

## INTRODUCTION

Gastrocnemius rupture causing abnormal flexion of the hock is a common traumatic disease observed in cattle. Spontaneous rupture of the gastrocnemius mainly occurs at the muscle-tendon junction and a direct trauma may lead to gastrocnemius tendon avulsion at the tuber calcaneus. We herein report **two cases of gastrocnemius dysfunction** leading to hock hyperflexion, also called « plantigrady », in two newborn calves due to a localized severe myopathy referred to the Clinic for Ruminants of the University of Liège.

### CASE 1

- ✓ **Patient** : Belgian Blue calf, male, 7 days old, 58.00 kg
- ✓ **History** : The calf was born by C-section without abnormalities. The calf was referred because he was not able to stand up since he was 2 days old. He had previously been treated with non-steroidal anti-inflammatory drugs and vitamins without success.
- ✓ **Clinical examination** : Weakness, tachypnea and hyperthermia
- ✓ **Special examination** : The right hind limb was swollen, hot and painful from the hip to the claws. The calf was not able to stand-up on his own and did not bear weight on his right hind limb. Deep pain sensation in this limb was present but motor function was completely absent.

### HAEMATOLOGY & BIOCHEMISTRY (Abnormal values)

	Case 1	Case 2	Normal values
Leukocytes (cells/l)	21,450	11,000	4,000 - 12,000
Neutrophils (cells/l)	16,152	8,800	650 - 4,500
CPK (UI/l)	5,550	2,955	128 - 244

### Diagnostic imaging case 1

#### Radiography of the right hind limb

- Heterogeneous soft tissue swelling.
- Radioluminescent spots (emphysema) in the popliteal region (Figure 2).

#### Ultrasonography of the right thigh

- Muscular emphysema: hyperechoic spots (gas) in gastrocnemius and long digit extensor muscles (Figure 3A).
- No evidence of fluid collection.
- An enlarged right popliteal lymph node (Figure 3B).

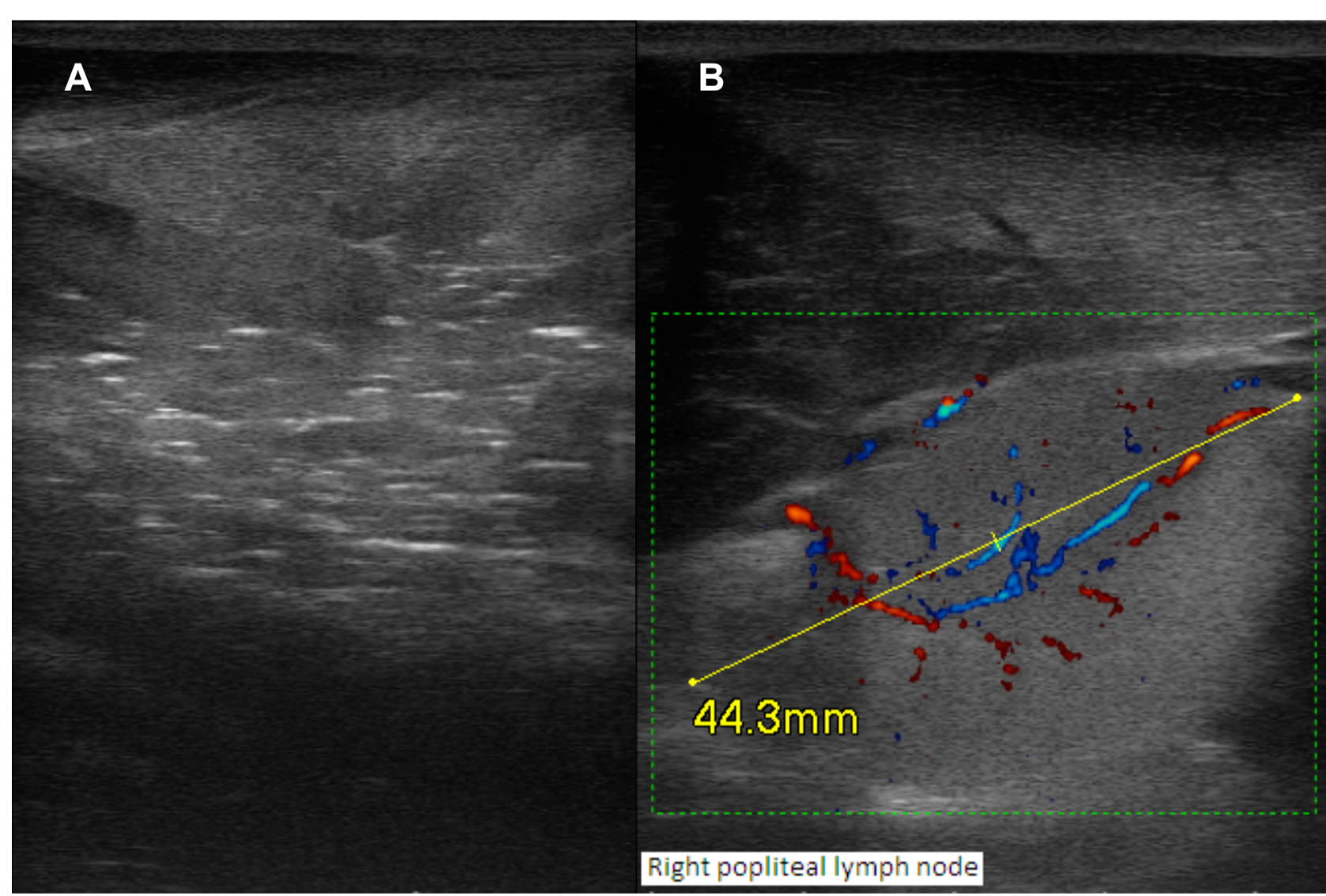


Figure 3: A) US of the right thigh with multiple hyperechoic spots (head of arrows) & B) US and doppler of the right popliteal lymph node with a severe homogenous thickening of the popliteal lymph node (4.5 x 2 cm) with an increased vascularization (red and blue colours)

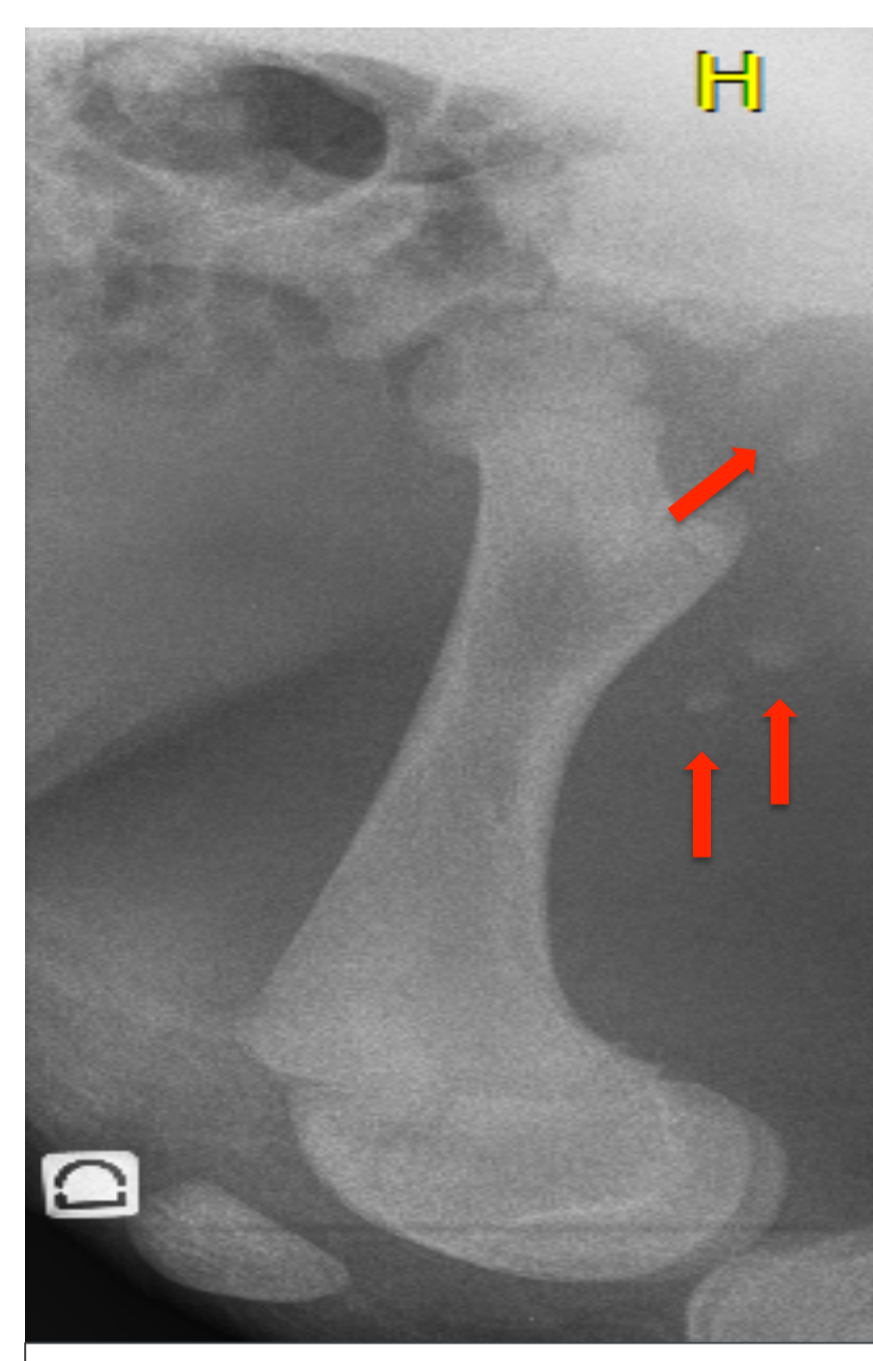


Figure 2: X-rays of the right femoral region with radioluminescent spots (arrows)

### Muscular biopsy

- **Histological examination**  
Severe acute and chronic necrotic myositis (Figure 5).

- **Bacteriology**  
*Staph. Pseudointermedius* MRSI sensitive to florfenicol & tetracycline.

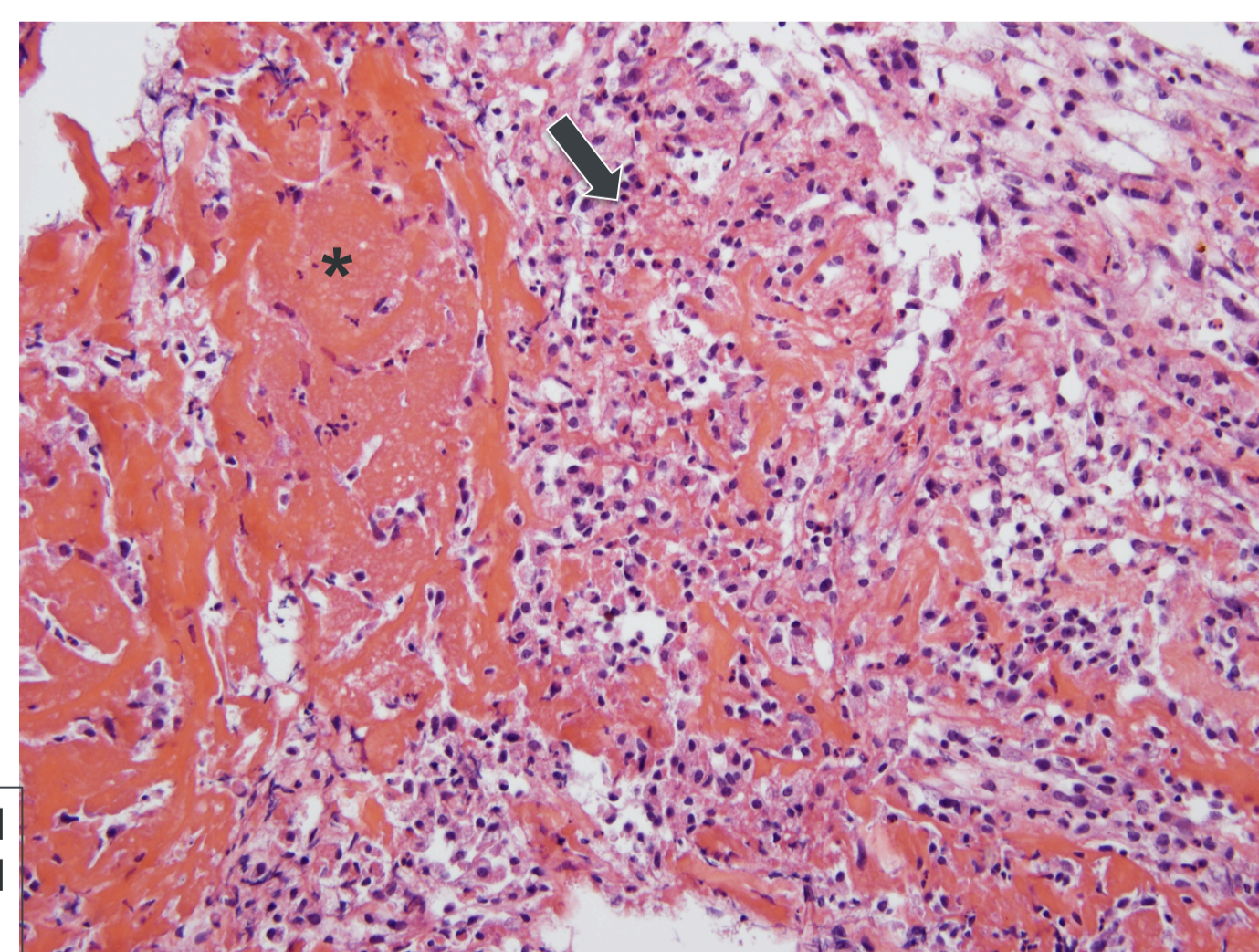


Figure 5: Muscular biopsy containing muscular degenerated cells (\*) and inflammatory cells (arrows) (lymphocytes and macrophages).

### Treatment case 1

- ✓ Poor vital prognostic but decision of treatment with the breeder.
- ✓ Surgical drainage of the right thigh, NSAIDS & ampicilline : 25 mg/kg, intravenous every 6 hours during 4 days then 15 mg/kg intramuscular, BID, during 5 days.
- ✓ After bacterial culture: tetracycline, 20 mg/kg, SID, intramuscular, 10 days.
- The calf kept a severe lameness but a good general condition. He was slaughtered at 5 months with a normal carcass weight while he presented difficulties to stand up.

### CASE 2

- ✓ **Patient** : Belgian Blue calf, male, 7 days old, 70.00 kg
- ✓ **History** : The calf was born by C-section, from an embryo transfer, without abnormalities. At birth, he presented an acute respiratory distress syndrome and was treated with antibiotics, steroidal and non-steroidal anti-inflammatory drugs. The calf was referred for a sudden weakness of the hind limbs since he was 4 days old.
- ✓ **Clinical examination** : Pale mucous membranes, tachypnea and tachycardia.
- ✓ **Special examination** : The calf was not able to stand up alone and presented a bilateral plantigrady (Figure 1). Deep pain sensation of the hind limbs was maintained but motor function was completely absent.



Figure 1: Calf unable to stand up alone with a bilateral plantigrady

### Diagnostic imaging case 2

#### Radiographies of the pelvis and the hind limbs

- Heterogeneous soft tissue swelling.

#### Ultrasonography of the thighs

- Large hyperechoic images with mainly homogeneous pattern but few of them contain hypoechoic ill delineated areas.
- These images were distributed in multifocal areas of gluteobiceps, gastrocnemius, femoral biceps and semitendinosus muscles of each thigh and in the semimembranosus muscle of the left thigh (Figures 4A, B & C).

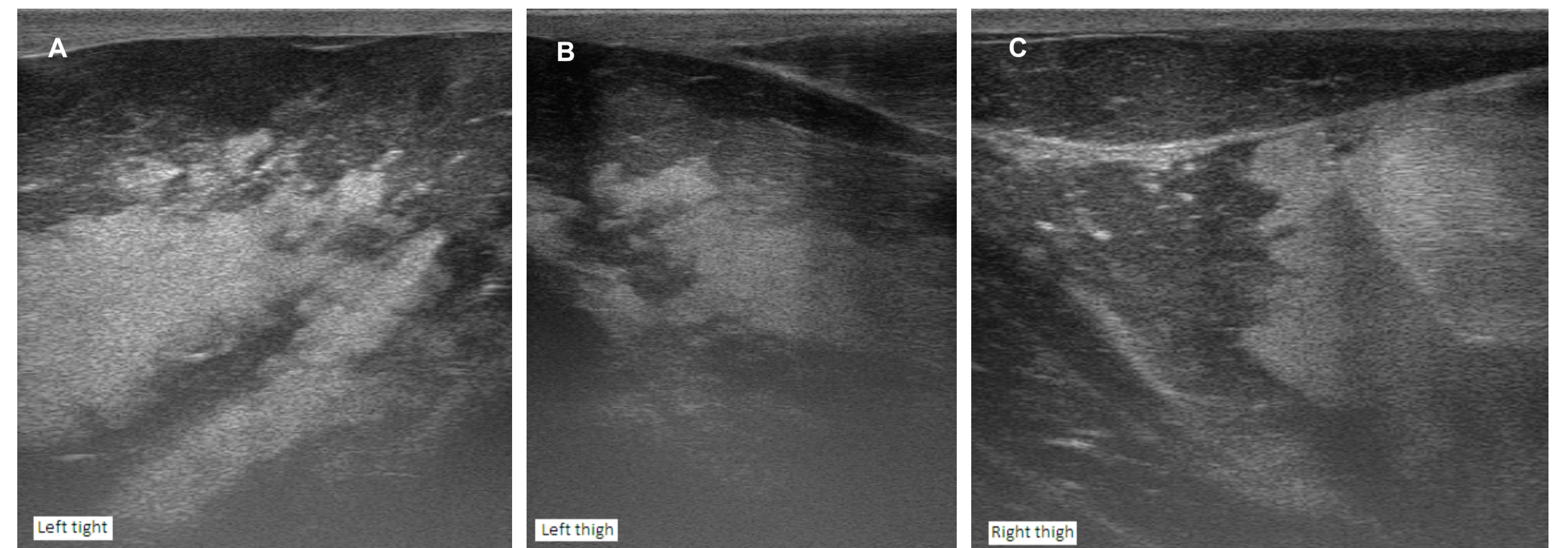


Figure 4 A, B & C: US of the left and the right thighs showing large hyperechoic images with irregular margins. Few of them contain hypoechoic areas.

### Necropsy & histology

- Subcutaneous and intramuscular hemorrhages (Figure 6).
- A localized myodystrophy of the gastrocnemius muscles (Figure 7).
- No nervous dysfunction but a severe muscular degeneration with the presence of cytoplasm calcification (Figure 8).

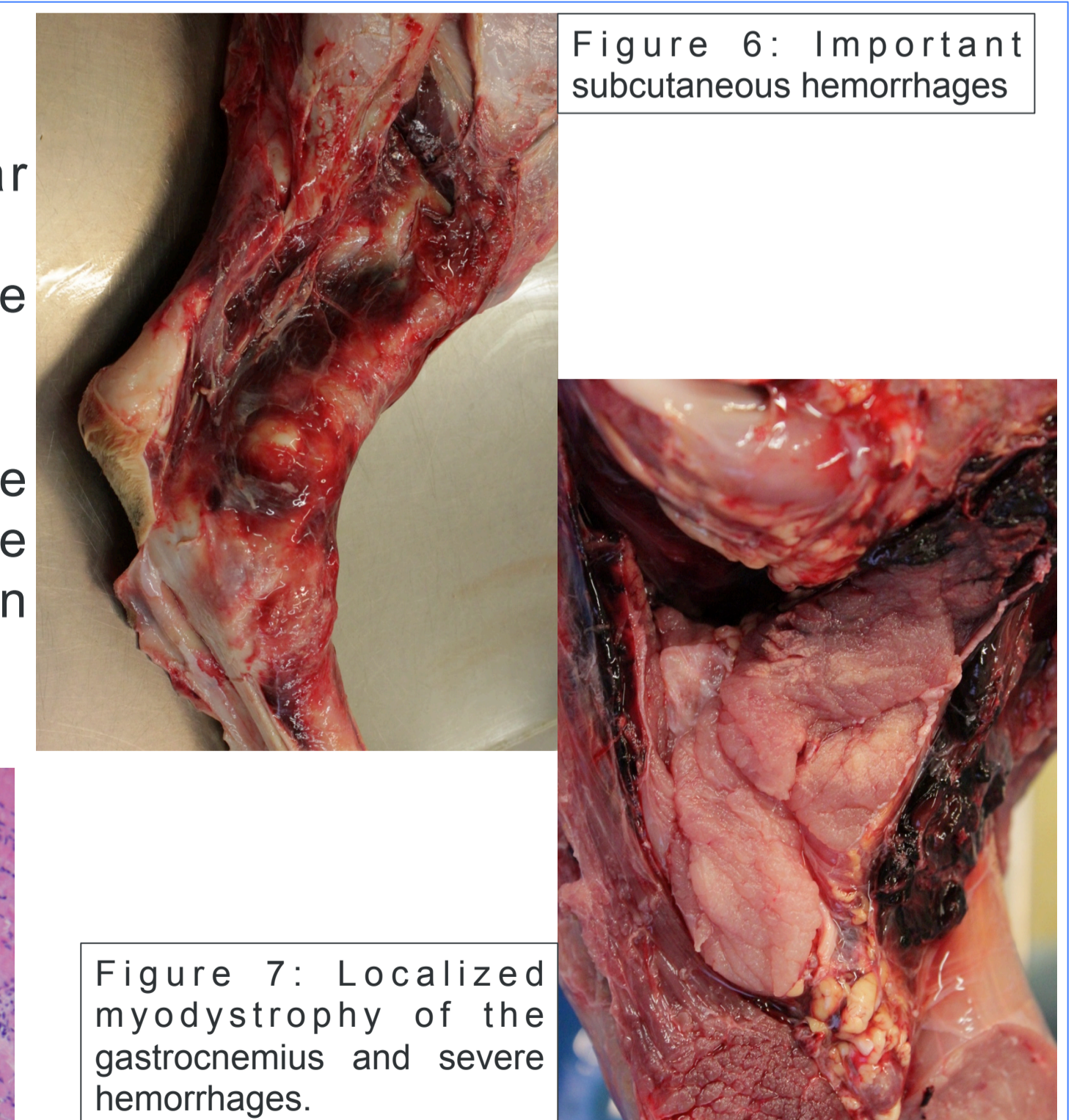


Figure 7: Localized myodystrophy of the gastrocnemius and severe hemorrhages.

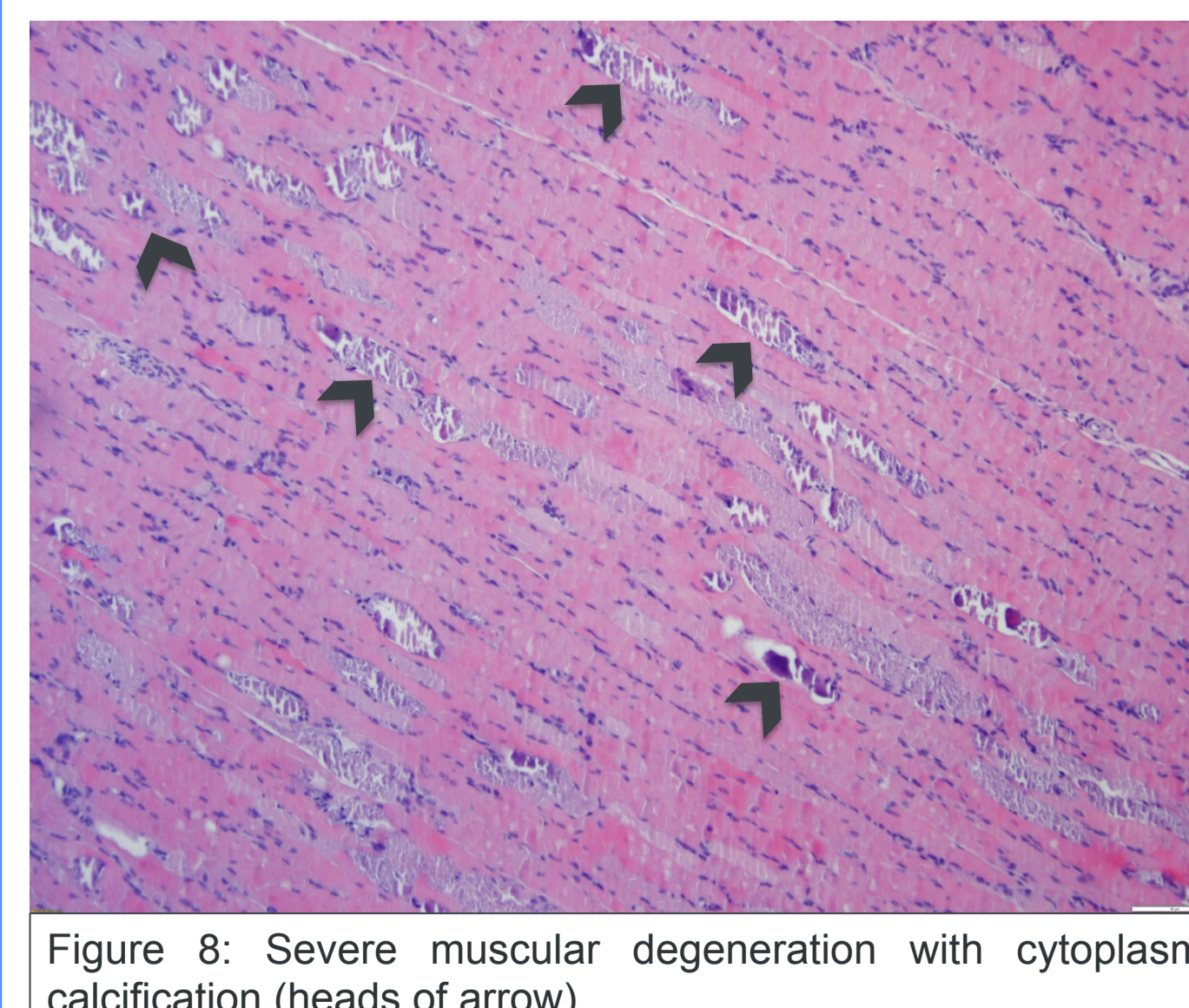


Figure 8: Severe muscular degeneration with cytoplasm calcification (heads of arrow).

#### Bacteriology

- Contaminated flora

#### Selenium dosage

- In liver: 3,158 mg/kg
- Normal values = 0,15-1,5; toxicity > 10.

