo Clinic

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Referring

- Set owner expectations
- Include with referral
 - PE findings
 - Labwork results
 - Medications prescribed
 - Radiographs (DICOM)
 - Brief case summary
- Support pet's pain control and rest plan

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Acute management

- Pain management
 - NSAIDs
 - Acetaminophen
 - Gabapentin and/or amantadine for chronic pain
 - Coming soon: anti-NGF monoclonal antibody
 - Supplements: omega-3, polysulfated glycosaminoglycans, CBD?
- Rest
- Referral

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Pre-op training considerations

- Reintroduce crate training
- Leash walking
- Forage toys
- E-collar



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What if...

- ...my patient is obese?
 - Endocrine workup
 - Weight loss plan
 - Diet
 - PT



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TREATMENT AT A GLANCE: CHILL PROTOCOL

- ▶ Gabapentin (20-25 mg/kg PO) should be administered the evening before the scheduled appointment.
- ▶ A combination of gabapentin (20-25 mg/kg PO) and melatonin (small dogs, 0.5-1 mg PO; medium dogs, 1-3 mg PO; large dogs, 5 mg PO) should be administered at least 1 to 2 hours before the scheduled appointment.
- ▶ Acepromazine (0.025-0.05 mg/kg OTM) should be administered 30 minutes before the scheduled appointment.

Clinician's Brief, May 2019

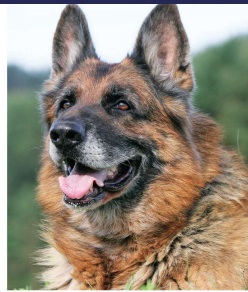
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What if...

- ...my patient is difficult to handle

Chill Protocol to Manage Aggressive & Fearful Dogs

Renata S. Costa, DVM, MPhil,
MANZCVS, GradDipEd
Alicia Z. Karas, DVM, MS, DACVAA
Stephanie Borns-Weil, DVM, DACVB
Cummings School of Veterinary Medicine
at Tufts University



Clinician's Brief, May 2019

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FEAR FREE EMOTIONAL MEDICAL RECORD	
Patient Name: _____	
Pre-Visit FAS Management Interventions	
<input type="checkbox"/> Melatonin Medication	<input type="checkbox"/> PMP
<input type="checkbox"/> In-Hospital Sedation	<input type="checkbox"/> Analgesia
<input type="checkbox"/> Compression Garment	<input type="checkbox"/> Calming Music
<input type="checkbox"/> PNP	<input type="checkbox"/> Phentemine
<input type="checkbox"/> Other: _____	<input type="checkbox"/> Other: _____
Preferred Healthcare Provider	
<input type="checkbox"/> No Preference	<input type="checkbox"/> Female
<input type="checkbox"/> Male	
Preferred Entrance to Practice	
<input type="checkbox"/> Normal	<input type="checkbox"/> Alternate Entrance
<input type="checkbox"/> Walk Outside/In Car	<input type="checkbox"/> Other: _____
Likes (prompts/activities FAS): _____	
Triggers (increases FAS): _____	
Preferred Distraction Techniques	
<input type="checkbox"/> Food	
<input type="checkbox"/> Toy	
<input type="checkbox"/> Petting/Brushing	
<input type="checkbox"/> Other: _____	
Preferred Location for Exam	
<input type="checkbox"/> Floor	<input type="checkbox"/> Carrier
<input type="checkbox"/> Table	<input type="checkbox"/> Baby Scale
<input type="checkbox"/> Other: _____	<input type="checkbox"/> Other: _____
Behavior Management Products	
<input type="checkbox"/> Towel	<input type="checkbox"/> Blanket
<input type="checkbox"/> Calming Cap	<input type="checkbox"/> Basket Muzzle
<input type="checkbox"/> Other: _____	<input type="checkbox"/> Cup Mask

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Troubleshooting post-op issues

- Overactivity
 - Sedatives: trazodone, gabapentin, acepromazine, benzodiazepines
 - Forage toys
 - Alternative activities



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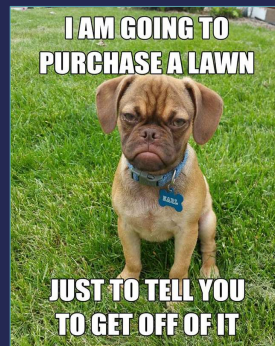
Troubleshooting post-op issues

- Worsening lameness
 - Differentials: meniscal tear, peri-operative infection, implant intolerance, other orthopedic disease
 - Contralateral limb?
- Diagnostics to consider: sedated radiographs, arthrocentesis, culture & sensitivity

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Troubleshooting Post-op issues

- Behavior changes
 - Secondary to medications
 - Frustration/boredom
 - Untreated pain



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When in doubt...



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Conclusions

- Most common cause of canine hindlimb lameness=CrCL rupture
- Diagnosis of CrCL rupture can generally be made by history and physical exam
- Recommend referral
- We're on your team!

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Questions?

Remember to
download the CE certificate
in the handouts panel of
the webinar control panel.

NOTE: CE certificate not available
for watching the recording.

Questions about CE?
events@heska.com

Questions about topic?
wephipps@gmail.com

Thank you for joining us!

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