Varied presentation of Adult Intussusception – Case Series and Review of Literature.

K Siddique, S Mirza, Q Lai, A Ehsan, A Malik

Citation

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Abstract

Background: We are reporting three cases of adult intussusception that presented to our department in the duration of one year.Case series: Two out of three patients were female. The age ranged from 19-50 years. The clinical presentation was varied and only one patient presented with intestinal obstruction. An abdominal mass was detected in two of the patients. Various diagnostic modalities were utilized to identify the cause. The 'target lesion' typical of intussusception depicted ileocolic, ileocecal or enteric intussusception. The details about the management and the underlying cause are discussed in the article.

INTRODUCTION

Intussusception is invagination of a proximal segment of bowel (intussusceptum) into the lumen of the adjacent distal segment (intussuscipiens). Intussusception is seen commonly in children but rather rarely in adults[1]. Intussusception in adults accounts for 0.1% of all adult hospital admissions and 5%-16% of all intussusceptions[2]. In children, intussusception is idiopathic in 90% of cases; however, adults with intussusception have a demonstrable cause in over 90% of the cases[3]. In colonic intussusceptions, a malignant tumor has been found to be the lead point in approximately two thirds of the adult patients[4].

Presenting features in children are mainly vomiting, abdominal pain, excessive crying, abdominal distension, passage of blood and mucus in the stool and a palpable abdominal mass[5]. Clinical presentation in adults is variable. Signs and symptoms of the bowel obstruction predominate in 82% of cases[4]. Patients usually complain of chronic intermittent abdominal pain, nausea, vomiting and constipation[4,6]. The most common reason for operative intervention is persistent bowel obstruction.

Abdominal computerized tomography (CT) is the most useful imaging method for the diagnosis of intussusception followed by ultrasound scan which is considered the second most effective imaging tool[7,8].

The preoperative diagnosis of intussusception in adults is very difficult to establish[4]. Diagnosis can be delayed because of its longstanding, intermittent, and non-specific symptoms and most cases are diagnosed at emergency laparotomy subsequently requiring bowel resection and anastomosis in most cases[9].

Here we are presenting three cases, their management and a review of literature.

CASE 1

A 50-year-old female with known decompensated liver disease presented to us in the emergency department (ED) with a six-day history of central colicky abdominal pain, multiple episodes of vomiting and absolute constipation for the last two days. She mentioned passing blood-stained stools prior to constipation. The only significant past history was that of hysterectomy and she denied any history of bleeding per rectum, alternating bowel habits or weight loss. No family history of colonic cancer or inflammatory bowel disease (IBD) was present.

On examination, the patient was dehydrated. She was tachycardic and her blood pressure was 102/58 mmHg. Abdominal examination revealed a midline scar below the umbilicus. A painless circular mass, 3x3cm in size, soft to firm in consistency, was palpable just below the umbilicus. No other viscera were palpable. Bowel sounds were hyperdynamic. Digital rectal examination (DRE) and systemic examination was unremarkable.

Complete blood picture showed a hemoglobin of 11.6g/dl, a

white cell count of $11.7x10^3/mm^3$ and a platelet count of $226x10^3/uL$. Liver function tests were deranged with an ALT of 46 and serum total bilirubin was 1.0. Serum electrolytes, clotting profile, renal function tests and urine analysis were within normal range. Plain abdominal x-ray revealed dilated small bowel loops with multiple air fluid-levels suggesting bowel obstruction (Figure 1).

Figure 1

Figure 1: Plain abdominal radiograph showing multiple air-fluid levels consistent with bowel obstruction

Conservative management in the form of 'Drip & Suck' was initiated to treat bowel obstruction. An ultrasound scan was requested for further evaluation which showed a roundish intra-abdominal mass with echogenic centre and hyperechoic periphery in the anterior lumbar region (target sign positive, Figure 2). The liver had a coarse parenchyma echo texture and irregular margins. A provisional diagnosis of intussusception was made and patient was prepared for exploratory laparotomy. On exploration, a large mass about 28x13cm in size was found comprising terminal ileum, caecum, appendix and a portion of ascending colon invaginated into the distal colon, confirming ileocolic intussusception (Figure 3). Right hemicolectomy with end-to-end ileo-colic anastomosis was performed.

Figure 2

Figure 2: Target sign on abdominal ultrasound

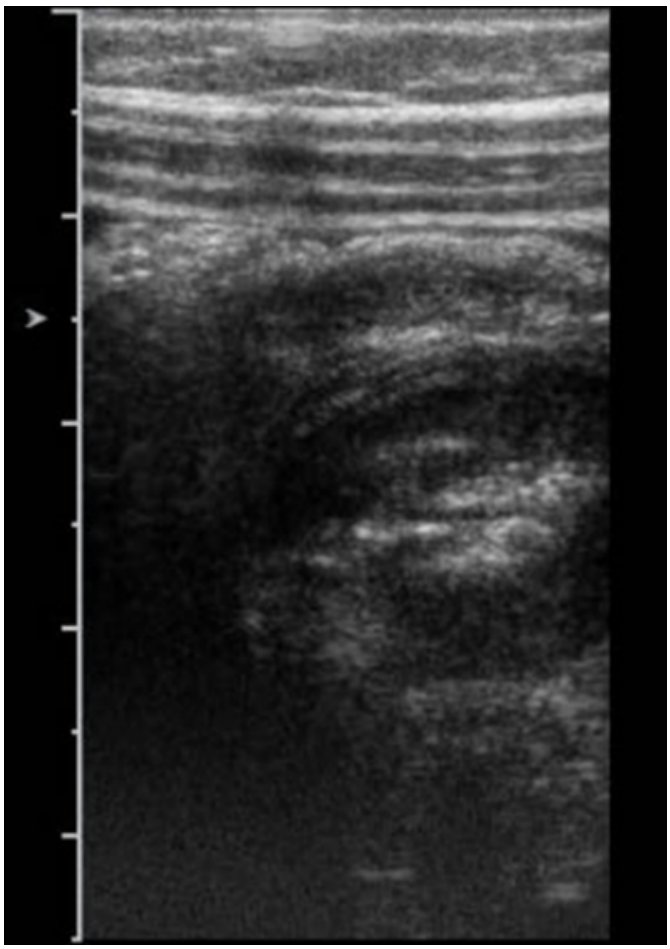

Figure 3

Figure 3: Intussusception of terminal ileum in the cecum

The histopathological examination revealed mucosal ulceration and transmural infarction necrosis along with

edema and congestion of the adjacent areas. No evidence of tuberculosis or malignancy was seen. About 13 lymph nodes were recovered all of which showed edema and congestion. The post-operative period was unremarkable and the patient was discharged on the 7th post-operative day.

CASE 2

A 19-year-old male presented to the Accident & Emergency department with complaints of pain in the right iliac fossa for three days which was sudden in onset, severe, colicky in nature, non-radiating and associated with fever, anorexia and nausea with one episode of vomiting. There were no other urinary or bowel complaints.

On examination, the heart rate was 110/min, blood pressure 104/52 mmHg and temperature was 100°F. Abdominal examination revealed generalized tenderness with guarding. A diffuse mass with ill-defined margins approximately 6x3cm in size in the right iliac fossa was palpable. Per rectal and systemic examination were unremarkable.

Laboratory studies showed a high white cell count only, while the rest of the studies including serum urea and electrolytes, liver function tests, and urinalysis were within normal limits. A provisional diagnosis of appendicitis with localized abscess, or appendicular mass was made and the patient was managed accordingly. Ultrasound abdomen showed free fluid in the abdominal cavity with a target lesion on the right side of the abdomen.

Due to deteriorating condition of the patient, emergency exploratory laparotomy was performed which showed 2 liters of straw-colored fluid in the abdominal cavity and ileocecal intussusception with six inches of terminal ileum entering into the caecum. This portion of terminal ileum was found to be gangrenous. A Meckel's diverticulum was also present but was not involved in the intussusception (Figures 4&5). Right hemicolectomy was performed and primary anastomosis done.

Histopathology confirmed transmural infarction of the ileum. No tumor, masses or other pathology was noted. The patient had an uneventful recovery and was discharged on the fifth post-operative day.

Figure 4

Figure 4: Resected specimen showing intussusception of terminal ileum in the cecum.

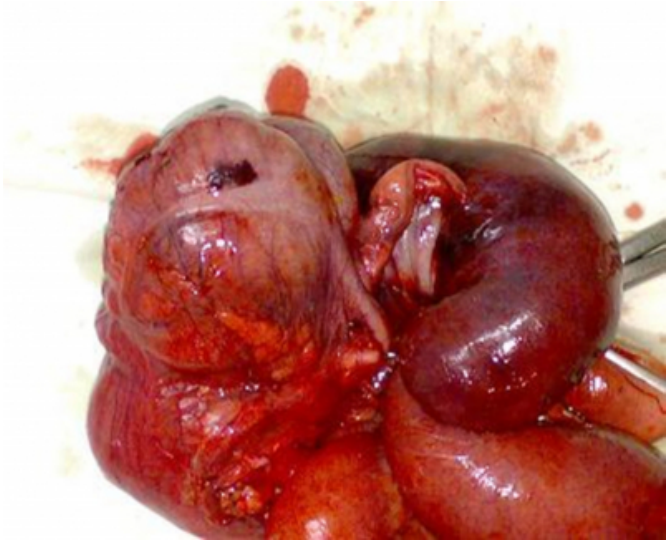

Figure 5

Figure 5: Resected specimen showing intussusception of distal ileum as well as Meckels' diverticulum

CASE 3

A 22-year-old female presented in the emergency department with complaints of continuous central abdominal pain for two days, moderate in intensity, colicky in nature and radiating to the whole abdomen. She also had multiple episodes of green-colored vomiting and high-grade fever with rigors for one day. She also passed black-colored loose stools for one day. She had a history of similar abdominal pain with 1-2 episodes/month for the last one year which would relieve spontaneously over 2-3 days. She had a past history of banding done for second degree hemorrhoids two years ago. Family history of tuberculosis was positive.

On general physical examination, she was pale, had koilonychia and a temperature of 37.8°C. Abdominal examination showed generalized tenderness, more so in the right lower quadrant with rebound tenderness and guarding. No mass was palpable and digital rectal examination was normal.

Laboratory studies showed a hemoglobin level of 7g/dl and a white cell count of 12.3 x 10^6/L. Other investigations including liver function test, renal function test and urinalysis were all normal. Ultrasound of the abdomen depicted a large edematous intestinal loop containing free fluid along with another loop seen towards the right side of the abdomen and no peristaltic movement; pseudo-kidney sign and doughnut sign were positive with the impression of enteric intussusception.

Exploratory laparotomy was performed and showed jejunal intussusception about thirty centimeters distal to the duodeno-jejunal junction involving approximately thirty centimeters of jejunum. Multiple polyps were palpable throughout the small and large intestine (Figure 6&7). The part of the small intestine with the intussusception was resected and primary anastomosis was done. Histopathology of the resected specimen again confirmed transmural infarction of the involved segment. No tumor, masses or other pathology was noted. The patient had an uneventful post-operative period and was discharged on the sixth postoperative day.

Figure 6

Figure 6: Resected specimen showing jejuno-jejunal intussusception

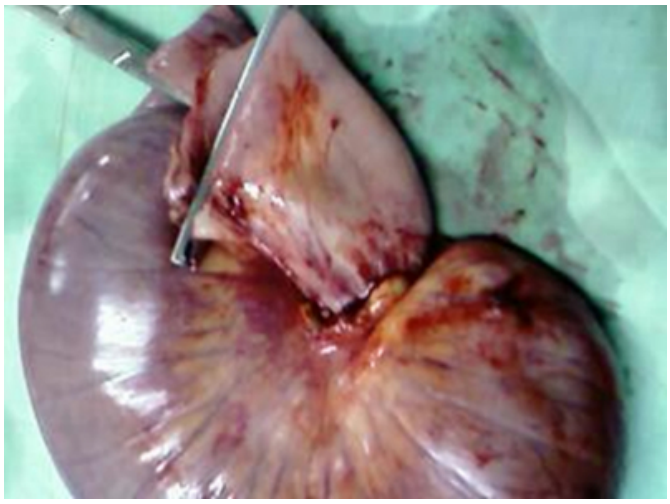

Figure 7

Figure 7: Resected specimen showing jejuno-jejunal intussusception. The outer layer of the bowel wall is removed to show the intussusception

DISCUSSION

Intussusception is a rare cause of acute abdomen, especially in adults. Single institutional reports of adult intussusception comprise not more than one or two cases per year[10]. Three cases of adult intussusception presented to us in one year (June 2007-June 2008). There are no retrospective meta-analyses or prospective multicenter studies in the medical literature to evaluate the pathogenesis, diagnosis, or treatment of adult intussusception and this is likely due to its low incidence in the adult population. A few retrospective studies have been published based on case series from single tertiary centers compiled over a long period of time (58 cases occurred in 19 years at Massachusetts General Hospital[11]; 27 cases in 9 years at Mount Sinai Medical Center[12]; and 9 cases in 5 years at Changi General Hospital in Singapore[13].

Adult intussusception is seen more commonly amongst females. In our case series, two of the patients were female while in a study conducted in Turkey on adult intussusception over 10 years male-to-female ratio was found to be 4:5 with an age range of 16-67 years[10].

Pediatric patients with intussusception present with a classic triad of abdominal pain, currant jelly-like stool, and a palpable sausage-shaped abdominal mass, while the clinical presentation of adult intussusception is usually nonspecific making it very difficult to differentiate it from other causes of bowel obstruction. The varied presentation may be with intermittent abdominal pain, nausea, vomiting, guaiac-positive stool, even bloody diarrhea; an abdominal mass has

been reported in very few cases[14], whereas in our series two out of three had palpable abdominal masses.

Different diagnostic modalities have been utilized to identify intussusception accurately. These include plain abdominal x-ray, abdominal ultrasound, barium studies, CT scan, magnetic resonance imaging, and angiography. In recent years, computed tomographic scan has become the first imaging study performed, after plain abdominal x-rays, in the evaluation of patients with nonspecific abdominal complaints[10]. Gayer et al. have proposed CT scan for diagnosing intussusception confidently in their paper though the underlying etiology can be difficult to determine[15]. Alternatively ultrasound scan or MRI can also be used which depict intussusception as a 'target lesion' (multiple concentric rings)[16]. The intussusception has a target appearance because of the thickened intussusceptum[17]. The target sign was also seen in our case series. Intussusception commonly occurs at the junctions between freely moving segments and retroperitoneally or adhesionally fixed segments[1]. Thus, intussusception of the small intestine is seen more commonly than that of the colon[4,18].

One of the studies has suggested that in about 90% of adult intussusception there is a lead point[10]. In our case series, two cases were idiopathic while one case (case 3) was due to adenomatous polyps in the small intestine. All the three cases were treated surgically with resection of the involved part and primary anastomosis thereafter. Intussusception in adults is almost always treated surgically and there is a consensus that resection is necessary because of the possibility of a malignant tumor[1,19,20]. If the bowel is inflamed or ischemic or if there is a colonic intussusception, resection without reduction is advised in order to avoid perforation or tumor seeding[1,19].

CONCLUSION

A high index of suspicion of intussusception in the adult patients with non-specific abdominal pain can prevent serious complications. The target lesion is the classical sign of intussusception identified by ultrasound or CT scan. Surgical intervention gives the best outcome and should not be delayed once a target lesion is identified.

References

1. Begos DG, Sandor A, et al.: The diagnosis and management of adult intussusception. Am J Surg; 1997; 173: 88-94.
2. Tito WA, Sarr MG: Intestinal obstruction. In: Zuidema G.D. (ed.). Surgery of the Alimentary Tract. Vol. V, 4th ed. WB Saunders, Philadelphia, 1996, pp. 375-416.
3. Akcay MN, Polat M, et al.: Tumour-induced ileoileal invagination in adults. Am Surg; 1994; 60: 980-1.
4. Stubenbord WT, Thorbjarnarson B. Intussusception in adults. Ann Surg; 1970; 172: 306-10.
5. Mansur SH, Ahmed S, et al.: Childhood intussusception. Ann King Edward Med Coll; 2005; 11(3): 292-4.
6. Warshauer DM, Lee JKT: Adult intussusception detected at CT or MR imaging: Clinical-imaging correlation. Radiology; 1999; 212: 853-60.
7. Omori H, Asahi H, Inoue Y, Irinoda T, et al. Intussusception in adults: a 21-year experience in the University-affiliated Emergency Center and indication for nonoperative reduction. Dig Surg; 2003; 20: 433-9.
8. Azar T, Berger DL. Adult intussusception. Ann Surg; 1997; 226: 134-8.
9. Yalamarthi S, Smith RC: Review article: adult intussusception: case reports and review of literature. Postgraduate Medical Journal; 2005; 81: 174-177.
10. Balik AA, Ozturk G, et al.: Intussusception in adults. Acta Chir Belg; 2006; 106: 409-412.
11. Azar T, Berger DL: Adult intussusception. Ann Surg; 1997; 226: 134-138.
12. Eisen LK, Cunningham JD, Aufses, et al.: Intussusception in adults: institutional review. J Am Coll Surg; 1999; 188: 390-395.
13. Tan KY, Tan SM, Tan AG, et al.: Adult intussusception: experience in Singapore. ANZ J Surg; 2003; 73: 1044-1047.
14. Ouyang EC, Stockwell D, et al. Ileocolonic intussusception. Medscape General Medicine; 2005; 7(3): 15.
15. Gayer G, Apter S, Hofmann C, et al. Intussusception in adults: CT diagnosis. Clin Radiol; 1998; 53: 53-7.
16. Žokalj I, Magaš Z, et al.: Adult obstructing ileocolic intussusception. Radiol Oncol; 2007; 41(3): 107-12.
17. Lim JH, Ko JT., Lee DH, et al.: Determining the site and causes of colonic obstruction with ultrasonography. Am J Roentgenol; 1994; 163: 113-7.
18. Reijnen HAM, Loosten HJM, Deboer HHM: Diagnosis and treatment of adult intussusception. Am J Surg; 1989; 158: 25-8.
19. Huang BY, Warshauer DM: Adult intussusception: diagnosis and clinical relevance. Radiol Clin North Am; 2003; 41: 1137-51.
20. Weilbeacher D, Bolin JA, Hearn D, et al.: Intussusception in adults, review of 160 cases. Am J Surg; 1971; 121: 531-5.

Author Information

Khurram Siddique, MCPS, FCPS, MRCS
Registrar, Holy Family Hospital

Shirin Mirza, MBBS
Holy Family Hospital

Qasim Lai, MCPS, FCPS
Medical Officer, Holy Family Hospital

Aisha Ehsan, MCPS, FCPS
Medical Officer, Holy Family Hospital

Asif Zafar Malik, FRCS
Professor & Head of the Department, Surgical Unit II, Holy Family Hospital