

Chapter 6

Concluding remarks



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

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This is the final chapter summarizing this thesis and the results of three studies focusing on nonsurgical treatment of intussusception.

The incidence of intussusception is about 1 to 4 in 2000 infants and children with age range from 3 month to 3 years. The most common age group was 3 to 9 months accounting for more than 40%. The specified age group for most of the intussusception cases was caused by idiopathic leading points. Having a previous history of viral infection was common.¹⁻³

In 50% of cases, the diagnosis can be made by clinical findings. The common symptoms and signs include vomiting, abdominal colicky pain, palpable abdominal mass and rectal bleeding.⁴⁻⁸ Plain abdominal radiography was used to detect free air. Signs of intussusception may be present in the abdominal film.⁹⁻¹¹ Barium enema is used for diagnosis and also as therapeutic treatment in some institutions. Currently, ultrasound is the investigation of choice due to being noninvasive, free from radiation exposure and providing high accuracy.¹²⁻¹⁴

Treatment of intussusception comprised nonsurgical and surgical reduction. After diagnosis is made, adequate fluid resuscitation should be performed. Nonsurgical reduction should be considered when no peritonitis, free air in plain abdominal radiograph or signs of shock are observed, which constitute contraindications.¹ Surgical treatment should be performed when at least one of the contraindications is observed or in case of nonsurgical reduction failure.

Modalities of nonsurgical reduction are chosen using the experience of surgeons and radiologists and equipment and facilities of each institute. Hydrostatic and pneumatic reductions are performed under radiologic guidance. Hydrostatic reduction mostly uses barium. The pneumatic reduction mostly uses air rather than other gases. The radiologic guidance can be ultrasonography or fluoroscopy guidance.¹⁵ In our first study, we found that pneumatic reduction had a significant success rate 1.48 times more than hydrostatic reduction, similar to related meta-analysis.^{8, 16}

Prognostic factors for failed nonsurgical reduction has been studied and reported and various factors have been identified.¹⁷⁻²¹ In our second study, ten significant parameters were identified as prognostic indicators. These comprised weight <12 kg, symptom duration >2 days,

vomiting, rectal bleeding, abdominal distension, temperature $>37.8^{\circ}\text{C}$, palpable abdominal mass, location of mass (left over right side), poor prognostic signs on ultrasound scans and method of reduction (hydrostatic over pneumatic).²²

After the prognostic indicators were identified, we conducted a clinical prediction rule to calculate the chance of reduction failure using the ten identified factors in our third study. The prediction scores ranged from 0 to 16. Scores higher than 11 were associated with high risk for failed reduction. Scores 11 and lower were associated with low risk. The affinity of this prediction model was 80.68% (CI=75.65-88.76%) from the area under ROC curve.²³ This scoring system aimed to provide parental advice and promote the referral hospital to send the patient to a center where the reduction could be performed. This prediction rule was derived from the retrospective study of two institutes, so the prospective validation should be conducted in the next study which indicated our limitations.



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