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Intussusception in Srinagarind Hospital : A review of six - year period

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ลำไส้กลืนกันในโรงพยาบาลศรีนครินทร์

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การศึกษาผู้ป่วยที่เข้ารับการรักษาในโรงพยาบาลศรีนครินทร์ ด้วยโรคลำไส้กลืนกัน ตั้งแต่เดือนมกราคม พ.ศ.2525 ถึงเดือนมกราคม พ.ศ.2531 จำนวน 34 ราย ผู้ป่วยจำนวน 19 ราย ได้รับการรักษาโดยการสวนแบเรี่ยม และสามารถคลายลำไส้ออกได้สำเร็จ 6 ราย (ร้อยละ 31.58) พบการเกิดกลับซ้ำ 3 ราย ซึ่งสามารถคลายลำไส้ออกได้สำเร็จ 1 ราย และทำการผ่าตัดในรายที่คลายลำไส้ไม่สำเร็จ พบสาเหตุของลำไส้กลืนกัน พบภาวะแทรกซ้อนโดยการเกิดการทะลุของลำไส้ระหว่างการสวนแบเรี่ยม 1 ราย และได้รับการผ่าตัดทันที และพบสาเหตุของลำไส้กลืนกัน

ปัจจัยที่มีผลทำให้การรักษาโดยการสวนแบเรี่ยมไม่สำเร็จ ได้แก่ ระยะเวลาที่ผู้ป่วยมีอาการก่อนได้รับการรักษานาน, มีสาเหตุของลำไส้กลืนกัน, ตลอดจนรอยโรคของลำไส้ใหญ่ในผู้ป่วยอายุมาก

ในรายที่มีลำไส้ทะลุ และมีลักษณะทางคลินิกบ่งว่า มีภาวะเยื่อบุช่องท้องอักเสบ เป็นข้อห้ามของการรักษาโรคโดยวิธีสวนแบเรี่ยม

At Srinagarind Hospital, from January 1982 to January 1988, 34 cases of intussusception were studied retrospectively. Barium enema reduction were performed in 19 intussusceptions and were successful in 6 cases or 31.58%. There were 3 recurrences. Repeat hydrostatic reduction was successful in one and failed in two cases. The later two cases needed a surgical intervention and leading points were noted. Colonic perforation occurred in 6 cases. One case occurred during barium enema reduction on the third trial and leading point was noted at operation.

Factor which influenced failure of the hydrostatic reduction included long duration of illness, presented of leading point and underlying colonic pathology in old age.

Clinical evidence of intestinal perforation (peritonitis) or free intraperitoneal air on abdominal radiographs was the only absolute contraindication to the administration of barium enema to the patient suspected of intussusception.

INTRODUCTION

Intussusception is an important acute abdominal condition in paediatric age group especially during infancy. The peak incidence is around six months of age. The principal source of morbidity and mortality (1-2%)[1] is diagnostic delay. Therefore it must be considered in the differential diagnosis of cases with abdominal pain, vomit, rectal bleed and or abdominal mass in children. Then the radiological findings assume great diagnostic significant. The use of barium enema reduction has been widely accepted as the method of choice in the treatment. Cooperation by pediatrician, surgeon and radiologist in selection of the appropiate treatment modality has reduced mortality and morbidity to a minimum. This present study reviews our experience with intussusception, paying particular attention to clinical presentation, radiological aspects and treatment results as well.

MATERIALS AND METHODS

Medical records, radiographs and operative notes of 34 patients with either radiographically or surgical proved intussusception, during the period between January 1982 and January 1988 at Srinagarind Hospital, were obtained for analysis. Of the 34 patients, 19 cases under went barium enema reduction. The technique of barium enema reduction was considered of rehydration and keeping the enema bag not higher than 3 feet above the table top. The contraindication of barium enema reduction were critically ill of the patients or shock, evidence of peritonitis or free intraperitoneal gas. Following barium reduction of the intussusception, postevacuation abdominal radiograph was obtained. This documents adequate small bowel reflux and also excluded the possibility of reintussusception. The patient was surgically explored if the intussusception was not reduced promptly.

RESULTS

34 cases of intussusception were diagnosed at Srinagarind Hospital during 6 years period. There were 7 cases referred from nearby hospitals. There were 22 male and 12 female patients. The age ranged from 2 months to 42 years. 76.47% of cases were under 1 year of age. The peak incidence was between 4-6 months. (Fig 1)

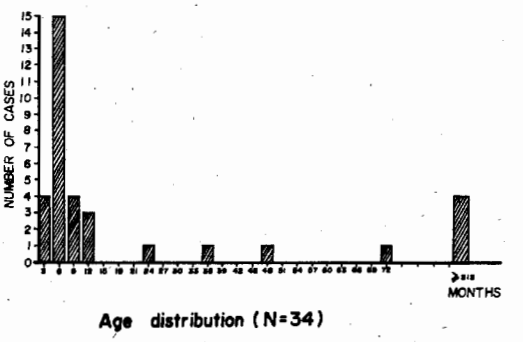


Fig 1. Age distribution

There were 23.53% of cases came to the hospital within 24 hours after onset of clinical symptoms.

The presenting symptoms were listed in table I. Peritonitis occurred in 3 cases, all came to the hospital late with duration of illness 8-11 days. This included one case dead on the second postoperative day.

Table I Presenting symptoms and signs of Intussusception.

Clinical feature	No. of patient	%
Rectal bleed	29	85.29
Vomiting	27	79.41
Dehydration	21	61.76
Abdominal mass	16	47.06
Pain	13	38.24
Precede viral illness	11	32.35
Leukocytosis	5	14.71
Peritonitis	3	8.82

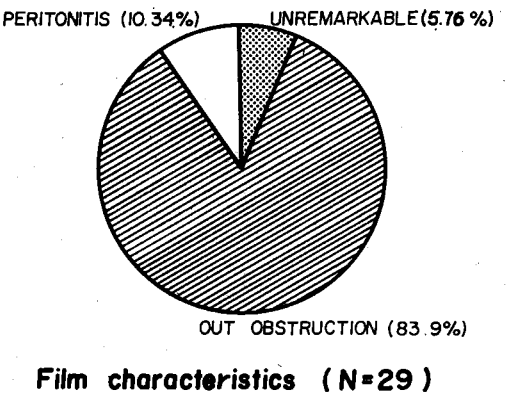


Fig 2 Film characteristics

Plain film of abdomen were obtained in 29 cases, with visible soft tissue mass in 15 cases (51.72%). (Fig 2, 3, 4)

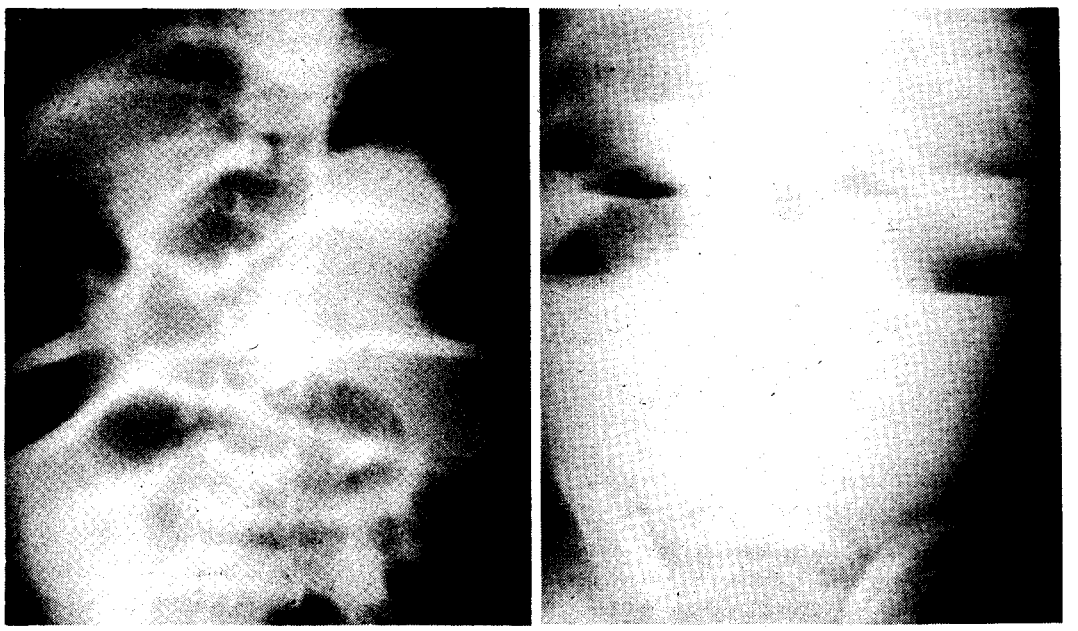
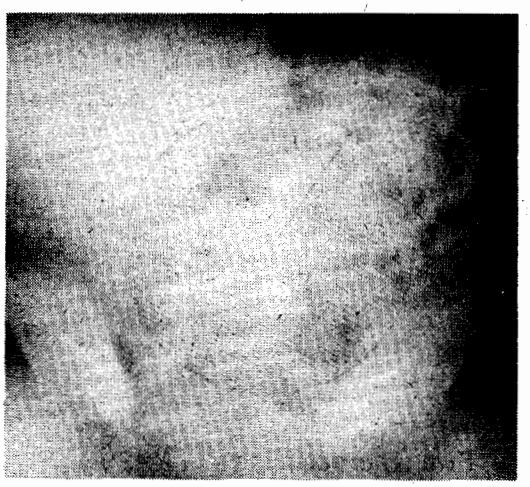


Fig 3 Supine and upright film of abdomen show abnormal dilate small bowel indicate mechanical gut obstruction

Barium enema examination were done in 19 cases (55.88%). The successful reduction were achieved in 6 (31.58%).

The successful rate of barium enema reduction correlated with duration of illness was shown in table II.



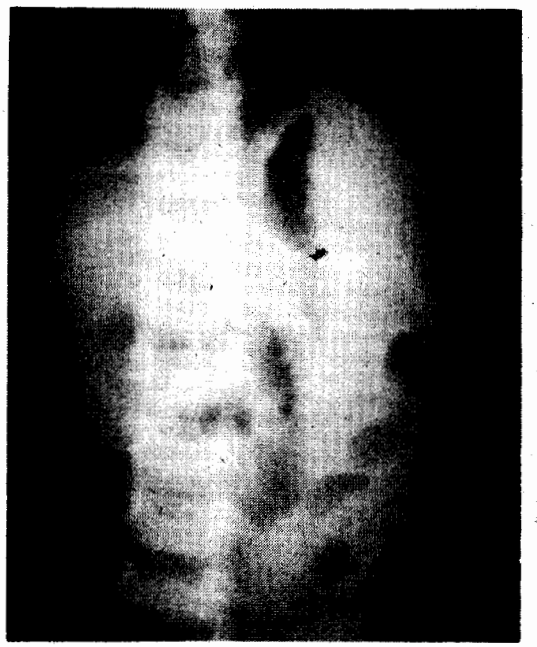


Fig 4 a Supine film of abdomen, intussusception outlined by gas in hepatic flexure.

Fig 4 b No visible soft tissue mass on supine abdominal radiograph, decubitus film clearly shows soft tissue mass of intussusception at LLQ.

Fig 5 Spot radiograph from barium enema examination. Note convex filling defect in the barium column in the mid transverse colon cause by intussusception (typical coil spring appearance).

Dissecting sign (Fig 6) was observed in 3 cases which failed barium enema reduction.

Recurrent intussusception was noted in 3 (15.79%). First case repeated reduction on the following day and appeared reducible. The second case on third reduction happened to be bowel perforation and peritonitis, on operation proved to be jejunal diverticulitis. The last case of 42-year-old-man, colonic polyp was found at operation.

Table II Duration of illness VS. successful rate of barium reduction

Duration of illness	No. of patient	Complete reduction	%
< 24 hours	5	3	60
1 - 2 days	2	1	50
3 - 4 days	4	1	25
> 4 day	8	1	12.5

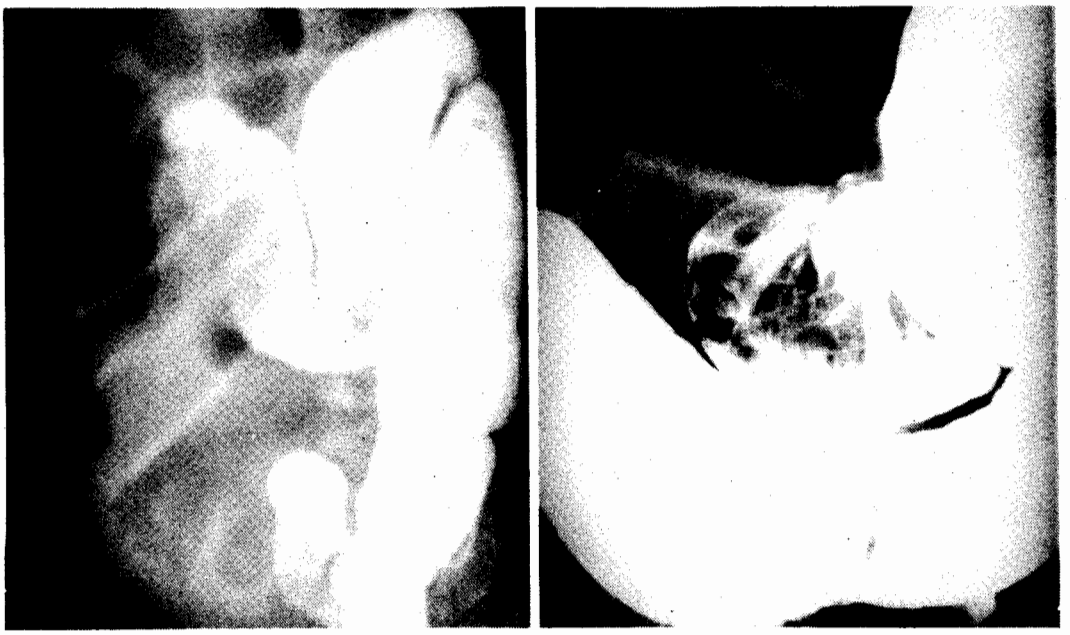


Fig 6 Example of two cases, demonstrated tracking of barium between intussusceptum and intussuscepient (dissecting sign)

Table III Result of nonoperative treatment

Treatment	No. of patient	percent
Initial barium enema	19	55.88
Successful barium reduction	6	31.58
Recurrence after barium enema	3	15.79

Patients who ultimately came to surgery were in two categories, a) primary surgery without initial barium enema, b) surgery after unsuccessful barium reduction included recurrence cases. Total 27 cases obtained surgery. The operative reduction was successful in 18 cases (66.67%) Ileocolic type of intussusception was by far the most frequent type (59.26%) In this serie, 7 cases (25.93%) had demonstrable leading points (Fig 7.) This included Meckel's diverticulum, jejunal diverticulitis, acute colitis, colonic polyp, lymphoma of colon for each, and adenocarcinoma of colon in 2 cases (Fig 8, 9)

DISCUSSION

The result of peak age incidence is about 4-6 months and sex ratio about 2:1 (M:F), which are not significant difference from other studies.[2,3]

Only 23.53% of cases come to our hospital within 24 hours after onset of symptoms. Which might influence on low reduction rate barium enema hydrostatic reduction.

Cardinal features of vomiting, rectal bleed and palpable abdominal mass are important in diagnosis of intussusception.[4] Abdominal mass was palpated in 47.06%,

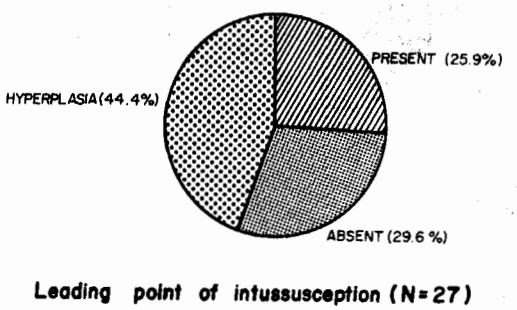


Fig 7 Leading points of intussusception

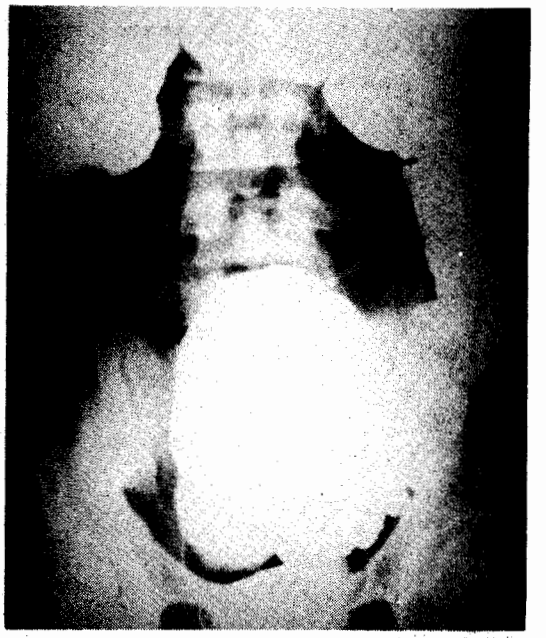


Fig 8 A 29-year-old man of lymphoma involve right side of the colon.

Fig 9 A 42 year-old-man of adenocarcinoma of the caecum, present with ileocolic intussusception.

compare with 17% of Sparnon and 57.50% of White series.[5] Cases with abdominal distension from complete small bowel obstruction caused impalpable abdominal mass.

Abdominal radiographs are still initial investigation as a guide to subsequent management. The most consistently reported features in intussusception are a soft tissue mass, decrease colonic gas and small bowel obstruction, which have high predictive value.[6,7,8] In this study, visible soft tissue mass are found in 51.72%, compare with 62% of Eklof and Hartelius, Bolin and White of 75% for each. White suggested that diagnostic accuracy is clearly enhanced by adding horizontal beam radiographs to the examination.

Hydrostatic barium enema reduction was first reported by Hirschsprung in 1876.[9] Since then this is widely accepted. The successful rate of barium reduction is 31.58%, compare with 82% of Minami,[10] Leonidas[11] and Jenning & Kelleher[12] of 55% for each, 44.44% of Niramis[13] and 10% of Singcharoen.[3]

In cases of failure reduction, at operation 2 cases found to have underlying colonic pathology. One case of 29-year-old-man with lymphoma of right side of colon. Ein[14]

reported 11 of 1,200 cases of lymphoma as a leading point for intussusception, 3 cases were under 4 years of age. Another case of 42-year-old-man with adenocarcinoma of the caecum is also noted.

We thought that factor influence successfulness of barium enema reduction include the patient age, duration of illness[15] and demonstrable leading causes.

The dissection sign occur when barium tracks between the intussusceptum and intussuscepient, resulting in loss of hydrostatic pressure for retrograde propulsion by the barium column. This sign is a reliable predictor of fail hydrostatic reduction.[16] We find dissecting sign in 3 cases which fail barium reduction.

There are 3 recurrence cases (15.79%), compare with 10% of Gierup,[17] 8% of Minami and 6% of Wayne & Ratanasuwan for each. This high figure may be due to underlying leading points.

Colonic perforation during barium enema reduction occur in one interested case of jejunal diverticulitis. She is 6 months of age with duration of illness 6 hours. Humphry[18] reported six colonic perforation during attempted hydrostatic barium enema reduction of intussusception (850 cases). Of these cases, all occurred in patients 6 months old or less and had been ill for over 36 hours. They were younger, sicker longer and had complete bowel obstruction. Facts warning that such infants were at increased risk for bowel perforation.

Armstrong[19] adviced water soluble contrast material instead of barium enema reduction. Interesting that Guo[20] reported results of air pressure enema reduction (6,396 cases) with 95.25% successful rate and 0.14% of colonic perforation. Jinzhe[21] also reported successful rate of 91% with rectal inflation technique (2,496 cases). However this require more experience.

At operation leading points are found in 25.93% compare with 8% of Wayne serie.

Dead occur in one case of 6 months-year old girl with long duration of illness for 10 days and at autopsy, hematoma at bowel wall is demonstrated.

Now barium enema is accepted as a useful procedure of choice both in diagnostic and therapeutic purposes in cases of intussusception. The absolute contraindications are evidence of peritonitis, perforation and profound hypovolemic shock. The morbidity, mortality and a successful rate of barium enema reduction are influenced by long duration of illness. Awareness of this condition, radiological approach and cooperation of clinician and radiologist are very important in management of these cases.

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