

Initial Assessment of the Critical Neonate





Compromised Foal



Critical 48 hours

- < 48 Hr old
 - 70-80% of admissions
- 84% survive
 - 70% fatal cases < 48 hr old



Weak or Fading Neonate

- Immediate assessment of essential organ function
- Immediate directed supportive therapy



Neonatal Problems

- Fetal Distress - Maladaptation
- Prematurity/postmaturity
- Sepsis/Infection
- Trauma
- Anemia
- Congenital malformations



Neonatal Problems

- Rarely one problem
 - Combination of problems
 - Varying severities
- Wide array of possibilities
 - But predictable course



Goals

- Identify underlying problem
- Identify disrupted vital organ functions
- Therapeutic interventions
 - Support normal organ functions
 - Control infection

Initial Assessment

- Is there evidence of sepsis?
- Is cardiovascular support necessary?
- Is respiratory support required?
- Will enteral nutrition/fluid maintenance be possible?
 - Is intravenous fluid therapy necessary?
 - Is continuous rate dextrose infusion necessary?
 - Is parenteral nutrition necessary?
- Will assisted thermoregulation be necessary?
- Control behavioral abnormalities?
- Level of metabolic/endocrine support needed?
- Will renal support be necessary?
- Requirements for other specific supportive care?

Physical Examination

- Cardiovascular examination
 - Mucous membrane
- Thoracic assessment
- Nervous system evaluation
- Abdominal assessment
- Body condition
- Musculoskeletal problems



Cardiovascular Examination

- Evaluating perfusion
- Evaluating volemia
 - Volemia vs hydration
 - Dehydration rare
 - Hypovolemia common



Cardiovascular Examination

- Assess effectiveness of perfusion
 - Cold extremities as blood is shunted centrally
 - Do not treat with active warming
 - Depressed mental status
 - Decreased borborygmi
 - Decreased urine production
- Pulse assessment
 - Pulse quality
 - Arterial tone
 - Arterial fill
- Blood Pressure
- Unreliable signs
 - Dry oral membranes
 - Capillary refill time
 - Skin turgor

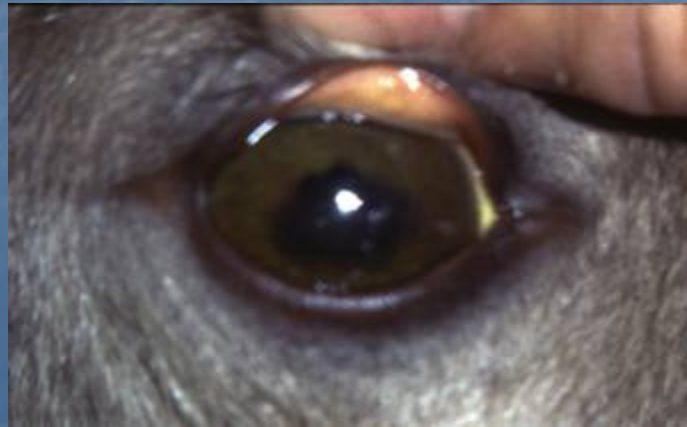


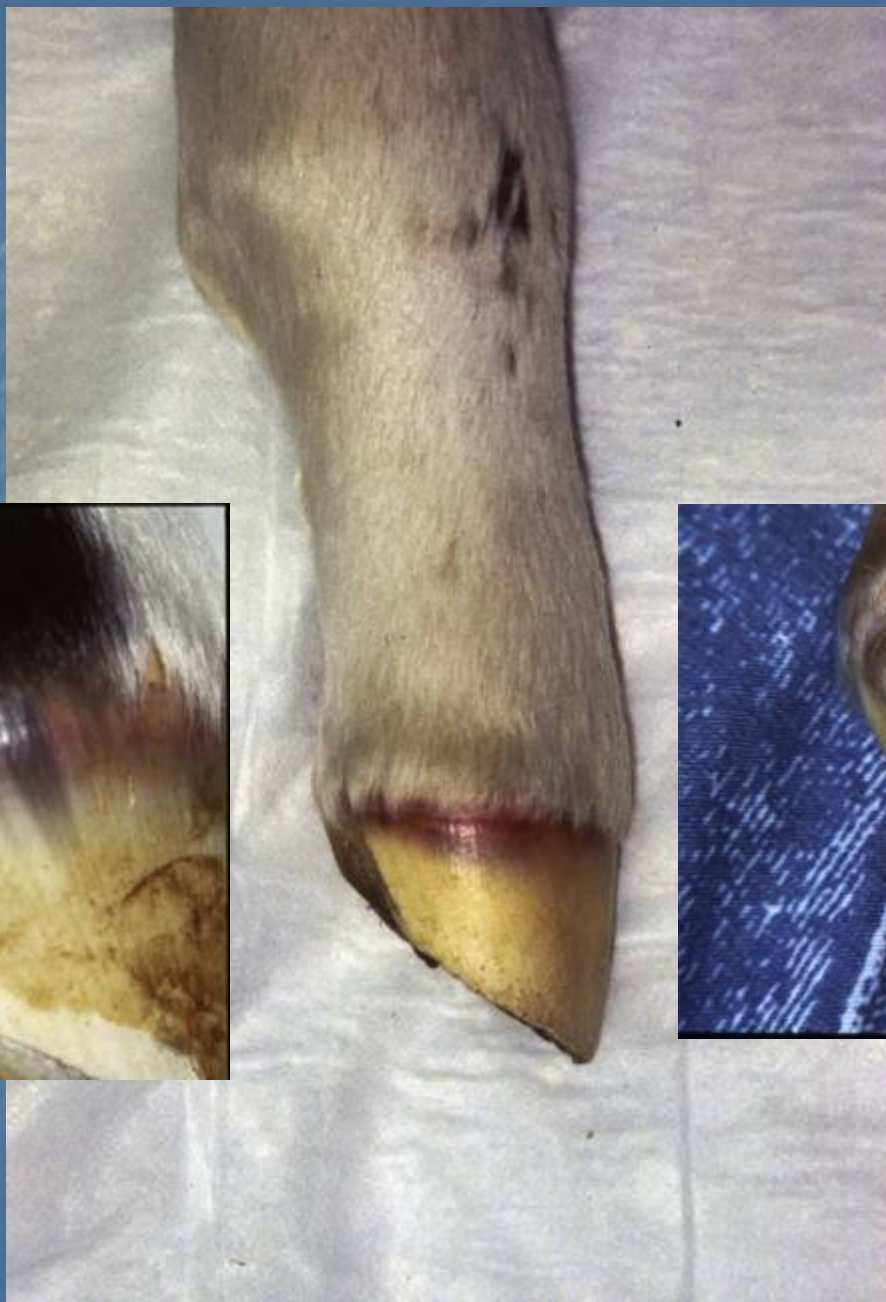












Thoracic assessment

- Auscultation
 - Lungs
 - Cardiac murmurs
- Tachypnea
 - Pneumonia
 - Benign Neonatal Tachypnea
 - Central tachypnea
 - Pain
- Pharyngeal collapse
- Fractured ribs
- Paradoxical respiration (wave chest)
 - Progressive atelectasis
 - General fatigue



Central Nervous System

- Important parameters
 - Strength
 - Muscle tone
 - Hypertonus or hypotonus
 - Responsiveness
 - Hyperresponsive or hyporesponsive
 - Level of arousal
 - Somnolence
 - Hyperactive or hyperkinetic
 - Behavior
 - Respiratory patterns
 - Apneustic breathing
 - Periodic breathing
 - Ataxic breathing
 - Central patterns
 - Seizures
 - Abnormal vocalization



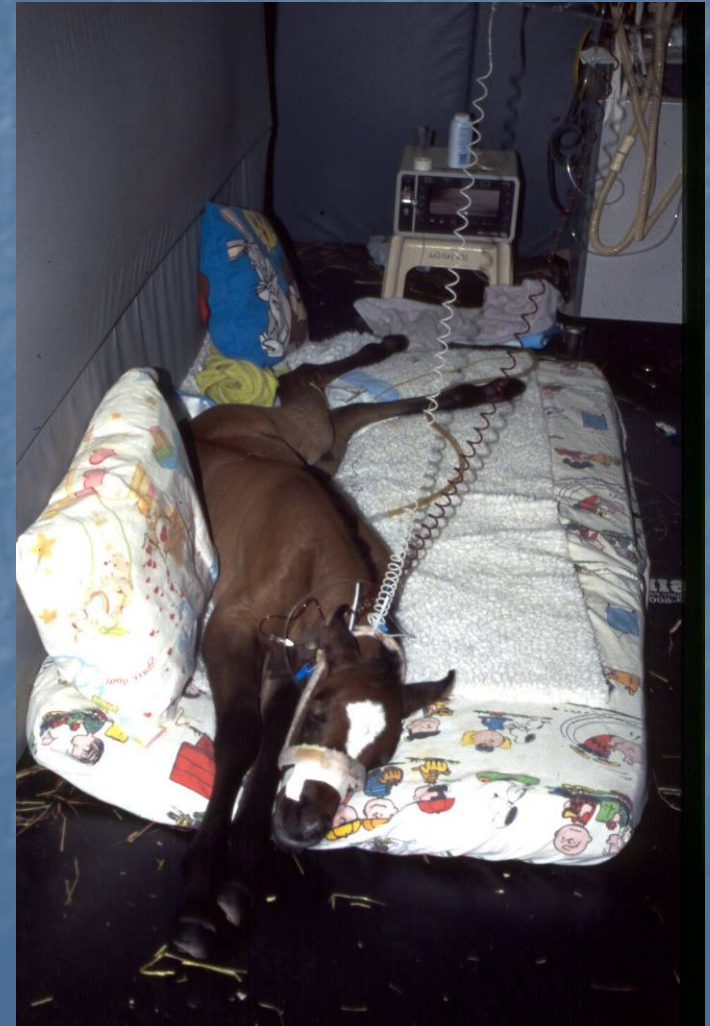
Changes in responsiveness



Changes in muscle tone



Changes in muscle tone



Changes in behavior



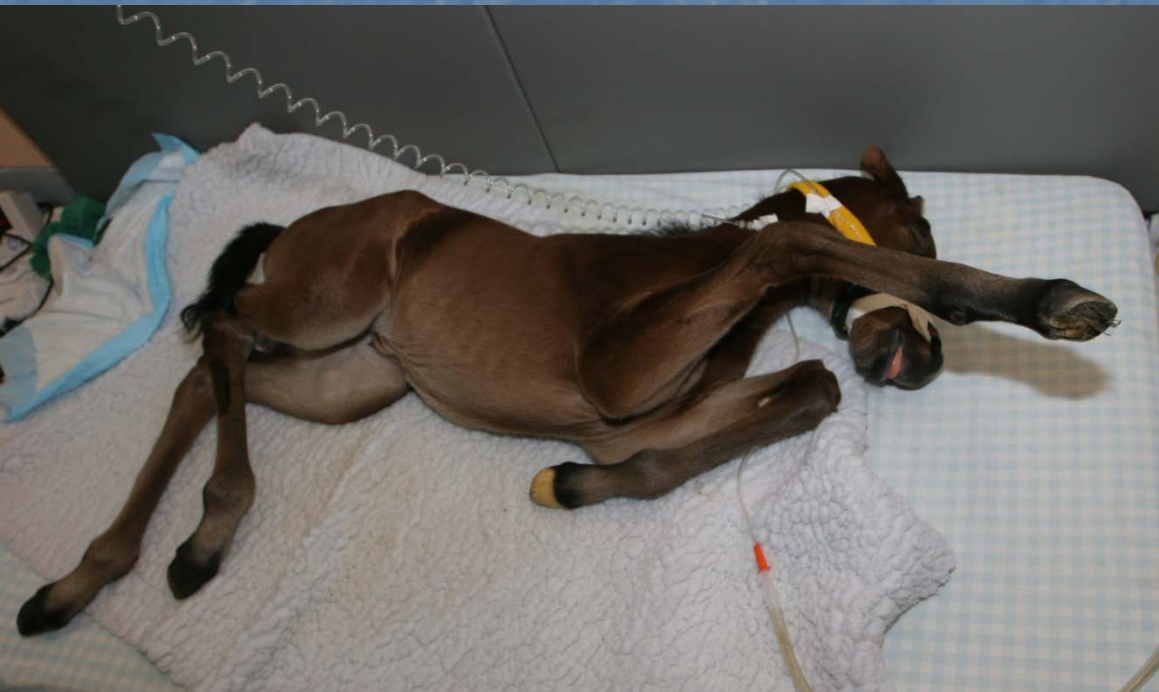




Brain stem damage



Seizure-like behavior



Abdominal Assessment

- Abdominal size
 - Appropriate?
- Feces?
 - Digital rectal
 - Meconium staining
 - Nose
- Auscultation?
- Palpation
- Ultrasound



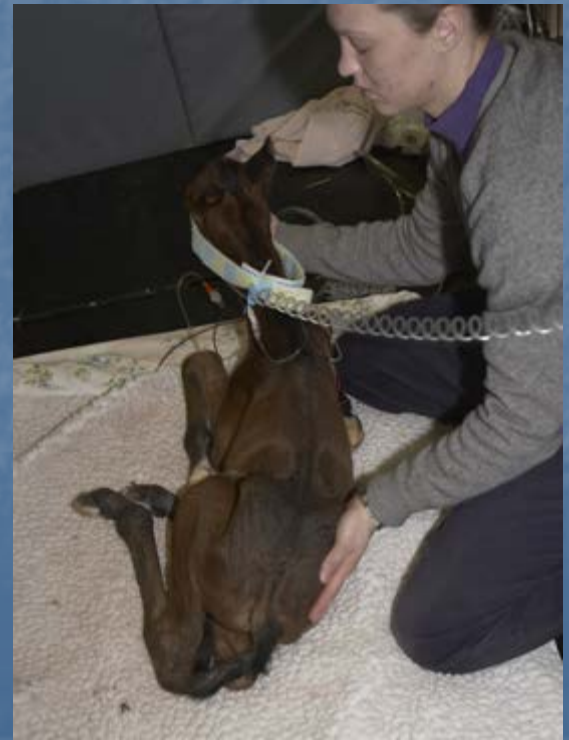
Abdominal Palpation

- Internal umbilical remnants
 - Umbilical triad (2 arteries and urachus)
 - Hemorrhage
 - Omphalitis
- Urinary bladder
 - Luminal and bladder wall hematomas
 - Bladder size
- Intestines
 - Retained meconium
 - Thickened intestinal wall
 - Pneumatosis intestinalis
 - Intussusceptions
- Kidneys
- Liver - Hepatomegaly
- Body wall defects
 - Inguinal or umbilical hernias
 - Other body wall defects



Body Condition

- Thin to emaciated
 - IUGR
 - Fetal SIRS (FIRS)
 - Prematurity
 - Post maturity



Musculoskeletal problems

- Fractured ribs
- Other musculoskeletal abnormalities
 - Fractures
 - Gastrocnemius disruption
 - Contracture
 - Laxity





- Careful physical
 - Detect major dysfunction
 - Seriousness
- Dynamic monitoring
 - Serial physical evaluation
 - Laboratory analysis
 - Stall side
 - Serial blood glucose levels
 - Serial lactate levels
 - Arterial blood gas
 - Blood electrolyte



Therapeutic Interventions in Neonates

