CLINICAL PATHWAY:
Neural Tube Defect (Myelomeningocele) Postnatal Management

THIS PATHWAY SERVES AS A GUIDE AND DOES NOT REPLACE CLINICAL JUDGMENT.

Consults:
- Neurosurgery (NSG) when timing of delivery is known or immediately upon delivery
- Urology (after admission)
- Orthopedics (if significant spinal kyphosis with defect)
- Cardiology (as needed)

Inclusion Criteria: all open neural tube defects (whether repaired prenatally or pending postnatal repair)
Exclusion Criteria: suspected closed spinal dysraphism (e.g., lipomyelomeningocele)

Neural tube was not repaired prenatally, **or** wound appears dehisced if repaired prenatally

Neural tube defect repaired prenatally **and** the incision looks well-healed (or is covered by an Alloderm patch and not yet epithelialized)

Delivery Room Management
- Prior to delivery: prepare all indicated supplies and ensure no latex gloves or supplies are used
- While assessing ABCs:
  - Cover defect with moist telfa (see below) and center defect over a donut to prevent mechanical injury to the neural placode
  - If resuscitation is required, place supine, ideally with moist telfa (see below) covering the defect (or incision site if repaired prenatally), and with the defect centered over a donut
  - Keep baby prone or side lying once ABCs evaluated and any indicated resuscitation measures are complete
- Assess the defect:
  - Using sterile gloves, place sterile telfa in blue bowl with warm, sterile normal saline. Wring out and place over the open defect. Use IV tubing to slowly drip sterile saline onto telfa to keep it moist. Cover with saran wrap to hold the telfa and IV tubing in place. Avoid placing pressure on the lesion. (See Appendix A)

Delivery Room Management
- Prior to delivery: prepare all indicated supplies and ensure no latex gloves or supplies are used
- Standard delivery room management with latex precautions

TRANSFER TO NICU

TRANSFER TO NICU

Wound Care
- Latex precautions
- Prone positioning
- Keep dressing in place without dressing changes until OR
- If prenatally repaired and dehiscence is superficial, individualize wound care assessment/management

Medications and FEN/GI
- Start ampicillin and gentamicin at birth (and discontinue 24 hours post-op)
  - *If surgery is delayed beyond 72 hours of life*: switch to cefazolin at 72 hours (and discontinue 24 hours post-op)
- *If active infection related to open neural tube is suspected:* obtain blood cultures and consult Infectious Diseases
- NPO with IV fluids until OR timing is confirmed, then adjust per OR guidelines
- Initiate indwelling urethral catheter at birth

Imaging
- Head ultrasound and renal/bladder ultrasound within 24 hours of admission

OR FOR REPAIR

Wound Care
- Dressing changes as needed by RN if soiled by diaper contents (stool or urine). Other dressing changes to be done by NSG team.

Access
- PIV for IV fluids and antibiotics (unless other indications for central line)

Medications
- Continue peri-op antibiotics until 24 hours post-op
- Scheduled acetaminophen and PRN morphine

FEN/GI:
- IV/NG feeds until 48 hours post-op, then can start PO as tolerated with weaning of IV fluids/NG feeds per NICU guidelines

Monitoring
- Monitor for symptoms of Chiari II (e.g., stridor, apnea, dysphagia, respiratory distress)
- Daily fontanelle assessment by NICU and NSG teams, and qshift by RN
- Twice weekly head circumference by RN
- Minimize temp instability and insensible fluid losses
- See Appendix B for Criteria for Shunt Placement

Urological Care
- Consult Urology
- Remove catheter once prone position is not required, and initiate CIC q6hr with measurement of residuals
  - If < 30 mL x24 hrs, may decrease to q8hr, then
  - If < 30 mL x24 hrs, may decrease to q12hr, then
  - If < 30 mL x 24 hrs, stop CIC

Imaging
- Head ultrasound on POD #1 (for **post**natal repair) or on admission (for **pre**natal repair), then weekly (typically on Mondays)
- Renal/bladder ultrasound within 24 hours of admission
- MRI brain and spine (timing to be determined by NSG team)

Wound Care
- Standard NICU management with latex precautions
- *If skin defect was closed with an allograft patch and not yet epithelialized:* apply bacitracin ointment BID and cover with telfa

Discharge criteria: (1) successfully taking PO feeds, stable on RA, temp normal for at least 48 hours; (2) patient completed post-op antibiotics following shunt placement **AND** neurosurgery team has determined that hydrocephalus surveillance can continue as outpatient; (3) incision is healed or is healing well; (4) parental demonstration of comfort with CIC/supplies ordered for home
Appointments to be made at discharge: (1) Neurosurgery Clinic (2) Spina Bifida Clinic outpatient appointment with urodynamics scheduled ideally before 3 months of age; (3) NICU Neurodevelopmental Clinic; (4) if clubfoot present, Orthopedics Clinic outpatient referral to be placed if not already involved

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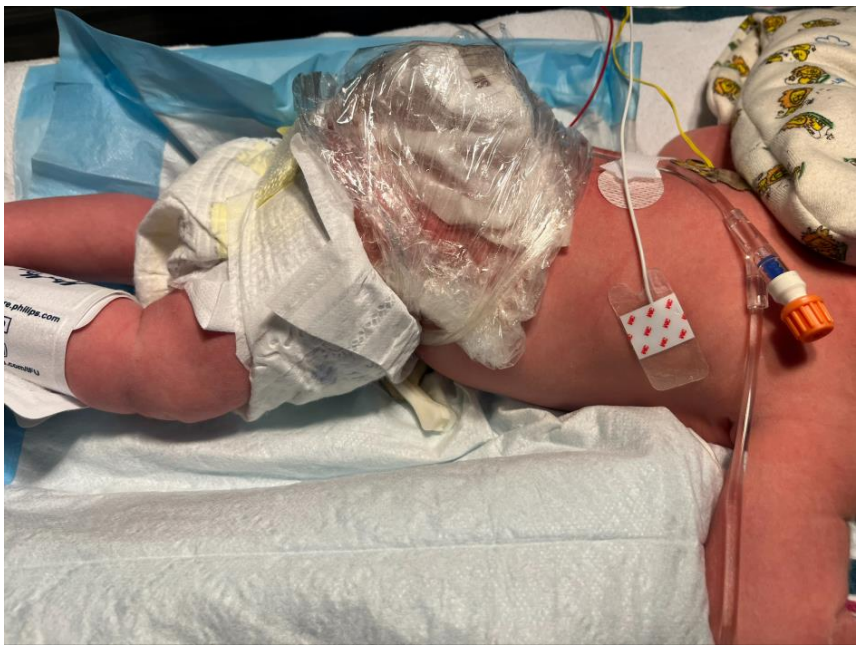

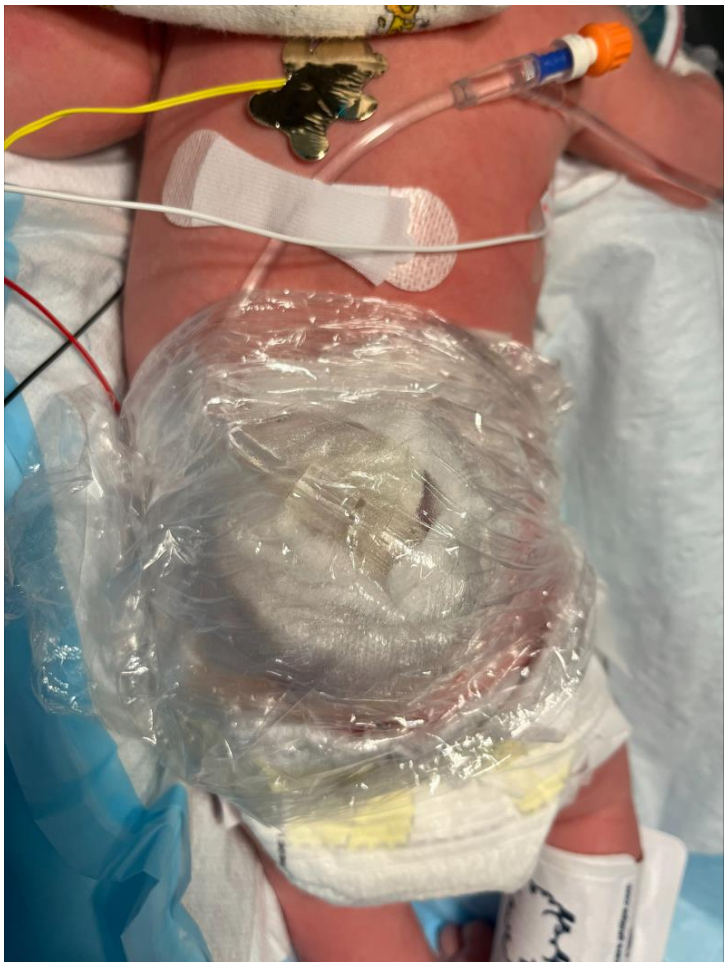

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Appendix B: Criteria for Shunt Placement

Criteria for shunt placement include any **one** of the following:

1. Bulging fontanelle, split sutures, or sunsetting eyes **and** one of the following:
   - An increase in head circumference/crossing percentiles
   - Increasing hydrocephalus on consecutive imaging studies
   - Head circumference >95th percentile
2. Syringomyelia with ventriculomegaly
3. Ventriculomegaly **and** symptoms of Chiari II malformation
4. Persistent CSF leakage from the myelomeningocele wound **or** bulging at the repair site

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