Gastroschisis Protocol

Prior to arrival at MNH

Cut cord long (8-10cm), dry baby, put on a nappy/cloth, cover baby in clean plastic (bag, apron or alternative) up to the armpits (avoid wet gauze), resuscitate if required, insert IV cannula, give 20mls/kg normal saline fluid bolus, insert NG tube on free drainage, IV antibiotics, start maintenance fluids, apply hat, give to caregiver for skin-to-skin (baby to caregivers skin in a breastfeeding position), trophic breastfeeding (5 minutes every 8 hours), refer to MNH via WhatsApp, transfer to MNH immediately.

On arrival transfer straight to ward 37 - cotside silo application (within 1 hour)

1. Commence resuscitation (with **clean plastic bag or apron** up to the armpits on a radiant warmer):
Check vital signs, oxygen if required, IV access, IV fluid (20mls/kg normal saline bolus then maintenance fluids), IV antibiotics (ampicillin, gentamycin, metronidazole). Insert nasogastric (NG) tube and aspirate contents – replace ml for ml with normal saline. **Immediately call paediatric surgery team** to apply silo - trained NICU team member to apply silo if paediatric surgery team not available within 1 hour.

2. Prepare equipment (silo, saline, sterile gloves, suture/scissors (in case of adhesions), paracetamol and dextrose or breastmilk for analgesia) and gather team to the radiant heater.

3. Give paracetamol. Someone to settle baby and give dextrose or breastmilk on a gloved finger or gauze.

4. Assessment of the bowel (for perforations, necrosis, atresia), defect size and check not twisted.

5. Gentle finger sweep to assess for adhesions (divide if required).

6. Align silo - string at 6'o'clock (towards the feet end). Lubricate silo with saline.

7. Gently insert the bowel into the silo (through the green ring) - place the apex bowel loop first and **avoid rotation/bowel damage (check the string is still at 6'o'clock throughout – if not, remove silo and start again).**

8. Compress the ring at 3 and 9'o'clock to make an oval shape and insert the ring inside the abdominal wall – first at 6'o'clock, then at 12'o'clock. At this stage, warmed saline can be used to wash bowel if soiled.

9. Tie the top of the silo at the level of the bowel (without pinching the bowel) and suspend using a string from above (must be straight up/not tilted). Wrap umbilical cord, right to the base, in Vaseline/paraffin gauze or saline soaked gauze. Then apply strip of dry gauze around the base of the silo. Hang silo string up.

10. Reassess baby – check vital signs, further resuscitation (oxygen, IV fluid, warmth) if required. **Check bowel** is pink/perfused in the silo at the time of application and every 2-4 hours after **(clear handover to night team to monitor bowel)**. If it becomes grey/green/purple/dusky then assess vital signs, resuscitate (oxygen to keep sats >95%, IV fluid bolus), call Paediatric Surgery team immediately for advice/review. If not available, remove silo, put plastic over bowel, lay baby on right side, keep warm. Await surgical input before re-applying silo.

Monitoring

4 hourly vital signs – if abnormal, act (O_2, fluid, warmth, antibiotics). Following an action, repeat after 1 hour and act/alert doctor again to urgently review if still abnormal. Repeat until vital signs are in normal range.

Normal observations for a neonate:
O_2 Saturation: >95% for a term baby (90-92% for a preterm). **Respiratory rate:** 40-60
Heart rate: 110-160
Capillary refill time: < 2 seconds (press sternum for 5 seconds, the colour should return within 2 seconds)
Core temperature (axilla, under tongue or rectal): 36.5 – 37.5°C

Daily ward management

Administer IV maintenance fluids/parenteral nutrition using an infusion pump. Support and encourage **mother to express** breastmilk (EBM) every 2 hours to maintain milk supply. **1ml 8-hourly of EBM** can be given orally when the silo is on and colostrum swabs. Then breastfeeding can commence when the defect is closed (see breastfeeding protocol). **4 hourly aspiration** of the NG tube with ml for ml IV replacement (replace aspirated fluid and fluid in the glove on free drainage) using normal saline. **4 hourly check the umbilical cord, including the base,** is covered in Vaseline/paraffin or saline soaked gauze. Continue **IV antibiotics** until 48 hours after defect is closed (longer if required clinically).

Reduction

Reduce the bowel **twice a day** by squeezing down the silo contents and tying the silo lower (once daily or as tolerated if premature or requiring oxygen). Continue until all the bowel is within the abdomen. Breastmilk on gauze or a gloved finger during the reduction.

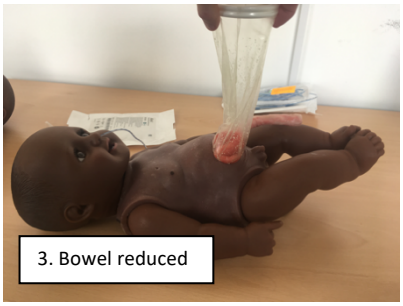
Sutureless closure at the cotside (the day following complete bowel reduction)

1. Prepare equipment (antiseptic skin preparation, sterile gloves, sterile gauze, steri-strips, 2 x tegaderm clear dressings, sterile blade) and gather team. Cut off cord clamp.
2. Give paracetamol and dextrose or breastmilk on a gloved finger or gauze. Someone to assist.
3. Clean and dry abdominal wall and umbilical cord. Slowly pull silo ring out using the string, have fingers in place to immediately hold bowel inside **(take great care so the bowel does not come back out at this stage).**
4. Pull umbilical cord across to 9'o'clock to cover the bowel, dry abdominal wall, apply plaster over the defect and cord (left to right and up and down), then a square of gauze folded into quarter size centrally, then tegaderm. **Keep fingers over defect at all times to keep bowel in until tegaderm is in place.** Alternatively, if the defect edges are opposed, apply plaster left to right to hold defect edges together, then apply two tegaderms with the cord protruding (only use this latter method if the baby is not septic or requiring oxygen).

Tegaderm to remain in place for **10-days** (must not be changed). **If it starts to come off before 10-days,** carefully re-apply dressing with fingers over the defect the whole time during the change to prevent bowel re-herniation (baby sucking on breastmilk/dextrose to prevent crying during procedure).
After 10-days, remove the dressing, clean wound and re-apply dressing for a further 7-10 days. Once the wound is contracted and strong, the dressing can be left off and honey applied.
Discharge the patient once they are fully breastfeeding, the vital signs are normal and they are gaining weight. Follow-up in clinic to ensure weight gain continues, bowels are open regularly and to check/dress the wound.


1. Silo over bowel


2. Green ring inside the abdomen


3. Bowel reduced


4. Holding the bowel in during closure


5. Pulling the umbilical cord across


6. Clear tegaderm dressing applied