ORIGINAL RESEARCH ARTICLE

High Resolution Sonography-Golden But Cheap and Easily available Modality of Choice for Evaluation of Blood in Stool in Children

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A B S T R A C T

Introduction: Intussusception is a common surgical emergency in paediatric age group. Intussusception is defined as a process in which a segment of bowel invaginates into the adjoining intestinal lumen, causing bowel obstruction.Ultra-sonography (USG) is an important investigation for diagnosing intussusception.With the increased use of point-of-care ultrasound in the emergency, the diagnosis of appendicitis and ileo-colic intussusception has been made more frequently.

Case report: We report a 7 month old male child referred to my imaging centre for abdomen ultrasound According to his mother, he had generalized abdominal pain with bloody stool. In order to narrow our differential and secure the diagnosis, our first modality was ultrasonography.

Conclusion: Intussusception is a common surgical emergency in paediatric age group. In children presenting to the emergency with abdominal pain, ultrasound is the preferred initial modality. While CT scan provides superior anatomical detail, ultrasound remains as the primary imaging modality to diagnose and evaluate abdominal pain in children.

Keywords: Intussusception, Appendicitis, Ultrasonography

INTRODUCTION

Intussusception is a common cause of acute abdomen in the paediatric age group. It occurs when a portion of the bowel telescopes into the adjacent bowel segment. The most common subtype in the paediatric age group is ileocolic, followed by small-bowel intussusception.Typically patients presented with generalized abdominal pain with bloody stool. Initial resuscitation will be the first line management. Ultra-sonography (USG) is an important investigation for diagnosing intussusception.It has numerous advantages like absence of harmful radiation exposure to the children, lead point identification and ability to diagnose ileo-ileal and other small bowel intussusceptions . Radiologist also provide therapeutic approach by fluoroscopic/ultrasound guided contrast or water reduction. Classic USG appearances including various named signs. Few USG features aid in the differentiation of the ileocolic from the small-bowel subtype, which is important since the primary choice of treatment varies.

CASE REPORT

We report a 7 month old male child referred to my imaging centre for abdomen ultrasound According to his mother, he had generalized abdominal pain with bloody stool. He had no nausea, vomiting, fever, or chills. His last normal bowel movement was 1 day prior, and he denied any urinary complaints. There was no history of rash, sick contacts, or recent travel. With a clinical suspicion of intussusception, abdominal USG was performed after obtaining written informed consent, by using both linear probe and curvilinear probe, by a single radiologist with twenty four years of experience. The commonly seen classical signs described on USG include the target sign or doughnut sign, crescent-in-doughnut sign, multiple concentric ring sign, sandwich sign, and pseudokidney sign. The doughnut sign is seen on axial scans as concentrically arranged alternating echogenic and hypoechoic bands, with the echogenic band formed by the mucosa and muscularis of the two loops, and the hypoechoic band by the submucosa. On longitudinal scans, the sandwich sign and pseudokidney sign are seen. Lead points such as hypertrophied lymphoid tissue, Meckel diverticulum, duplication cyst, polyp, or tumour can be either centrally or eccentrically located.

DISCUSSION

Intussusception is a common gastrointestinal emergency in pediatric patients. It involves the invagination of a segment of small bowel into a segment of adjoined intestinal lumen and is the most common cause of small bowel obstruction in children. Male-to-female ratio is 3:1 Two thirds of children with intussusception are less than 1 year old, most commonly affecting infants 5 to 10 months of age. Intussusception can occur in adults but is rare, The ileocolic and small-bowel intussusception types have similar imaging findings as described above, with few differentiating features. A fat core-to wall index of more than 1 has been found to have 100% sensitivity and specificity for ileocolic intussusception. It is

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Figure-1: Crescent in a doughnut sign

Figure-2: Target sign axial and longitudinal view

measured on the ultrasound image that shows the maximum fat core diameter, by calculating the ratio of the fat core diameter to the outer wall thickness. The features favouring small-bowel over ileocolic intussusception include a smaller anteroposterior diameter of the lesion, smaller diameter and linear appearance of the inner fat core, smaller thickness of the outer wall, core-to-wall index of less than 1, smaller length of the lesion (usually <3 cm), and periumbilical region or left upper quadrant location. In contrast, right upper or lower quadrant location and presence of intralesional lymph nodes strongly suggest the ileocolic subtype Also, a normal ileocaecal junction rules out ileocolic intussusception, where it is usually displaced Scanty mesentery near the bowel wall of the jejunum as compared to that of the ileum explains the smaller size of the echogenic fat core of the small-bowel subtype. Another application of ultrasound is for the hydrostatic reduction of ileocolic intussusception, which has shown a higher success rate as compared to pneumatic reduction

CONCLUSION

Ultrasound is preferred because it is fast, non invasive, and eliminates the growing concern of cumulative radiation. In children presenting to the emergency room with right lower quadrant pain, ultrasound is the preferred initial modality.

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