
Guideline

Decompression of a grossly distended abdomen to facilitate neonatal transfer

1 Scope

For use within the Paediatric and Neonatal Decision Support and Retrieval Service (PaNDR) for the East of England.

Purpose

To guide the PaNDR team when performing needle decompression of a grossly distended abdomen in order to improve cardiorespiratory status and enable transfer to a surgical centre.

2 Definitions

Ascites: A collection of fluid in the peritoneal cavity.

NEC: Necrotising enterocolitis – a condition primarily affecting premature infants where portions of the bowel become inflamed and undergo necrosis. This can lead to a perforation which allows the contents of the bowel to leak into the abdominal cavity.

PEEP: Positive End Expiratory Pressure.

Venous return: The flow of blood back to the heart from the peripheral vessels. It is very important for maintaining the cardiac output and can be impaired by increased intra-abdominal pressure.

3 Introduction

Infants with severe necrotising enterocolitis (NEC) may develop gross abdominal distension, either due to severe intestinal dilatation, massive ascites secondary to capillary leak or, most commonly following intestinal perforation. Intestinal perforation can also rarely occur secondary to other pathologies such as meconium ileus and Hirschsprung's. Cardiorespiratory status in these infants can usually be optimised prior to transfer using high PEEP and large tidal volumes along with aggressive fluid resuscitation and inotropic support.

On rare occasions however, despite optimising medical management, respiratory failure and hypotension persists. Infants whose condition remains severely compromised by a hugely distended abdomen may benefit from

decompression in order to improve both ventilation and venous return, thereby enabling transfer to a surgical centre.

Decompression of the abdomen is a potentially life-saving procedure but should only be considered if the risk to the infant's life is deemed to be greater than the risk of performing the procedure.

4 When to consider needle decompression

Needle decompression of the abdomen should only be considered in the following circumstances:

- Ongoing severe respiratory failure, acidosis, hypotension or severely compromised lower limb perfusion despite aggressive medical management.
- PaNDR consultant and senior paediatric surgeon are in agreement (direct telephone discussion).
- The procedure and its associated risks (bleeding, local infection, injury to surrounding structures) have been explained to the parents if possible.

5 Procedure

Appropriate analgesia:

- Intravenous paracetamol or intravenous morphine bolus can be considered, depending on baby's condition i.e. if already intubated and ventilated with morphine running. Subcutaneous lidocaine tends to cause more discomfort and would not be advised.

Identify the correct site:

- Left lower abdominal quadrant (**not** right side to avoid perforating a distended liver).
- 2cm above iliac crest in mid-clavicular line.

Perform procedure as follows:

- Clean site with betadine/ chlorhexidine.
- Administer analgesia if appropriate.
- Single stab with **grey/brown cannula** (with needle) through abdominal wall (often only 3mm thick) then advance cannula (without needle) within peritoneum. A smaller cannula is likely to block with faeces.
- Expect fluid, air +/- faeces to flow out
- Cover with gauze, secure in place and leave in situ so that it can be traced at laparotomy to exclude injury to other structures.

6 Stabilisation and transfer post-procedure

Reassess clinical status once the abdomen has been decompressed:

- Further volume may need to be given post-decompression if large volumes of fluid were drained.
- Infants with abdominal perforation may require significant fluid resuscitation both pre and post decompression, this can be up to 100ml/kg. Give as 0.9% saline but consider using blood and other blood product as appropriate.
- Reassess suitability for transfer and discuss with PaNDR consultant and senior paediatric surgeon so that the surgical consultant is aware of the status of the infant prior to leaving the referring centre. This will enable timely surgical review +/- surgical intervention to be planned in advance.

7 Monitoring compliance with and the effectiveness of this document

Needle decompression of the abdomen during a transfer episode is an extremely rare event. The effectiveness of the document will be monitored by review of any reported incidents via the lead nurse for risk. These incidents will be shared with the team and consideration given to adjusting the guideline if concerns are identified.

8 Associated documents

Stabilisation and transfer of an infant with suspected necrotising enterocolitis – PaNDR guideline (available on website (<http://pandreastofengland.co.uk>))

Equality and diversity statement

This document complies with the Cambridge University Hospitals NHS Foundation Trust service equality and diversity statement.

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Document management

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