ADULT SMALL BOWEL INTUSSUSCEPTION: A CASE REPORT AND REVIEW OF LITERATURE

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Abstract

Adult small bowel intussusceptions are different from childhood with respect to etiology, presentation and treatment and usually occurs rarely. Due to non-specific symptoms of this disease, diagnosis of this disease can be delayed; however the reliable diagnosis of this condition can be carried out the frequent utilization of computed tomography to evaluate patients exhibiting abdominal pain. Treatment process in most of the cases is simple bowel resection in most cases. Here we presents two cases one male and female, both above 60 years old present with colicky central abdominal pain, CT revealed of enteroenteric intussusceptions, that treated by resection and anastamosis.

Keywords: Anastomosis, Intussusceptions, Reduction, and Resection

INTRODUCTION

The term intussusceptions of bowel is described as the process associated with the telescoping of the proximal segment of the GI tract within the adjacent segment's lumen. Barbette of Amsterdam was the first one who reported this issue in the year 1674 [1] and the detailed report on this problem was presented by John Hunter in 1789 [2]. From the historical perspective, Sir Jonathan Hutchinson in the year 1871 conducted operation of a child with intussusception [3]. Among all cases of intussusception, only 5% are those that are considered as adult intussusception and are considered only 1%-5% of adult intestinal obstructions [4].

Various aspects make the adult intussusception different from the pediatric intussusception. It is frequently benign and primary in children, and for the treatment of this condition, hydrostatic (also termed as air contrast enemas) or pneumatic reduction of the intussusception can be used for treatment of 80% of the patients. On contrary to this, among all cases of adult intussusception, approximately, 90% are those that occur as a secondary condition to any pathology that acts as a prime point and examples of such secondary conditions are polyps, carcinomas, colonic diverticulum, Meckel's diverticulum, benign or neoplasms that are discovered usually intraoperative [5, 6]. Associated malignancy is a risk factor that occurs in 65% people approximately [7, 8], and in adults, preoperative radiologic decompression is not addressed. This is the reason that appropriate treatment of intussusception is required in 70 to 90% of adult and most often used treatment of choice in these cases is surgical resection [9].

Case 1

A Yamani male who was 62-years old came with a complain of central colicky abdominal pain for 3 days, increase with oral intake, associated with vomiting, but no diarrhea, hematemesis or melena. No anorexia, weight loss or dyspepsia, one day prior admission, pain become more sever, with frequent vomiting. Patient diabetic on oral hypogyvemic. It was observed that he has no family history of this or any other relevant condition. Clinical examination, patient generally look well, his vitals were normal, abdomen moderately distended no visible peristalsis, not tender and no palpable masses. Standard laboratory tests and investigations consisting of hepatic function tests, renal tests, hemoglobin tests, blood sugar and blood counts were found to be in normal limits. Plain abdominal x-y discovered multiple air-fluid level (Fig.1), ultrasound abdomens revealed dilated bowel loops.

Figure 1:Case1 plain x-abdomen revealed air-fluid level

CT revealed diffuse mural thickening, of the distal ileum with the target and sausage like mass (Fig.2, 3) respectively that suggestive of distal ileo-ileal intussusceptions.

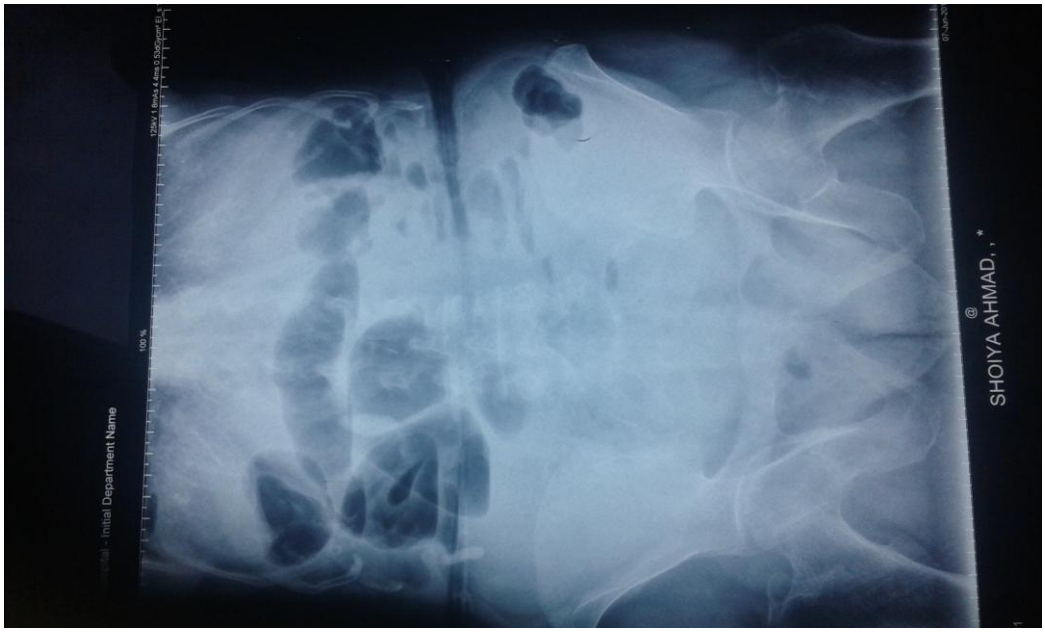

Figure 2: Case 1 CT with contrast revealed "Target Sign (A)

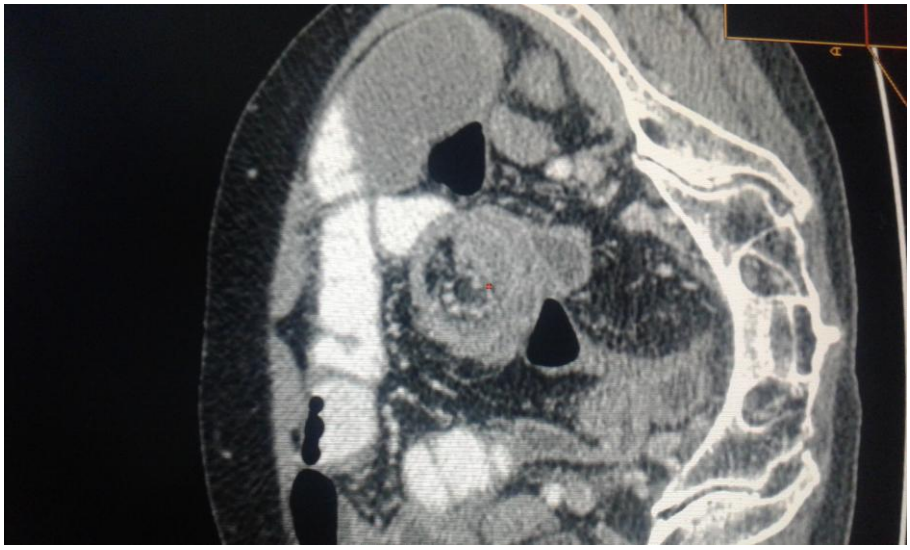

Figure 3: Case 1 CT with contrast revealed "Target Sign (B)

At laparotomy, there was an obvious ileo-ileal intussusceptions (Fig. 4), with a tumor that acting as a lead point (Fig. 5), resection and anastomosis done. Patient underwent smooth postoperative course. Histopathology revealed leimyoma and follow-up patient did well. Patient returned back to his work after 8 weeks.

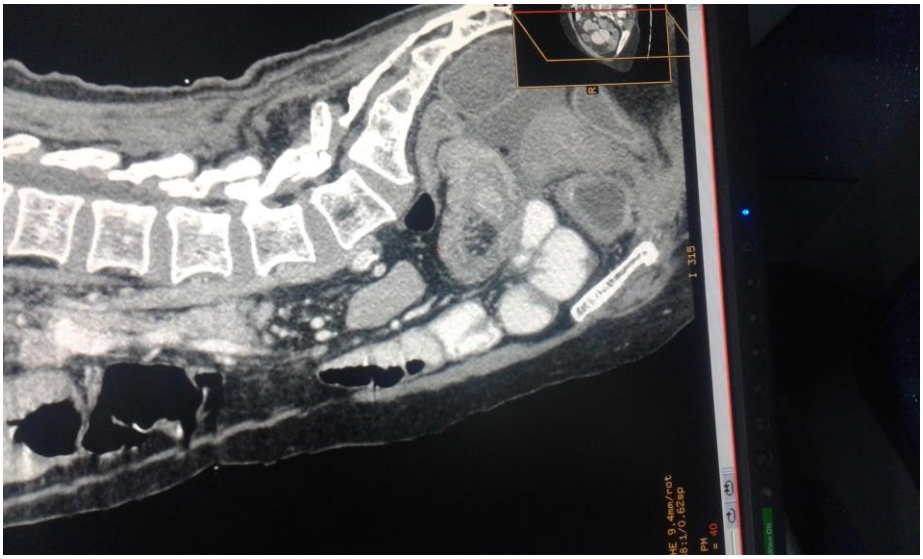

Figure 4: Case1 intussusception before resection

Figure 5: Resected specimen with polypoid mass

Case 2

An 80 years old Saudi female present complained of colicky paraumbilical pain for six months, recently pain become more severe, associated with nausea, and vomiting. Pain was partially relived by vomiting, and other problem exhibited by him were constipation, loss of

appetite and weight as well heartburn. He showed no cough, no neurological or urinary symptoms. On clinical examination, patient looks un well , a febrile, pulse 84\m regular, BP 130\90, chest & CVS clear, abdomen mildly distended, there is tenderness in the RIF, but no palpable mass, the rest of other clinical examination no abnormality detected. Routine investigations such as CBC, RFT, and LFT are within normal limit. Plain abdomen revealed air-fluid level (Fig. 6), ultrasound abdomen revealed dilated bowel loops.

Figure 6:Case2 plain x-abdomen revealed air-fluid level

CT with contrast revealed target sign suggestive of ileoileal intussusceptions (Fig. 7, 8).

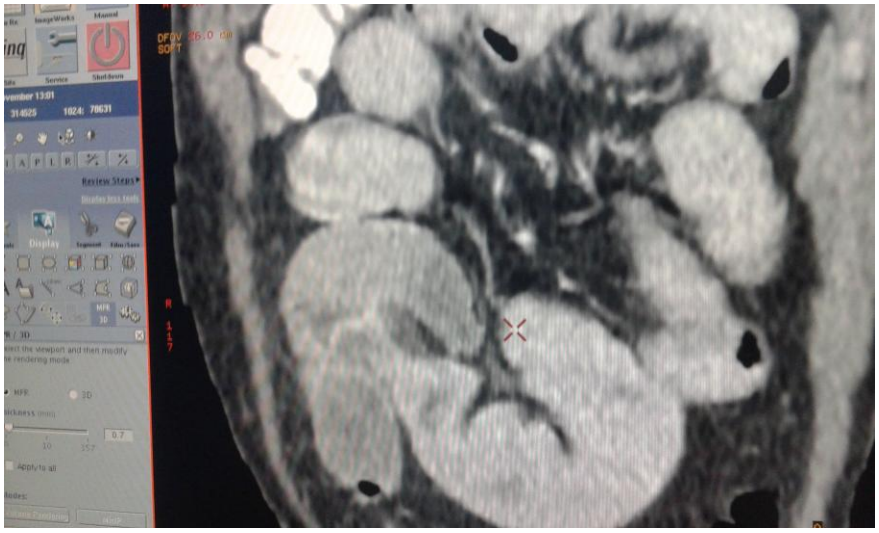

Figure 7: Case2 CT with contrast revealed "Target Sign" (A)

Figure 8:Case2 CT with contrast revealed "Target Sign" (B)

Laporatomy confirmed ileoileal intussusception 6-7cm just proximal ileocecal junction (Fig. 9).

Figure 9:Case2 ct intussusceptions before resection

Resection and anastomosis done. Specimen revealed polypoid mass acting as a lead point (Fig. 10).

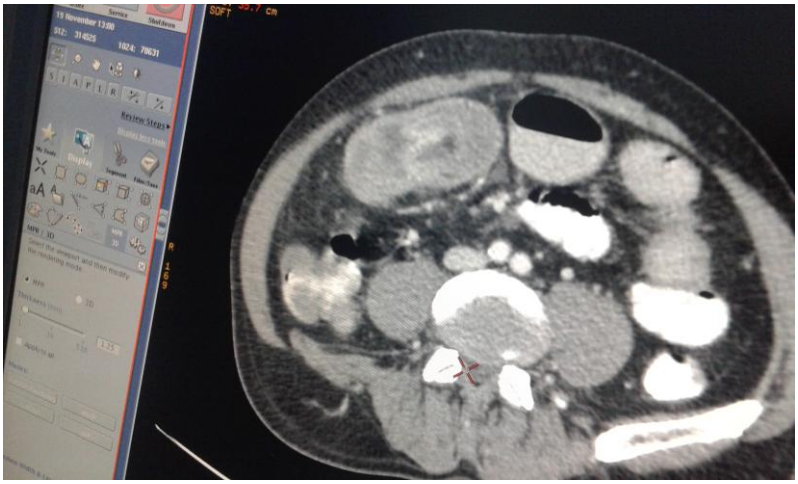

Figure 10:Case2 resected specimen with polypoid mass

Postoperative patient developed paralytic ileus that kept fasting six days and histopathology revealed lymphoma.

DISCUSSION

As evident from the research studies, Barbette of Amsterdam made the first report of intussusception in the year 1674 [1] however details was presented John Hunter in 1789 [2]. Sir Jonathan Hutchinson is historically considered as the first person who carried out successful operation of a child with intussusceptions in the year 1871 [3]. Moreover, it is also evident from different studies that there are some distinct characteristics of adult intussusceptions in comparison to adults with respect to etiology of this disease, presentation and choice of treatment [10, 11]. In the adult patients, only 10% of the cases occur due to surgical created stoma or involve stomach while the remaining 90% usually occur in the large or small bowel [12]. As seen in these cases, small bowel is the most common single site [13].

Some important points that are related to the intussusceptions are attributed to the causes that are malignant, benign, or idiopathic [11, 12]. Moreover, approximately, 6% to 30% of all cases are related to malignant lesions that are primary or secondary in nature. Felix et al. [14] conducted a

review study and reported that 63% of cases exhibited tumor related intussusceptions. In our two cases, one proved to be malignant, while the other is benign.

According to the locations, intussusceptions are classified into four main categories: (1) colo-colic that only involves large bowel, (2), entero-enteric that is confined to the small bowel, (3) ileo-cecal and (4) ileo-colic that is related to the terminal ileum's prolapse within the ascending colon. Our two cases were entero-enteric. Intussusceptions in adult occurs with sub-acute, acute or chronic symptoms that are nonspecific [16]. Erkan et al. in their study demonstrated that 61.5% of all these patients had shown acute symptoms and emergency laporatomy was carried out in these patients [32]. Another report has presented that acute symptoms are shown by 46% of patients [17]. According to findings of a study conducted by Ghaferi et al. chronic non-specific symptoms are reported in 53% of patients while sub-acute or acute symptoms are shown by 47% of cases [18].

In our cases, one had acute presentation, while the other showed chronic onset. Some of classical symptoms that are related to presentation of acute intussusception in pediatrics such as bloody diarrhea, triad of cramping abdominal pain, and palpable tender mass not occurs in adults except some rare case [19]. Most of the studies have presented pain as the commonest symptom that is also revealed by our two cases and this symptoms is seen in almost 71% to 90% of patients, and the other common symptom that are associated with the condition are bleeding from the rectum and bloody diarrhea that are reported in most of patients [11]. An important characteristic that is associated with this type of pain is that it is periodic and intermittent in nature that leads to the elusive diagnosis of the disease and can lead to some delays in the process of diagnosis of the disease and before operation, only half cases are diagnosed [11]. In 24% to 42% of all cases, abdominal; mass is reported as a symptom [10, 12].

Azar et al. conducted a review study [10] and finding of this study demonstrated that the mean duration between the onset and presentation of the symptoms was 37.4 days (it may range from 1–365 days). The patients with enteric and lesions presented longer duration of symptoms as compared to the patients with colonic or malignant lesions. However, in our two cases the benign case showed acute presentation, while the malignant intussusception had chronic onset.

The variance in the imaging features and clinical presentation of the disease has made it a difficult and challenging task to do the preoperative diagnosis of intussusception. Reijnen et al. [20] in their research study reported the 50% preoperative diagnostic rate, while considerably lower rate of 40.7% was reported by Eisen et al. [21]. In our two cases with help CT scan, both cases were diagnosis confidently preoperatively.

The first diagnostic tool in most of cases is plain abdominal films, however, the clinical picture is dominated by the obstructive symptoms in most of the cases. The signs of the intestinal obstruction are usually demonstrated by such films [21, 22]. In our two cases plain x-y abdomen revealed air-fluid level suggestive of small bowel obstruction without pointing to the primary reasons of obstruction. The upper gastrointestinal contrast series can present appearance like “stacked coin” or “coil-spring” [21, 23, 24].

Another useful diagnostic tool for intussusception is ultrasonography that is effective for diagnosis in adults and children [25]. “Doughnut” or “Target” signs on the transverse view are the classical imaging characteristics and the other characteristic features are “pseudo-kidney” sign or “hay-fork” sign exhibited in the longitudinal view [25]. In our two cases, ultrasound abdomen was not diagnostic and the classical futures such as target and "doughnut" signs were not described. However, ultrasound is an operator dependent.

In order to make preoperative diagnosis, the most reliable diagnostic information can be provided by the computed tomography and this method is most effective for those patients that presents non-specific abdominal pain or require elusive diagnosis [26]. The appearance of intussusceptions on the CT scan is a "target" mass and "sausage shaped" mass in the transverse axis and longitudinal axis respectively [18]. In our two cases CT revealed target signs and was diagnostic.

The frequency of underlying abnormality are associated with the attempts related to hydrostatic reduction and therefore laparotomy is permitted in case of adult intussusception [10, 27]. Some controversies are still associated with the decision of reducing the intussuscepting lesion at the time of operation. The previous reports have mentioned that before resection, intussusception should be reduced [28, 29]. The disadvantages associated with this condition is that dissemination of the malignant cells may occur; however, regarding this issue, no clear evidences are provided. On contrary to this, reduction in the intussusceptions is associated with some benefits, for instance, it is possible to preserve the bowel length considerably in case, if small bowel is affected, that can lead to prevention of development of a syndrome termed as short bowel syndrome.

In a study conducted by Begos et al [27], in case when bowel is friable, inflamed or ischaemic, the suggested method is resection that is carried out without considering reduction and this condition is very obvious in case of the colo-colic intussusception that provides the high chances of malignancy. However, in case of other conditions, initial attempt should be reduction. On the other hand, Azar et al. [30] presented the view that in case of adults, surgical resection carried out without reduction is preferable treatment and malignancy is related to approximately 50% of both enteric and colonic intussusceptions. In case when bowel presents no

pathological symptoms and if the idiopathic intussusceptions and post-traumatic condition occur, the acceptable method is simple reduction is however acceptable in and where no pathological cause is usually present in the bowel [31]. In our two cases reduction attempted followed by resection and anastomosis.

CONCLUSION

Entero-enteric intussusception is found to be a rare problem in adults. Due to episodic and non-specific symptoms related to this condition, diagnosis become difficult. The diagnosis of this condition can be difficult as symptoms are often non-specific and episodic. Abdominal computed tomography is considered as the most appropriate method in this condition. Treatment requires reduction when possible followed by resection and anastomosis.

CONSENT

Before the publication of these cases, the informed consent was taken from the patients along with accompanying images. Editor-in-Chief has a copy of written consent obtained from patient before using the information of these patients.

COMPETING INTERESTS

The authors of this article have declared competing or conflicting interests.

AUTHORS' CONTRIBUTIONS

Mansour TI; perceived the study and did the major part of research i.e. literature search and also provided full coordination regarding editing, write-up and article submission. Aboujokh

AJ, Bashier OH, and Al-Dalaleh AM all actively participated in the editing and write-up of this research. The final manuscript is read, edited, proofread by all researchers before submission.

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ACKNOWLEDGEMENTS

I would like to pay a special gratitude to those who assisted in the preparation of this manuscript and I would like to pay special thanks to patients that provided consent to consider their cases for this research and accompanying images of patients.

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