

Wound Management for Livestock

2024 MVMA WINTER MEETING
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Topics

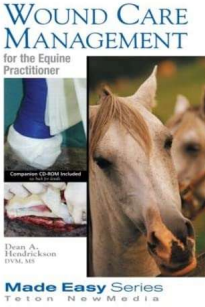
Patient Assessment and Stabilization
 Systemic Complications and Prevention
 Wound Care

- Cleansing and Debridement
- Antiseptics and Antibiotics
- 4-Step Wound Management

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Acknowledgement

Dr. Dean Hendrickson
 Professor
 Equine Surgery
 Colorado State University




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Patient Assessment

Vitals
 Airway
 Blood Loss
 Systemic Shock?
 Underlying Tissue Trauma
 Source of Wound

- Dog
- Wild Carnivore
- Environment

Duration



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Vitals, Airway, Blood Loss

<p>VITALS</p> <p>Impact on assessing shock</p> <p>TPR</p> <p>Extremities</p> <ul style="list-style-type: none"> ◦ Warm or Cold? <p>Mucous Membranes</p> <ul style="list-style-type: none"> ◦ Color ◦ Moist ◦ Warm or Cold? 	<p>AIRWAY</p> <p>Do the injuries involve the throat or neck?</p> <p>Punctures?</p> <p>Depth of trauma?</p> <p>Punctures?</p>
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Shock, Myoglobin, and the Kidneys

<p>SYSTEMIC SHOCK</p> <p>Elevated HR</p> <p>Pale Mucous Membranes</p> <ul style="list-style-type: none"> ◦ Blood Loss? ◦ Shock? <p>Capillary Refill Time</p> <p>MM Color & Temperature</p> <p>Extremities warm or cold</p>	<p>MUSCLE TRAUMA</p> <p>Extent</p> <p>Depth</p> <p>Cause</p> <ul style="list-style-type: none"> ◦ Dog Bite ◦ Predator <p>Exertion</p> <p>Urine – Myoglobin (Hemoglobin)</p>
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Ischemic or Pigmentary Nephrosis!

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Bloodwork

Blood Loss

- PCV/TP – Get your baseline

CBC

- Azotemia
- Stress Leukogram

Chemistry

- Creatine Phosphokinase (CPK, CK)
- Creatinine
- Electrolytes
- Acid Base Balance

Urine Dipstick



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Stabilize Shock

IV FLUIDS

Shock Dose

- 80-90 ml/kg total fluid volume
- Administer as 1/4 shock boluses to effect
 - BW in lbs and add a 0 = 1/4 Shock Bolus

Maintenance

- 2-4 ml/kg/hr

Fluid Type

- Balanced Electrolyte

WHAT IF THERE ARE CONSTRAINTS

Would still like to give shock bolus

Oral Maintenance Fluids

- 5-10% BW/Day
- Indwelling Nasogastric Tube
 - Mila Nasogastric Feeding Tube (~\$30)
 - Argyle or Kangaroo Feeding Tube 8-10 FR x 42" (~\$5)



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Other Systemic Treatment

NSAID

- Flunixin Meglumine
- Meloxicam
- Potentiates Renal Ischemia!

Gabapentin?

Systemic Antibiotic

- Superficial Infection
- Deep Infection



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OK, Now The Wound



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Clean The Wound

Cover wound with sterile water-based lubricant

Clip margin around wound

Disinfect normal tissue around the wound

Clean the wound

- Isotonic Saline or Balanced Electrolyte
- No topical disinfectant or antiseptic
- Syringe with 19g needle
- Spray Gun
- Gauze



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Gross Debridement

Try to avoid excessive scrubbing with gauze

Sharp Debridement is best

- Wound Margins
- Wound Surface
- Healthy bleeding tissue
- Scalpel
- Scissors
- Curette



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Partial or Full Closure

It Depends

Do you have a healthy wound bed?
Blood Supply?

Tension?

In general, pull together what you can.

- It is OK if it fails
- Some might close



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3-Step Wound Management

- 1) Micro-Debridement and Infection Control
- 2) Promote Healthy Granulation Tissue
- 3) Promote Epithelialization



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Micro-Debridement and Infection Control

Hypertonic Saline Dressing

- 20% Saline (200 g/L)
- Bacteriostatic and Bactericidal
- Promotes debridement of necrotic cells
- Do NOT place directly on bone/periosteum

Soak gauze and apply to wound

Cover with AMD Dressing

- PHMB (Polyhexamethylene Biguanide, 0.2%)
- Change in 1-3 days depending on wound stage



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Promote Healthy Granulation Tissue

Calcium Alginate Dressings

- Promote effective inflammatory response
- Do not promote exuberant granulation tissue
- Encourage wound contraction
- Wet with saline
- Triple Antibiotic directly on wound?



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Promote Epithelial Migration

Once you have a healthy granulation tissue base

Semi-Occlusive Foam Dressing

- Copa Foam
- Increase surface temperature by 1-3 degrees F
- Also contain PHMB
- Change every 5-7 days



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Case 1: Goat Attached by Dog



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Case 1: Goat Attached by Dog



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Case 1: Goat Attached by Dog



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Case 1: Goat Attached by Dog

What are your concerns?
What would you do?

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Case 2: Llama tried to jump a fence



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Case 2: Llama tried to jump a fence

Concerns?

How do you start?

Peripheral Risks?

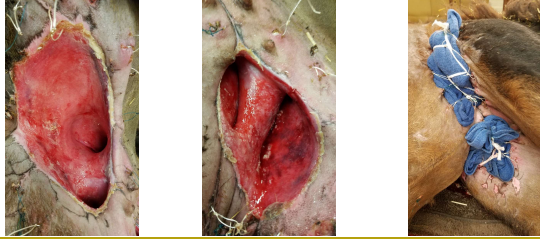
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Case 2: Llama – 2 days later



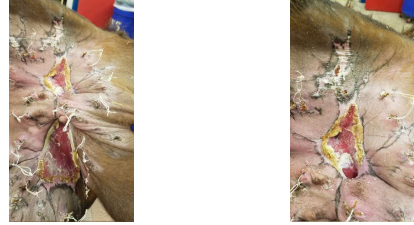
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Case 2: Llama 2 Days Later



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Case 2: Llama 22 Days Later



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Case 2: Llama 34 Days Later



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Case 2: Pig With Leg Laceration



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Case 2: Pig With Leg Laceration

Concerns?

Goals?

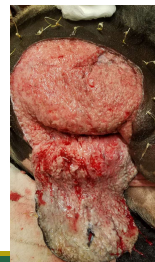
Reality?



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Case 2: Pig 3 Days Later

Hmmm, Now What?



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Case 2: Pig 8 Days Later



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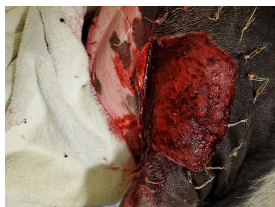
Case 2: Pig 11 Days Later



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Case 2: Pig 14 Days Later

A good ending or a bad ending?



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