

# INTUSSUSCEPTION - NETS

## PRACTICE GUIDELINE<sup>®</sup>

### DOCUMENT SUMMARY/KEY POINTS

- As provided within this document.

### CHANGE SUMMARY

- Document due for mandatory review.
- Minor changes to update policy

### READ ACKNOWLEDGEMENT

- All NETS clinical staff are to read and acknowledge they understand the contents of this guideline.

#### Disclaimer

This document is available on-line as a stimulus for interchange of knowledge and ideas in the field of Neonatal and Paediatric Retrieval. It is provided "as-is" and without support or warranty of any kind. Many of our guidelines may not be appropriate for use in retrieval settings other than NETS NSW, especially in non-Australian environments.

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

<b>Approved by:</b>	SCHN Policy, Procedure and Guideline Committee	NETS Executive
<b>Date Effective:</b>	1 <sup>st</sup> September 2021	<b>Review Period:</b> 3 Years
<b>Team Leader:</b>	Staff Specialist	<b>Area/Dept:</b> NETS

## Rationale/Background

- Intussusception is the invagination (telescoping) of a proximal segment of bowel into the distal lumen; commonly the ileum into the colon via the ileo-caecal valve. This may lead to bowel obstruction, venous congestion, bowel wall ischaemia, and occasionally gangrene and perforation if delayed presentation
- Intussusception is the most common abdominal emergency in young children, particularly those younger than 2 years
- It most commonly occurs in children aged between 2 months and 2 years of age, with peak incidence between 5-9 months. It occurs occasionally outside these ages. In older children a pathological lead point may be the cause eg Meckel's diverticulum, Henoch Schonlein Purpura.
- A timely diagnosis and early management in consultation with paediatric emergency physicians, surgeons and radiology specialists is necessary to prevent complications.
- Attention to fluid management and analgesia is important
- Transport should be with a NETS team if the child is unwell, tachycardia is present or if the infant with suspected intussusception is <3 months of age
- **Timeliness of transfer is a critical priority.** Transport options should be discussed with the referring team, transport provider and receiving team

## History

*Typical clinical signs are often absent, particularly if the child is young, or if the presentation is late. Pallor and lethargy may be the predominant signs*

- The child appears to have intermittent severe pain and may be drawing up the legs. The pain may initially be infrequent but becomes more frequent over the following hours
- The child is often crying during these episodes and is usually unwell and lethargic between the episodes of pain. Conversely they may initially appear well between episodes
- There may be pallor, especially during episodes. There may also be reduced feeding, vomiting and decreased urine output
- Bowel motions may be absent initially, or there may be diarrhoea which can lead to a misdiagnosis of gastroenteritis. Faecal occult blood will be positive. The classic red currant jelly stools are a late sign and absence does not exclude intussusception.
- There may be a preceding respiratory or diarrhoeal illness
- Delayed presentation can manifest as small bowel obstruction, bowel perforation, peritonitis and/or shock

## Examination

- Airway and breathing: note respiratory rate, degree of respiratory distress and oxygen saturation
- Circulation: tachycardia (common), hypotension (late sign). In addition, pallor/lethargy may be present, particularly during the episodes of pain. Significant tachycardia is an indication for a medical retrieval team (see Education notes)
- Abdominal distension may be present; a sausage shaped mass typically in RUQ or epigastrium may be present. There may be tenderness or guarding over the mass. Generalised tenderness or guarding would suggest perforation /peritonitis. (suggesting perforation/peritonitis)
- Stool: Blood - frank or occult (late sign)

## Management

- Ensure secure IV access and keep nil by mouth
- Give analgesia – may need:
  - Intranasal fentanyl (dose: 1-2 microg/kg/dose, 10 minutely to max total dose 3 microg/kg, not for <12 months age)<sup>1,2</sup>
- OR
- IV morphine (dose: 0.05 - 0.1mg/kg tailored according to response. Cumulative maximum dose usually 0.1mg/kg 2-4 hourly < 12 months and 0.2mg/kg 2-4 hourly >12 months)
- Many children will require fluid resuscitation; i.e. 10-20mL/kg of 0.9% sodium chloride initially (reassess for further requirements)
- Nasogastric tube on free drainage; especially if transport is required
- Consider IV antibiotics if sepsis or diagnosis unclear. Discuss with surgeons.

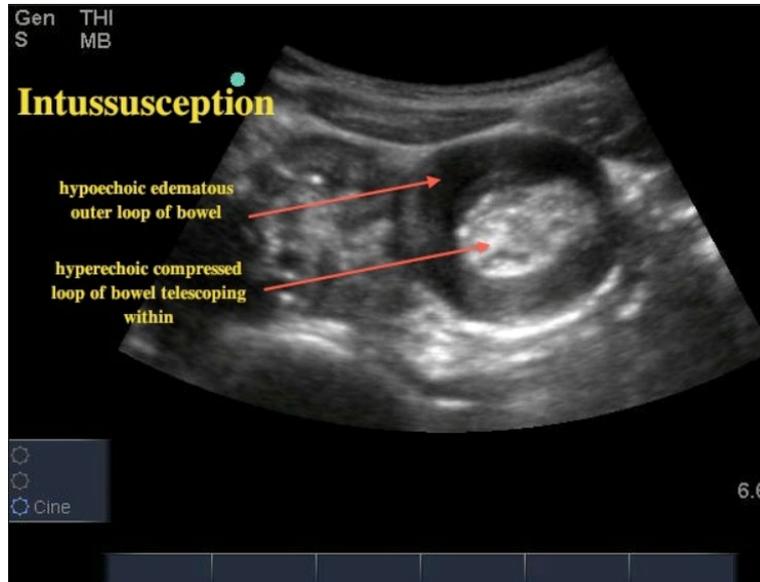
## Investigations

- **AXR**
  - Performed to exclude signs of bowel obstruction or perforation
  - A normal abdominal X-ray does not rule out intussusception. Abnormalities may include:
    - Target sign – Two concentric radiolucent circles in right upper quadrant
    - Crescent sign – Soft tissue mass surrounded by a crescent lucency of bowel gas
    - Abnormal gas pattern with paucity of gas in right lower quadrant and soft tissue mass in upper abdomen
    - Lack of faecal material in the large bowel

- **Ultrasound**

- Diagnostic in experienced hands, sensitivity and specificity is 98%. Should not be used to exclude the diagnosis

Figure One – ultrasound view of invaginated bowel<sup>3</sup>



- **Contrast/Air Enema**

- The enema is both diagnostic and therapeutic
- Enema carries a small risk of bowel perforation and bacteraemia which necessitates the presence of a paediatric surgeon (in case of need for laparotomy) and a suitably trained doctor or nurse with appropriate resuscitation equipment
- Contraindications include peritonitis, shock, perforation or unstable clinical condition

- **Laboratory tests**

- Blood glucose; venous gas, FBC and electrolytes if the child is unwell; blood group and hold if theatre is anticipated

## Education Notes

The small risk of complications and potential need for surgical intervention requires the patient be in a hospital where there is competence in both paediatric surgery and anaesthesia. Consequently, most patients are referred to paediatric surgical units.

A review of cases of intussusception referred to NETS<sup>5</sup> over a 10 year period and their transport outcomes suggests that well children with intussusception can be transported safely without a specialised medical team if they have normal heart rates.

However, given that a delay in treatment is associated with poorer outcomes and increased need for surgery, medical retrieval should occur for patients:

- who are unwell or tachycardic at the time of the call;
- for patients under 3 months of age in whom the potential for deterioration is greater, and
- in whom interventions including fluid boluses and analgesia (i.e. IV morphine) are anticipated.

The use of a NETS team in this review tended to prolong the time for the child to reach the tertiary hospital. If the heart rate is normal and the child is older than 3 months of age an escort going one way needs to accompany the child. The escort should be able to identify the need for and administer a fluid bolus and narcotic analgesia e.g. paediatrician, senior paediatric nurse or flight nurse.

## References

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4. RCH Melbourne intussusception guideline;  
[http://www.rch.org.au/clinicalguide/guideline\\_index/Intussusception\\_Guideline/](http://www.rch.org.au/clinicalguide/guideline_index/Intussusception_Guideline/)
5. Coote P, Wall M & Dinh M. (2013) Interhospital transport of children with confirmed or suspected intussusception. *Pediatric Emergency Care* 29: p1166-1169

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