

**Page 1 (2 minutes)**

This is an image of a 450-kg, 7-year old Thoroughbred Horse. The horse was normal the previous evening. This morning he was found in the pasture with a Grade V/V left fore limb lameness. Hoof tester evaluation and flexion of the distal limb were negative.

1. Based on the history and the image presented, list **three** differential diagnoses for this horse.

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

2. List **three** specific **physical exam** procedures of the limb you would perform to further examine this horse.

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

**Page 2 (2 minutes)**

A painful response and crepitus were elicited upon manipulation and flexion of the cubital joint. There is a superficial abrasion present over the proximal lateral aspect of the antebrachium. If the carpus is maintained in extension, the horse can bear weight on the affected limb.

1. Based on your physical examination findings, what is the **most likely** diagnosis in this horse? **Be specific**

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2. Based on your physical examination findings, what is the next **most appropriate** diagnostic procedure you should perform? **Be specific**

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**Page 3 (2 minutes)**

You take medial-to-lateral and cranial-caudal radiographs of the left elbow.

1. Completely describe the radiographic abnormalities. **Be specific**

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2. What is your treatment recommendation for this horse? **Be Specific**

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**Page 4 (4 minutes)**

You decide to treat the fracture by internal fixation with a bone plate.

1. List **four** perioperative medications (route and dosage) you will administer to this horse.

	<b>Medication</b>	<b>Route</b>	<b>Dosage (units)</b>
a.			
b.			
c.			
d.			

2. With respect to correct application of the bone plate:

a. Where on the ulna will you place the plate?

\_\_\_\_\_

b. Placement of the plate in this location will achieve what biomechanical principle?

\_\_\_\_\_

3. List in order, between the skin/subcutaneous tissue and the olecranon, the tissues or anatomical structures you will encounter during your surgical approach.

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

d. \_\_\_\_\_

**Page 5 (4 minutes)**

1. **Image 1-4** are bone plates commonly used for fracture repair in adult horses. Identify the implants.

Image 1: \_\_\_\_\_

Image 2: \_\_\_\_\_

Image 3: \_\_\_\_\_

Image 4: \_\_\_\_\_

2. Which **one** of these plates would be most appropriate to repair the fracture in this 450-kg horse?

\_\_\_\_\_

3. Name the optimal type and size of ASIF screw you will use to secure the selected implant.

\_\_\_\_\_

4. Name the appropriate size of drill bit and the tap to place this screw in the position screw technique.

Drill bit: \_\_\_\_\_

Tap: \_\_\_\_\_

5. List **one** advantage and **one** disadvantage of using the bone plate in **Image 4** as compared to using the plate in **Image 2**.

Advantage: \_\_\_\_\_

\_\_\_\_\_

Disadvantage: \_\_\_\_\_

\_\_\_\_\_

**Page 6 (4 minutes)**

1. **Images 1-4** are instruments commonly used for equine fracture repair. Identify the instruments.

Image 1: \_\_\_\_\_

Image 2: \_\_\_\_\_

Image 3: \_\_\_\_\_

Image 4: \_\_\_\_\_

2. What is achieved at the fracture site by using the instrument in **Image 1** compared to using the instrument in **Image 2**. **Be specific**

\_\_\_\_\_  
\_\_\_\_\_

3. How would you prepare the plate to ensure optimal fracture reduction?

\_\_\_\_\_  
\_\_\_\_\_

4. Because of expense, you elected to use only **four 5.5-mm cortical screws**, the rest of the screws being 4.5-mm cortical screws. Where on the plate should the **5.5-mm screws** be used to maximize the strength of your plate fixation?

\_\_\_\_\_  
\_\_\_\_\_

**Page 7 (4 minutes)**

1. When applying the plate, you strip a 5.5-mm, neutral, fully threaded cortical screw. What would be an option to fill this screw hole?

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2. You decide to augment your repair with an autogenous cancellous bone graft. List **three** possible sites for harvesting the graft in this horse.

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

3. List **three** physiologic functions autogenous bone grafts perform to augment bone healing

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

**Page 8 (4 minutes)**

The fracture is repaired with a 4.5 narrow dynamic compression plate. Intraoperative radiographs are performed and are depicted in the **Image**.

1. Identify **three** technical errors. **Be specific.**

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

The horse has a difficult recovery from anesthesia. After three attempts to stand, the horse is standing, but non-weight bearing on the left forelimb.

2. What is the most likely differential diagnosis for this lameness?

\_\_\_\_\_

3. What **one** diagnostic modality would you perform to evaluate this horse?

\_\_\_\_\_



**Page 9 (4 minutes)**

You obtain radiographs of the left elbow.

1. Completely describe the radiographic abnormalities. **Be specific.**

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2. What biomechanical effect was produced by leaving the two screw holes open in your initial plate fixation?

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The owners elect to continue treatment.

3. List the implants you would use in the second repair. **Be specific.**

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The fracture is repaired and antimicrobial therapy is continued for 7 days postoperatively.

**Page 10 (4 minutes)**

Ten days after surgery, the horse becomes non-weight bearing lame on the left forelimb. There is periarticular, diffuse pitting edema present over the lateral aspect of the cubital joint. Palpation and flexion of the elbow elicits a marked pain response.

1. Based on this history and the clinical description, list the **three** most likely diagnoses for this horse.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

2. List **four** steps you would take to obtain a definitive diagnosis in this horse.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

**Page 11 (4 minutes)**

Radiographs of the fracture fixation were obtained and demonstrated that the implants were intact. No bone lysis was evident. The **Image** is a lateral view of the cubital joint.

1. Name the landmarks for arthrocentesis of the cubital joint labeled **A**, **B**, **C**, and **D** in the **Image**

- A. \_\_\_\_\_
- B. \_\_\_\_\_
- C. \_\_\_\_\_
- D. \_\_\_\_\_

2. Indicate with an “**X**” on the diagram below **two** separate locations for performing arthrocentesis of the cubital joint.



Arthrocentesis of the cubital joint yielded a turbid, yellow joint fluid with a poor mucin clot. A synovial fluid sample was obtained and analysis and cytologic evaluation of the fluid was performed and the results are presented below.

pH	7.0
Total Protein	4.5 g/dl
Nucleated cell count	63,000 cells/ul
Glucose	40 mg/dl

3. What is your diagnosis? \_\_\_\_\_

**Page 12 (4 minutes)**

**Image 1** is a direct smear of the synovial fluid. **Image 2** is of a slide prepared from the synovial fluid.

1. Describe and interpret the cytology in **Image 1**

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2. Name the test performed in **Image 2** and characterize the organisms identified by the arrows

Test: \_\_\_\_\_

Organisms: \_\_\_\_\_

3. What is the most likely organism involved?

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4. List **three** methods of submitting synovial fluid for culture that maximize your chance of isolating an organism. **Be specific**

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

**This Concludes the Large Animal Orthopedic Case-Based Examination.**