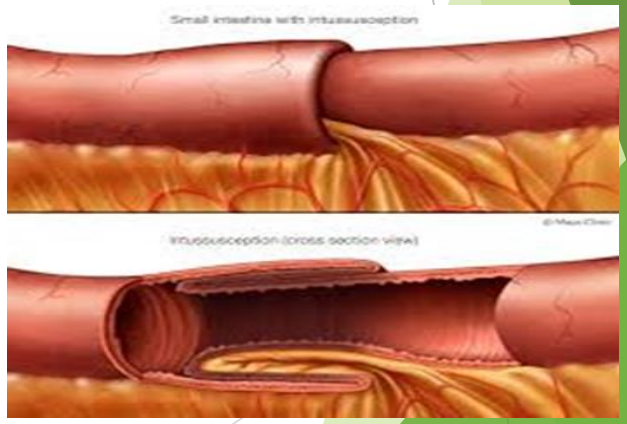
Recurrent intussusception

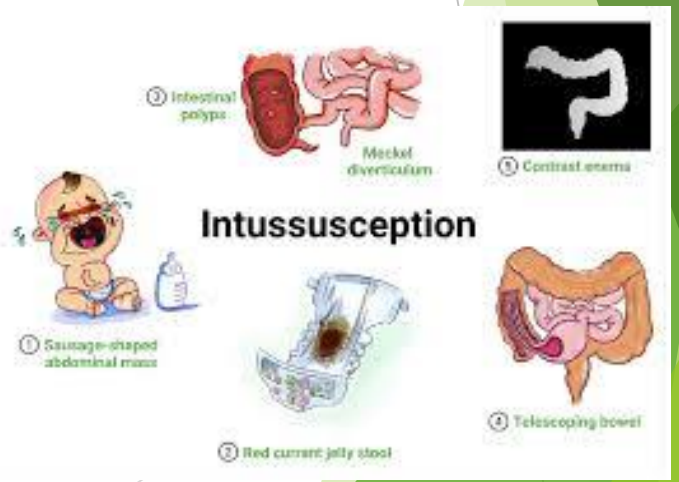
etiology of intussusception

- Intussusception is the most common cause of intestinal obstruction between 6 months and 36 months of age.
- There is no defined etiology in at least 75–90% of patients.(idiopathic)
- pathologic lead points are identified in only 25 percent of cases involving children.
- Postoperative
- Incidental finding
- Recurrent intussusception occurs in 5–16% of all intussusceptions



CLINICAL MANIFESTATIONS

- Typical presentation
- Atypical presentation
- Incidental finding



Recurrent intussusception

- 60 percent of children with intussusception are ≤ one year old,
- 80 to 90 percent are ≤two years five years
- 3 to 4 percent ≥ 10 years
- 1 percent in infants ≤3 months

When intussusception does occur outside of the typical age range, it is likely to be associated with a pathologic lead point, which may include reactive lymphoid hyperplasia

Recurrent intussusception

The recurrence of intussusception is :

- Spontaneous

- specific predisposing factors (polyps and Meckel's diverticulum, both of which are associated with relatively high recurrence rate

Patterns of recurrence:

- Single-recurrent
- Multiple-recurrent (least twice after air or hydrostatic reduction enema or surgery).

- Clinically, the early diagnosis and management of recurrent intussusception is challenging to pediatricians, radiologists and pediatric surgeons.

Recurrent intussusception

- Intussusception recurs in 3.7 to 20 percent of children after successful nonoperative reduction and 1to 3 percent after surgery.

- 50% of the recurrences are within the first 72 hours after non operative reduction (perhaps because of residual bowel edema or inflammation, which may act as a lead point), and 50% occur weeks or months later.

Recurrent intussusception with or without lead points present

- Recurrent intussusception with known lead points present was defined as the cases after air enema reduction with confirmed lead points by surgery.

- Recurrent intussusception with unknown lead points was defined as the cases after air enema reduction or surgery in which lead points could not be found.

Recurrent intussusception

- Pathological lead points were detected in 9.9% of the patients,
  - in 3% of the children who had one recurrence
  - In 6% of the children who had multiple recurrences.

- The epidemiology of lead points may depend on the exposure to infectious diseases, and thus may differ substantially between Asia and North America.

Underlying disorders

- Meckel diverticulum
- polyps
- small bowel lymphoma
- duplication cysts
- vascular malformations
- inverted appendicular stumps
- parasites (, *Ascaris lumbricoides*)
- (HSP)
- Cystic fibrosis
- Celiac disease
- hemolytic-uremic syndrome.

Meckel diverticulum is the most common pathologic lead point in most case series in children, followed by polyps, and then either duplication cysts or (HSP)

Underlying disorders

Figure 1: (A) Currant jelly stool was noted in diaper; (B) Abdominal

- lead point:

  focal or diffuse.

- lead pints are seen in greater proportion of cases of intussusception in children <3 months or > 5 years.

- The method of treatment of patients with primary intussusception strikingly influences the recurrence rate.

- Surgical reduction is complicated by a recurrence rate of 1–3%, while the rate following hydrostatic reduction is 20%.

Management of recurrent intussusception

- Recurrence is not necessarily an indication for surgery
- In general, each recurrence should be handled as if it were the first episode, provided that each attempt at nonoperative reduction is successful and the patient remains stable
- However, imaging studies should be reviewed carefully for the possibility of a pathologic lead point.
- If a lead point is identified, the patient may still be treated with nonoperative reduction, particularly if the lead point is DIFFUSE.

- Surgical exploration should be performed for any patient who is unstable, and should also be considered for those with a focal lead point or multiple recurrences.

Management of recurrent intussusception

- Multiple recurrences of intussusception are associated with the presence of a pathologic lead point, but may also occur in those with "idiopathic" intussusception.

- Among children with idiopathic intussusception, lymphoid hyperplasia may act as a lead point.

- Because of this putative association, treatment with glucocorticoids has been suggested to prevent recurrence???

Management of recurrent intussusception

- Surgeons should try to find permanent solutions for patients with multiple recurrent intussusceptions that are resistant to treatment.
- Surgical excision of the lead point will help prevent recurrent intussusception.
- Laparoscopy is helpful in diagnosis, detection of lead points, and treatment of irreducible intussusception.
- This new operative technique can be satisfactory for recurrent intussusceptions without any lead points.

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Risk Factors for Recurrent Intussusception in Children: A Systematic Review and Meta-Analysis

- fever and PLP

BMJ Open. 2017; 7(11): e018604.
Published online 2017 Nov 16. doi: 10.1136/bmjopen-2017-018604
PMCID: PMC5702016
PMID: 29150477

Risk factors for recurrent intussusception in children: a retrospective cohort study

Wan-liang Guo,[1] Zhang-chun Hu,[1] Ya-lan Tan,[1] Mao Sheng,[1] and Jian Wang[2]

significant predictors of recurrent intussusception.

- Age (>1 year),
- symptom duration (≤12 hours),
- the absence of vomiting,
- mass location (right abdomen)
- pathological lead points

- predictive of recurrent intussusception with lead points:
  - Vomiting and mass location (left abdomen)
- No significant clinical differences were found between the single and multiple recurrence intussusception cases.

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Original Article

Risk factors and predictive models for early recurrent intussusception in children: a retrospective cohort study

Min Yang[1]^, Yao Xie[2], Yangmu Zhuang[1], Yiyi Chen[1], Xiaobin Lin[1], Zhijun Liu[1], Peijian Zhang[1], Wang Xiao[1], Yingchun Chen[1], Chunxia Chen[1], Lian Zheng[1#], Shouxing Duan[3#^]

- **Conclusions:** Independent risk factors for ERI in children are age, vomiting, bloody stool, and monocyte ratio. Children older than 1 year in age, who lacked vomiting and bloody stool symptoms, and who exhibited an elevated ratio of monocytes were more likely to relapse early.
- The predictive model constructed herein can predict the early recurrence of children with ERI, providing a reference for clinicians' individualized judgments.

Any question?

early recurrent intussusception

- Independent risk factors for ERI in children are age, vomiting, bloody stool, and monocyte ratio.
- Children older than 1 year in age, who lacked vomiting and bloody stool symptoms, and who exhibited an elevated ratio of monocytes were more likely to relapse early.

pathological lead points:

- Meckel’s diverticulum,
- duplication,
- polyp
- Tumors
- hematoma,
- vascular malformation

Predictors of recurrent intussusception

- Vomiting and mass location (left abdomen) were significantly predictive of recurrent intussusception with lead points.

Predictors of recurrent intussusception

- age (>1 year),
- symptom duration (≤12 hours),
- mass location (right abdomen),
- pathological lead point,
- the absence of bloody stool or vomiting