

# Are lead-Points of Intussusception in Nigerian Adults Usually Malignant?

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## Abstract

**Background:** Intussusception is a more common cause of intestinal obstruction in children than adults. It could be primary or idiopathic in which there is no pathologic lead point or could be secondary when there is an identifiable lesion that serves as a lead point drawing the proximal bowel into the distal segment. These lesions could be benign or malignant.

**Methods:** A retrospective study of all patients who had surgery for intussusception over a twelve-year period at Olabisi Onabanjo University Teaching Hospital (OOUTH), Nigeria were retrieved and analysed.

**Results:** Adults accounted for 11% of all cases of intussusception. The mean duration of symptoms was 3.5 ( $\pm$  1.7) days for children and 10.8 ( $\pm$  4.2) days for adults. Majority of cases of intussusception in children did not have a lead point and the resected specimen showed lymphoid hyperplasia. The most common lead point in children with secondary intussusception was a Meckel diverticulum.

**Conclusion:** All adult patients had benign lead-points. We recommend limited bowel resection after reduction as malignancy is a rarity in Nigerian adults with intussusception.

## Key Message

While intussusception is a common cause of intestinal obstruction in children, it is relatively rare in adults. Malignancy is a rarity in Nigerian adults with intussusception, hence limited bowel resection after reduction is often adequate.

## Highlights

- Intussusception is a more common cause of intestinal obstruction in children than adults
- It could be primary or idiopathic in which there is no pathologic lead point or could be secondary when there is an identifiable lesion
- Malignancy is a rarity in Nigerian adults with intussusception

## 1. Background

Intussusception is described as the invagination of a segment of the bowel (intussusceptum) into a distal segment (intussusciens) [1]. It can result in intestinal obstruction, perforation, gangrene and death if untreated. Majority of the cases of intussusception occur in children less than 1 year. It is a common cause of intestinal obstruction in infants [2,3]. In adults however, intussusception is

not frequently encountered [4-6].

Intussusception may vary from one season to another and several theories have been proposed on the aetiology, however the exact cause remains unknown [7]. The vast majority of cases do not have a lead point and are referred to as primary or idiopathic intussusception. Some studies have found an association with viruses and bacteria [8]. Secondary intussusception occurs when there is an identifiable lesion that serves as a lead point drawing the proximal bowel into the distal segment. The presence of a lead point increases in proportion with age [9]. Common lead points include Meckel's diverticulum, intestinal polyps, duplications, appendix, haemangiomas, foreign bodies, hamartomas and lipomas. Malignant causes such as lymphomas and small bowel tumours have been described [10].

The classic presentation is intermittent abdominal pain, red currant jelly stools and a palpable mass on examination, although this triad is seen in less than a fourth of children [11]. The cases in adults are usually diagnosed late due to atypical presentations [12]. Diagnosis can be confirmed with ultrasonography, contrast enema or surgery. Diagnosis may be delayed because of limited available radiological services [13,14]. Treatment may be non-operative or operative. Non-operative management involves hydrostatic or pneumatic reduction while operative options include en bloc resection of the intussusception and primary anastomosis, manual reduction followed by a more limited bowel resection and simple manual reduction without resection [15,16].

We aim to identify and compare the lead-points of intussusception in children and adults in Sagamu, South Western Nigeria, and describe outcome of treatment.

## 2. Methods

This is a retrospective study in which the records and surgical notes of all patients who had surgery for intussusception over a twelve year period from January 2011 to December 2022 at Olabisi Onabanjo University Teaching Hospital (OOUTH) were retrieved and analysed. Ethical approval from the Institutional Review Board was obtained.

OOUTH is a tertiary hospital located in Sagamu, Ogun state, South Western Nigeria. The hospital serves majority of Ogun state and its environs.

A total of 121 cases were selected. Data collected include socio-demographic characteristics, clinical presentation, surgical and pathological details and outcomes. This data was analysed using SPSS version 21 and presented in tables and charts.

## 3. Results

Over the period of review, a total of 121 cases of intussusception were managed of which 108 (89%) were children and 13 (11%) were adults.

The commonest symptoms (n, %) seen in children were vomiting (104, 96%), excessive crying (96, 89%), passage of red currant jelly stool (71, 66%), fever (48, 44%), passage of loose stool (17, 16%), refusal of feeds (6, 6%) and progressive abdominal distension (6, 6%). In adults, the presenting symptoms (n, %) were vomiting (11, 84%), constipation (10, 77%) and abdominal pain (9, 69%). The classical triad of colicky abdominal pain, rectal bleeding and palpable abdominal lump was seen in 66 children (61%). The average number of days before presentation was 3.5 ( $\pm$  1.7) days for children and 10.8 ( $\pm$  4.2) days for adults. The number and percentage of those with gangrenous intussusception was 2 and 1.9% for children and 2 and 15% for adults respectively. Patients with gangrenous intussusception presented 6.2 ( $\pm$  1.9) days following the first symptom.

Diagnosis was aided with abdominal ultrasound scan done with

most of the reports showing telescoping of bowel loops or a sausage shaped mass. 40% of children (43) required resection of the intussusception while resection was done in all adults (13). Operative reduction was done in children who did not require a resection. Distribution of the histology of resected specimen in children showed 38 (88%) were as a result of lymphoid hyperplasia and 5 (11%) as a result of Merkel's diverticulum. For adults, histologies in decreasing order of frequency were lymphoid hyperplasia (5), hamatomatous polyps (4) and fibrolipoma (4)

## 4. Discussion

In this review, adults accounted for 11% of all cases of intussusception. More than three-quarters of all cases of intussusception is seen in infants. The highest incidence has been described between the ages of 4 and 9 months [17]. It is rare in individuals younger than 3 months and older than 3 years [18].

The common symptoms noted in this and other studies are vomiting and abdominal pain (or excessive crying in children). The classic triad of intermittent abdominal pain, red currant jelly stool and a palpable mass usually seen in less than a fourth of children was seen in more than half of the children who presented to us [19-21]. Passage of red currant jelly stool, which is a late clinical feature, is as a result of prolonged ischaemia resulting in mucosal sloughing and compression of mucous glands<sup>1</sup>. Palpable abdominal masses and passage of red-currant jelly stool are rare features of intussusception in adults [21-24].

The mean duration of symptoms of 3.5 ( $\pm$  1.7) days for children and 10.8 ( $\pm$  4.2) days for adults is similar to figures gotten from other studies done in Africa [25]. Timely management is critical in preventing complications such as perforation and gangrene [26]. In this review, longer duration of symptoms was significantly associated with development of gangrene necessitating a resection. Longer duration of symptoms prior to presentation and undergoing bowel resection are associated with higher mortality rates in intussusception [27,28].

The vast majority of cases of intussusception in children do not have a lead point and are described as primary or idiopathic intussusception. The cause is generally attributed to lymphoid hyperplasia and this was represented in majority of the resected specimen in our children. Secondary (or non-idiopathic) intussusception have an identifiable lesion which serves as the lead point which triggers drawing the proximal bowel into the distal by peristaltic activity. The most common lead point in children is a Meckel diverticulum also represented in this study [29,30].

Malignant lead points increase in incidence with age [10]. Adult small bowel intussusception is usually associated with a benign lead point. However, ileocolic and colonic intussusception in adult population is reported as being frequently malignant [31]. For this reason, surgery for all cases of intussusception in adult has traditionally taught to be en bloc bowel resections. This is in contrast to what was noted in this study, as all adult patients had benign

lead points.

Less than 10% of the lead-points of intussusception in Nigerian adults from other studies were malignant [32].

The optimal treatment for intussusception in adults is not established, although a laparotomy is strongly recommended as it serves diagnostic and therapeutic purposes. Earlier studies discouraged reduction prior to resection because of high incidence of associated malignancy [33-35].

Operative reduction can be attempted carefully, as malignancy is a rarity in intussusception in Nigerian adults [36]. We recommend limited bowel resection after reduction as this removes the pathological lead-point and minimizes the risk of a recurrence of the intussusception. The fear of dissemination of malignancy during the process of reduction may be unfounded. Moreover, reduction preserves important length of bowel reducing the risk of short bowel syndrome. In cases of perforation, gangrene or difficulty in reduction, en bloc resection and anastomosis should be adopted.

## 5. Conclusion

While intussusception is a common cause of intestinal obstruction in children, it is relatively rare in adults. A high index of suspicion is required in adults because of the atypical presentation. Non-operative and operative options of treatment can be explored in children. However, surgical option is needed for adults due to atypical presentation resulting in late presentation and/or late diagnosis. Limited bowel resection after reduction is advised as this removes the pathological lead-point, minimizes the risk of a recurrence of the intussusception and complications including short bowel syndrome. In cases of perforation, gangrene or difficulty in reduction, en bloc resection and anastomosis should be adopted.

**Conflicts of Interest:** None

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**Ethical Approval:** Yes

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