

## **Intussusception in Children 兒童腸套疊**

### **What is intussusception?**

Intussusception is the invagination of the bowel into itself. This is one of the most common causes of intestinal obstruction in young children. It occurs usually after an upper respiratory infection (like coughs and colds) or gastroenteritis that results in the enlarged lymphoid tissue at the terminal ileum causing the invagination of the terminal ileum into the caecum and colon (ileo-colic intussusception). Occasionally it may be secondary to an underlying bowel pathology such as Meckel's diverticulum, polyps, etc.

Intussusception typically occurs in infants and young children with about 75% occurring in the first 2 years and the peak incidence at around 5 - 9 months of age. Patients typically present with colicky abdominal pain (intermittent irritability) and vomiting. Some may have blood and mucus in stool (red currant jelly stool).

It is an emergency condition that early diagnosis and treatment is required. Delay in diagnosis and treatment may lead to morbidity and even mortality.

### **Diagnosis**

A high index of suspicion is required to establish the diagnosis. The condition may be suspected on clinical assessment and confirmed by radiological imaging such as ultrasonography.

### **Treatment**

#### **Initial treatment**

If the patient is in a critical situation, aggressive resuscitation is required. The following treatment modalities shall be needed.

- Nil per oral
- Intravenous fluid replacement
- Monitoring of physiological parameters
- Blood tests
- +/- Nasogastric tube insertion
- +/- Bladder catheter insertion to monitor urine

### **Reduction of intussusception**

Urgent reduction of the intussuscepted bowel is required to prevent the ischaemia and necrosis of the bowel. Urgent non-operative enema reduction is the treatment of choice if there is no contra-indication.

#### **Contra-indication for enema reduction**

- Peritonitis, bowel perforation

### Relative contra-indication for enema reduction

- Shock
- Suspicion of a pathological lead point

### **Enema reduction**

The reduction shall be performed in the radiology department in the presence of a radiologist and a paediatric surgeon. Either air enema or liquid enema may be used to reduce the intussusception. The progress is either monitored by fluoroscopy or ultrasonography. The overall success rate is around 80%.

With successful reduction, the patient shall continue clinical observation, and feeding shall be started when appropriate. If the enema fails to reduce the intussusception, an urgent operation shall be required though, in selected patients, a repeat enema reduction may be worthwhile.

### Potential complications of enema reduction

- Bowel perforation
- Septicaemia
- Incomplete reduction
- Recurrence
- Mortality

### **Operative reduction**

Urgent surgery under general anaesthesia is required if enema reduction is contra-indicated or failed. The patient will continue to be kept nil per oral, intravenous fluid therapy and close monitoring. The paediatric surgeon will explain the operative details including the risks and the postoperative care. A consent form for surgery will be signed when the parents fully understand the explanation. An anaesthetist will also see the child and explain the anaesthetic procedure and its potential risk in detail. If the child has any medical problems such as allergies, please inform the doctors.

### **Laparotomy**

A transverse incision is made over the right side of the abdomen. The bowel is examined and a careful attempt at reduction of intussusception is carried out. If reduction is successful, the bowel is examined for its viability and the possibility of bowel pathology. If the bowel is normal and viable, the abdomen is closed. If the bowel is not viable, intussusception not reducible or there is a bowel pathology, the segment of the abnormal bowel will be resected followed by anastomosis of the bowel ends.

### **Laparoscopy**

For selected cases, laparoscopic reduction may be attempted. Through a small umbilical incision, a laparoscopic port is inserted and the abdomen is blown up with carbon dioxide. A laparoscope is then inserted to examine the abdominal cavity. Two small incisions are made for the insertion of laparoscopic instruments. The bowel is

examined with laparoscopic instruments and a careful attempt at reduction is carried out. If the bowel is not viable, abnormal, or intussusception not reducible then bowel resection is required. Depending on the situation, this may either be performed by bringing the segment of bowel through the enlarged umbilical wound or through a laparotomy wound.

### **Postoperative care**

There shall be some dressings over the abdomen. Doctors or nurses will give advice on wound care.

It may be necessary, to keep a nasogastric tube and/or a bladder catheter in place . The patient shall be kept nil per oral and on intravenous fluid therapy. The child will be closely monitored and restarted on feeding upon recovery. A painkiller may either be administered through the rectal or parenteral route. Some patients, in particular younger ones may need care in Paediatric Intensive Care Unit for optimal monitoring, ventilator support or pain management. Condition will improve over the next one to a few days.

### **Complications**

The operation carries a higher risk when compared with non-emergency operations as these patients are usually in a poorer condition.

#### General -

1. Bleeding
2. Wound haematoma
3. Wound infection, abscess, dehiscence
4. Hypertrophic scar

#### Specific -

1. Vomiting and/or aspiration
2. Prolonged intestinal ileus
3. Haemodynamic instability or shock
4. Septicaemia
5. Recurrence
6. Anastomotic leakage
7. Intra-abdominal abscess or fluid collection
8. Adhesive intestinal obstruction

#### Rare but significant (if any)

1. Injury to major vessels, bowels or other internal organs
2. Torrential bleeding

### **Follow up**

Depends on clinical condition, patient can usually be discharged from hospital few days after treatment and be followed up in out-patient clinic.

### Remarks

This is a general information sheet only and the list of complications is not exhaustive. Other unforeseen complications may occasionally occur. In special patient groups, the actual risk may be different. For further information, please contact your doctor.