

## Intussusception: A Rare Cause of Acute Abdomen in the Adult

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### Abstract

**Introduction:** An Intussusception occurs when a segment of the bowel invaginates into its adjacent part. This condition occurs more frequently in children, particularly younger children, than adults. These invaginated bowel segments are the most common cause of pediatric bowel obstruction. There is one case of adult intussusceptions for every 20 childhood cases. Adult intussusceptions account for about 5% of all intussusceptions.

**Case Report:** Here is the case of an older man who presented with acute abdominal pain of ten days duration. The diagnosis of intussusceptions was initially missed until it was suggested by an abdominal ultrasonogram and confirmed at laparotomy. An uneventful post-operative recovery followed primary resection and anastomosis of the involved gut.

**Discussion:** Most intussusceptions arising from the small bowel are due to benign lesions. Malignant lesions are more common in the large bowel. A benign ileal polyp caused the index patient's intussusception. However, previous health care providers initially misunderstood the actual condition, and specific and timely treatment was not identified and applied; bowel gangrene ensued. After an accurate diagnosis and appropriate surgical intervention, the index patient experienced a full recovery.

**Conclusion:** There is a need for primary care physicians and surgeons to maintain a high index of suspicion in this regard so that the rare case of adult intussusceptions can be diagnosed and treated early, leading to the best possible outcome.

**Keywords:** Abdominal Pain; Bowel Restriction; Enteroenteric; Intestinal Gangrene; Tachycardia

### Introduction

Intussusception was first reported in 1674 by Barbette of Amsterdam and further presented in a detailed report in 1789 by John Hunter as "intussusception," meaning the invagination of a segment of bowel (intussusceptum) into the lumen of its adjacent segment (intussusciens) [1].

Intussusception is common in childhood but rare in adults, comprising about 5% of all intussusception cases [2]. Hence there is a case of adult intussusception for every 20 childhood cases [3].

Ninety-five percent (95%) of intussusception in children is idiopathic, whereas in adults, only 7% is considered idiopathic [4], and whenever present, it prompts a clinical diagnosis of a malignant tumor.

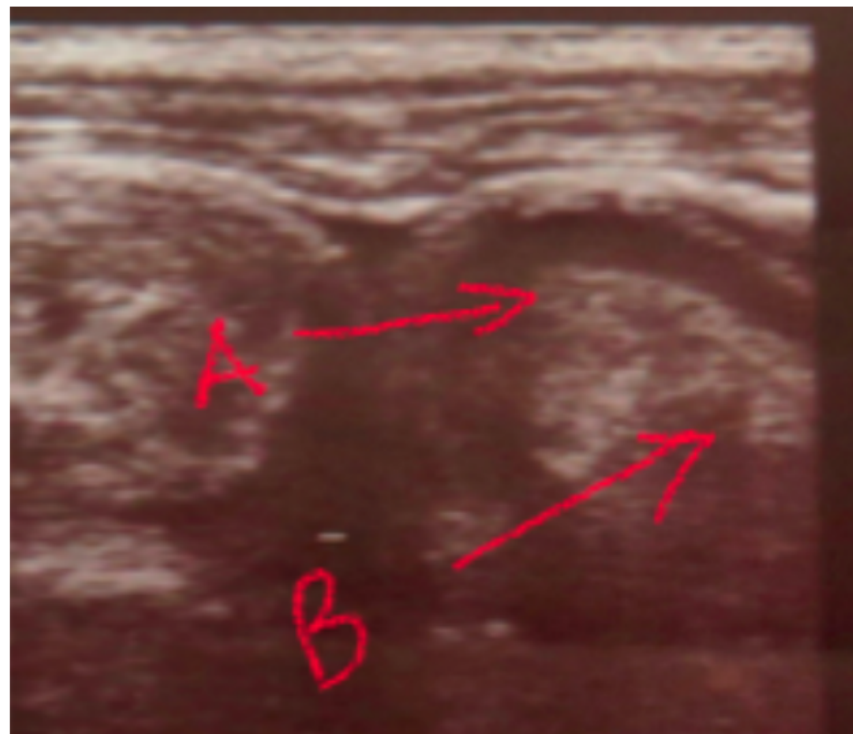
Owing to this significant risk of associated malignancy, which approximates 65% [5], radiologic decompression is not addressed preoperatively in adults. Therefore, 70 to 90% of adult cases of intussusception require definite treatment, of which surgical resection is often the treatment of choice [6].

We present a case of enteroenteric intussusceptions in an elderly African man whose diagnosis was delayed until bowel gangrene ensued, necessitating urgent surgical intervention from which he fully recovered.

### Case Presentation

A 65-year-old male was brought to our facility with a 10-day history of abdominal pain. Initially, the pain was mild and periumbilical but increased progressively in intensity and later became localized to the right lower abdominal quadrant about two days before presentation, when he also developed a fever and had 2 bouts of vomiting. He was not constipated, had no significant co-morbidity, and had not had surgical operations in the past.

Critical physical findings included painful distress, a raised axillary temperature (37.5°C), tachycardia (105 bpm), and right iliac fossa tenderness. The patient's preoperative ultrasonography suggested intussusceptions (Figure 1) and ruled out acute appendicitis. Biochemical and haematologic investigations yielded were within normal limits.



**Figure 1:** Abdominal ultrasound scan, showing the typical target of intussusception.  
A: intussusciens; B: intussusceptum.

The patient underwent an urgent laparotomy, which revealed pus in the peritoneal cavity and a mass in the right iliac fossa. The mass was an enteroenteric intussusception involving the distal ileum up to 25 cm from the ileocaecal valve (Figure 2).



**Figure 2:** The surgeon's finger indicates the outer limit of bowel invagination.

The involved gut was resected, and ileocecal anastomosis was performed with a GIA stapler, sparing the ileocecal valve. The intussusception was opened, exposing a gangrenous intussusceptum with a polyp at the lead point (Figure 3-5).



**Figure 3:** The intact, excised gut segment; the intussusceptum still contained within the intussusceptions.





**Figure 4:** The intussusciens incised, exposing the gangrenous intussusceptum.



**Figure 5:** The intussusceptum is opened; a small bowel adenoma (pointer) is the lead point of the intussusception.

The patient made a quick and uneventful post-operative recovery and was discharged home on the 8<sup>th</sup> day after surgery.

### Discussion

Marsicovetere, *et al.* (2017) noted a commonly used anatomical classification system, dividing intussusceptions into four groups [7]:

1. Enteroenteric (limited to the small bowel)
2. Colocolic (limited to the large bowel)
3. Ileocolic (terminal ileum prolapses into the ascending colon)
4. Ileocaecal (ileocaecal valve is the lead point).

The index case is of the enteroenteric subtype as the pathology was limited to the small bowel. Su, *et al.* (2020) found that most intussusceptions arising from the small bowel are due to benign lesions [8], such as adhesions, Meckel's diverticulum, inflammatory bowel disease, or benign neoplasms.

Malignant lesions are, however, more common in the large bowel, colonic adenocarcinoma being the most typical lesion [9]. A benign ileal polyp caused intussusception in the index case.

Preoperative diagnosis of intussusceptions is infrequent in adults. Most patients receive exploratory laparotomy for intestinal obstruction with an intraoperative diagnosis of intussusception [9].

Various imaging modalities are helpful in intussusceptions diagnosis, including CT scan, abdominal ultrasonography, barium studies, plain abdominal radiograph, angiography, and radionuclide studies [10].

Ultrasound is the modality of choice for intussusception diagnosis in children. CT scan is the preferred diagnostic modality for intussusception diagnosis in adults [11]. Ultrasonography helps diagnose intussusceptions in children and adults. However, obesity and massive air in the distended bowel loops limit the image quality and compromise diagnostic accuracy [2].

In adult intussusceptions, surgical resection is the recommended treatment due to the relatively high incidence of malignancy, but optimal surgical management remains controversial [5].

Due to the high rates of malignancy and other structural abnormalities in adult intussusception, it has traditionally been considered an indication for surgery. However, Aydin, *et al.* (2016) opined that owing to the increasing use of CT scans, detection of transient intussusceptions without underlying pathology has become more frequent [12].

According to Dungerwalla, *et al.* (2012), a small number of successful laparoscopic or endoscopic reductions (in highly selected patient groups with known underlying non-malignant etiology) have been reported [13]. This procedure has the advantage of being minimally invasive and preserving a considerable length of the gut—preventing the development of short bowel syndrome.

For the vast majority of presentations, however, a malignant cause cannot be excluded, and, as such, surgical resection without reduction is recommended to avoid perforation and tumor dissemination.

In the index case, resection without reduction was performed as malignancy could not be ruled out. Moreover, as Mirza, *et al.* (2011) observed, the presence of pus in the peritoneal cavity was highly suggestive of bowel gangrene [14]. Hence resection without reduction lessened the additional risk of bowel perforation and the spread of infectious material.

### Conclusion

Intussusception rarely occurs in adults, and when it does happen, the diagnosis is likely to be delayed or missed owing to varying presentations. These consequences could lead to complications arising from undue intervention delay. A high degree of suspicion by the primary care physician and surgeon is needed if the desirable rapid preoperative diagnosis followed by expeditious surgical intervention is to be achieved.

### Conflict of Interest Statement

The authors declare that this paper was written without any commercial or financial relationship that could be construed as a potential conflict of interest.

### Ethical Approval

The manuscript was read and approved by both authors.

### Supplementary Note

A previous abstract (appreciably updated herein) was presented at the Joint Association of Surgeons of Nigeria and the Nigerian Surgical Research Society Meeting, Umuahia, Nigeria, in July 2018 [12].

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