Intussusception : Pain Abdomen in Paediatrics Revisited

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Introduction

Acute abdominal pain is a common problem in paediatric age group. Most episodes are benign, however a systemic approach is essential in distinguishing children with serious underlying conditions. Intussusception forms an important differential diagnosis of pain abdomen in children less than two years of age. The classical signs such as blood in stool appear late and by that time the intussusception may be irreducible and/or bowel necrosis might have set in. We present a case of intussusception diagnosed by using ultrasound.

Case Report

An eight year old child presented with a history of intermittent pain abdomen of seven days duration. There was no vomiting, constipation, loss of appetite or fever. On examination there was a palpable mass in the right side of abdomen. The haematological parameters were within normal limits. Plain radiograph of abdomen was normal. Ultrasound of abdomen showed multiple, discrete mesenteric nodes, largest measuring 23mm in size. There was no free fluid or

organomegaly. A diagnosis of mesenteric adenitis was offered. Review ultrasound showed ileo-colic intussusception without any compromise of blood supply, in addition to the previous findings of mesenteric adenitis with multiple nodes lying between the walls of intussusceptum and intussusciens (Fig.1). A computed tomography (CT) scan of abdomen was done administering 600 ml of contrast per orally for bowel opacification in divided doses 45 minutes prior to examination. Non ionic intravenous(IV) contrast was used at a dose of 2ml/kg body weight at a rate of 1.5ml/sec. Scan was started with a delay of 30 second post IV contrast and slice thickness of 8mm. It showed an ileo colic intussusception with no features of bowel necrosis (Fig.2). There were multiple enlarged mesenteric lymph nodes, largest measuring 23 mm X 10 mm. On laparotomy we found ileocolic intussusception in right iliac fossa with multiple enlarged mesenteric nodes (Fig.3). The caecum was mobile. Intussusception was reduced and caecopexy was done. Biopsy of the mesenteric nodes showed them to be of reactive in nature.

Discussion

Children with intussusception present with pain abdomen and constipation, while passage of red currant jelly stool is a late feature and suggests bowel necrosis. Approximately 90% of cases are ileocolic and the rest are ileo-colocolic, colocolic or ileo-ileal. Benign lymphoid hyperplasia of the intestinal mucosal and the submucosal lymphoid tissue is rare. This condition occurs mainly in infancy and early childhood, spontaneous regression being the rule. In adults intussusception accounts for 5% of bowel obstruction cases [1]. It can develop following surgery or a bowel tumour acting as a lead point. About 8-20% of entero-enteric intussusceptions are idiopathic while the colocolic type is associated with malignancy. The intussusception in patients with acquired immunodeficiency syndrome is generally ileum based and occurs from lymphoma, atypical mycobacterial infection or other unusual inflammatory processes [2].

On plain radiograph, intussusception itself may be

Fig. 1 : Ultrasound image showing point of entry of intussusceptum in longitudinal view.

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Fig. 2: CT scan showing intussusception in right side of abdomen.
a: Intussusceptum, b: Intussusciens, c: Entrapped fat.

identified as a soft tissue mass associated with a surrounding “crescent” of gas. Another commonly described plain radiograph finding is “target sign” [3] which consists of two concentric circles of fat density to the right of the spine in infants and children. The target sign is described to be twice as frequent as that of the crescent sign.

On ultrasound, intussusception appears as a complex mass with alternating high and low reflectivity rings surrounding a highly reflective centre [4]. The layer of bowel appearing as ring on axial sections varies with oedema and in severe cases only two layers are apparent described by some authors as ‘doughnut sign’. Echo-poor rim represents oedematous wall of intussusciens whereas the reflective centre represents the mesentery enclosing the entering limb of the intussusceptum. In cases of mild oedema the various layers of bowel are visible more clearly and hence give a “target appearance”. On longitudinal sections the intussusception has a reniform shape and is sometimes called as “sandwich sign” [5]. Other findings are presence of free peritoneal fluid and left right inversion of superior mesenteric artery and vein. Colour doppler shows the presence of entrapped mesenteric vessels. In our case the child had developed intussusception while he was being treated. The relationship of superior mesenteric artery and vein were normal. The entrapped mesenteric vessels showed normal colour and spectral pattern. Intraoperative finding confirmed ileocolic intussusception with mesenteric node acting as the lead point.

CT scan shows bowel within a bowel configuration with or without fat and mesenteric vessels. Depending on the scanning axis, they may appear as round shaped mass or an oblong sausage shaped mass [6]. The presence of severe engorgement or twisting (Whirl sign) of the mesenteric vessels, loss of layered pattern, extra luminal fluid collection and bowel perforation may

Fig. 3 : Intraoperative picture showing point of entry of ileal loop into the colonic loop.

d: Point of entry of intussusception, e: Reactive enlarged mesenteric node, f: Small bowel.

suggest the diagnosis of intestinal necrosis [7].

The treatment includes use of barium or air as the media, while others advocate use of Hartman’s solution for hydrostatic reduction [8]. However presence of free peritoneal fluid and failure to reduce intussusception on three attempts should give way to surgical correction.

Conflicts of Interest

None identified

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