Pattern of Presentation and Outcome of Surgical Management of Intussusception in Khartoum Teaching Hospital (KTH), Sudan.

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Abstract

Introduction: Intussusception is the most common cause of intestinal obstruction in infancy and childhood that mandates early intervention. The aim of this study is to determine the clinical presentation and the outcome of surgical management of intussusception in KTH.

Methods: This study was a prospective, descriptive, and analytic hospital based study. It included 74 patients that were admitted to pediatric surgical department in KTH in the period between May 2011-September, 2012

Results: A total of 74 patients with intussusception were reviewed and the data showed that male to female ratio was 3:2, with age group ranged between (45 days to13 years) with a mean age of 1.4 years. The duration of symptoms ranged from one day to one month, with the majority between 3-4 days. All patients presented with colicky abdominal pain except one. 68 patients (91.9%) presented with vomiting. Palpable abdominal mass was detected in 47 patients (63.5%). Ultrasound was done to 52 patients (70.3%). All patients were operated on; resection performed to 17 patients (23%), post-operative complications was recorded in 13 patients (17.6%). Intra-operative mortality was in 4

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patients (5.4%); post-operative mortality was in 5 patients (8.1%). Recurrence of the condition occurred to 6 patients (8.1%).

Conclusion: Intussusception is a serious condition which should be diagnosed correctly to allow early intervention by hydrostatic reduction in those infants and children who have no lead point and present early or surgical exploration. In Sudan we do not have the setup for hydrostatic reduction.

Keywords: Intussusception, surgical intervention.

Introduction:

Intussusception refers to a condition in which a proximal segment of the bowel (intussusceptum) invaginates into a more distal portion (intussuscipiens). Intussusception is the most common obstructive bowel disorder and a common causes of emergency surgery among children, Intussusception is suggested readily in pediatric practice based on a classic triad of signs and symptoms; vomiting, abdominal pain and passage of blood per rectum.

Intussusception was first described by Barbette in1674, and it was first successfully treated surgically by Wilson in 1831. In 1876 Hirsch sprung first reported the technique of hydrostatic reduction, (1) and in 1905, after monitoring a series of 107 cases, he reported 35% mortality attributed to intussusceptions. The overall, male to female ratio is approximately 3:2. Two thirds of children with intussusception are younger than one year, most commonly occurs in infants aged between 5-10 months (2). Intussusception can account for as many as 25% of abdominal surgical of abdominal surgical emergencies in children less than 5 years (3).

Intussusception presents in two variants; Idiopathic intussusceptions, which usually starts at the ileocolic junction and affects infants and toddlers, this type is due to viral infection of upper respiratory tract or gastro-enteritis. This type of intussusceptions has seasonal variation (4, 5) and enteroentral intussusceptions (jejunojejunal, jejunoileal, ileoilial), which occurs in older children. The latter is associated with special medical disorders (e.g., Henoch-Schonlein Purpura[HSP] (6), cystic fibrosis(7), hematological dyscrasias) or may be secondary to lead point like Michel's diverticulum(8) followed by intestinal polyp (9), small bowel lymphoma(10-12) and intestinal duplication(13-14).

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The clinical manifestation of intussusception starts with sudden intermittent, progressive abdominal pain accompanied with screaming and withdrawal of the legs towards the abdomen (15). Vomiting may follow abdominal pain, in-between the episodes of abdominal pain the child may behave normal, later becomes lethargic. A sausage- shaped mass may be felt on the right side of the abdomen. In up to 70% of cases the stool may contains gross or occult blood (16), the stool may be a mixture of mucous and blood what is called red currant jelly.

Diagnosis of intussusception depends on high clinical suspicion coupled with clinical examination and imaging. Ultrasonography is the method of choice to detect intussusceptions in many institutes (17), the sensitivity and specificity approaches 100% on expert hands (18), plain X-ray abdomen, contrast enema and CT are also used as diagnostic tools for intussusceptions.

Treatment of intussusceptions is either non-operative reduction using hydrostatic or pneumatic pressure by enema for ileocolic intussusceptions in stable patients who present early with no signs of perforation of bowel with high success rate when there are available appropriate radiological facilities. Surgery is indicated when non-operative reduction is incomplete or when a persistent filling defect, indicating a mass lesion is noted (19), long segment of small bowel intussusceptions, complicated intussusceptions and in multiple recurrence .

Spontaneous reduction of intussusceptions [SROI] is increasingly recognized where ultrasound is frequently used for diagnosis, and this may detect transient intussusceptions. In one series, SROI was reported in 17% of cases, and about half of these were asymptomatic (20). Complications of Intussusception results in bowel obstruction; thus complications such as dehydration and aspiration can occur, perforation, peritonitis, and vascular compromise. (21)

The main objective of this study is to highlight the pattern of presentation of intussusception in Khartoum Teaching Hospital, to determine the risk factors, the causes for surgical resection, the post-operative complications, mortality and disease recurrence.

Patients & Methods: This study was a prospective, descriptive, analytic, crossectional and hospital based study, it includes 74 patients that were admitted to pediatric surgical department in KTH in the period between May 2011-September 2012, patients were referred from multi-pediatric centers in

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Khartoum Estate and from outside Khartoum. The study variables included age, gender, the clinical presentation, ultrasound imaging, underlying cause, surgical results, complications, mortality and disease recurrence. Data was collected using a structured, pretested questionnaire and analyzed using a computer program-Statistical Package for Social Sciences (SPSS) version 20.

Results: Seventy four patients were enrolled in this study, forty two (56.8%) males, thirty two (43.2%) female. Their ages range between (45days – 13years), with mean 1.82years (std2.57).

Duration of symptoms range between (one day- 1month), mean 3.49days (STD 3.57).

The commonest presenting symptoms include the following: - seventy three (98.6%) patients presented with abdominal pain, sixty three (91.9%) patients presented with vomiting, thirty three (44.6%) presented with abdominal distention and sixty (81.1%) patients presented with rectal bleeding.

On examination, forty seven (63.5%) patients had palpable abdominal mass, nineteen (25.7%) patients had palpable mass per rectum and fifty eight (78.4%) patients had red currant jelly.

Twenty (27%) patients had history of gastro-enteritis and twenty two (29.7%) had history of upper respiratory tract infection.

Ultrasound study was performed to fifty two (70.3%) patients. All were operated upon, one (1.4%) patient found to have spontaneous reduction. Resection was done in 17(23 %), eight (10.8%) patients had gangrenous bowel ,the rest had underlying causative disease which was the lead point, five(6.8%) bowel lymphoma, one (1.4%) intestinal polyp, one(1.4%) had sub mucosal lipoma one (1.4%)(1.4%)chronic myeloid leukemia and one(1.4%) had bowel contusion from blunt abdominal trauma.

Thirteen (17.6%) patients developed post-operative complications, ten (13.5%) were minor wound infection; one (1.4%) was burst abdomen. Four (5.4%) of the patients died on table and post-operative mortality was five (6.8%). Recurrence occurred in six (8.1%) of patients.

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Discussion:

Intussusception is the commonest cause of intestinal obstruction in infancy and childhood that requires emergency intervention (2).This study was conducted in the department of pediatric surgery at Khartoum Teaching Hospital in the period between May2011-Sept.2012.

Our study of seventy four patients showed male to female ratio is 3:2, and the age of the patients range between 45day and 13years with mean 1.4years, children younger than one year constitute 62.1% which matches with international study (3). Although ultrasound is the method of choice to confirm diagnosis of intussusception with high sensitivity and specificity approaching 100% in many institutes, it was used in only 70.3% of our patient, either it was not available at the time of presentation or the patients were very ill to delay surgical intervention. All patients were operated upon, one patient (1.4%) had spontaneous reduction compared to a series where the spontaneous reduction was 17 %(20), and this is explained to the routine use of ultrasound. We had seventeen (23%) bowel resection; eight (10.8%) for gangrenous bowel which reflects delayed presentation with vascular compromise (21) and five (6.7%) were due to Non-Hodgkin's lymphoma (22-23).

Recurrence of the disease occurred in six (8.1%) patients which is higher compared 5.5% in study conducted in 505 patients (24)

The overall mortality in our study was 12%, while it is less than 1% in developed countries of the world (25).

Conclusion: Almost all patients were operated on because they have been misdiagnosed and referred to us late with impending or true bowel ischaemia .The other thing we do not have the facilities for hydrostatic reduction for those who present early without suspicion of led point .

Recommendations:

1- We have to spent effort in highlighting this problem with our colleagues in the paediatric medicine department, to refer suspected patient with the disease early.

2- To start establishing setup for non-operative reduction

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