



ISSN (P): 2617-7226

ISSN (E): 2617-7234

[www.patholjournal.com](http://www.patholjournal.com)

2020; 3(3): 94-98

Received: 05-02-2020

Accepted: 06-03-2020

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## Telescoping intestines intussusception in adults

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**DOI:** <https://doi.org/10.33545/pathol.2020.v3.i3b.265>

### Abstract

**Introduction:** Intussusception in adults is a rare entity. Being one of the most common causes of intestinal obstruction in children, it accounts for only 5% of all cases of intussusceptions and about 1%-5% of bowel obstruction in adults. A minority of cases are idiopathic, without a lead point lesion. Postoperative adhesions, meckel's diverticulum, inflammatory bowel disease, benign and malignant tumors, metastatic neoplasms or even iatrogenic presence of intestinal tubes, jejunostomy feeding tubes or after gastric surgery account for the various causes of secondary intussusception in 70%-90% of cases. Computerized tomography (CT) is often considered as one of the most useful, sensitive imaging modality in the diagnosis of intussusception.

**AIM:** To study and describe the different pathological causes, clinical features and management of intussusception in adults.

**Materials & methods:** A retrospective study was conducted to evaluate the various causes of intussusception. All patients above the age of 18yrs presenting with a clinical diagnosis of intussusception, between Jan 2008 and June 2015 were included in the study.

**Results:** There were 15 cases of adult intussusception. A male predominance was noted and the mean age was 41.7 years. Majority of the patients presented with abdominal pain, abdominal distension, nausea and vomiting. The commonest site of intussusception was the ileo-colic junction (46.7%, 7cases). There were four jejuno-jejunal cases (26.7%) and two ileo-ileal cases (13.3%). There were also two other cases of colonic intussusception, not involving the ileo-colic junction (13.3%). Among the pathological causes of intussusception, four cases were secondary to diffuse large B cell lymphoma (DLBCL), four due to submucosal lipomas, two cases secondary to peutz jegher polyps, one case of carcinoid involving the appendix, three cases due to inflammatory causes and one being idiopathic. All cases were treated surgically.

**Conclusion:** Malignant lesions account for majority of causes of adult intussusception involving the colon. Adult intussusception is a challenging condition for the surgeon and is very often a preoperative diagnostic problem when compared to that in children. Because of the high incidence of malignancy in colonic intussusceptions, a segmental bowel resection is generally undertaken.

**Keywords:** Intussusception, intestine, adults

### Introduction

Intussusception in adults is a rare entity. Being one of the most common causes of intestinal obstruction in children, it accounts for only 5% of all cases of intussusceptions and about 1%-5% of bowel obstruction in adults [1, 2]. A minority of cases are primary / idiopathic, accounting for 8-20%, without a lead point lesion [3, 4]. Postoperative adhesions, meckel's diverticulum, inflammatory bowel disease, benign and malignant tumors, metastatic neoplasms or even iatrogenic presence of intestinal tubes, jejunostomy feeding tubes or after gastric surgery account for the various causes of secondary intussusception in 70%-90% of cases [1, 2, 4, 5]. [Table 1]. Almost 90% of cases occur in the small or large bowel and the remaining 10% involve the stomach or surgically created stomas. Computerized tomography (CT) is often considered as one of the most useful, sensitive imaging modality in the diagnosis of intussusception [1, 6, 7].

### AIM

To study and describe the different pathological causes, clinical features and management of intussusception in adults.

### Materials & methods

A retrospective study was conducted to evaluate the various causes of intussusception. Clinical and histopathology details were retrieved using case files.

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All histopathology slides were reviewed and the data obtained was analyzed. All patients above the age of 18yrs presenting with a clinical diagnosis of intussusception, between Jan 2008 and June 2015 were included in the study. Pediatric patients were excluded.

**Results**

There were 15 cases of adult intussusception. A male predominance was noted in the present study and the mean age was 41.7 years. Majority of the patients presented with abdominal pain (88.6%), nausea (73.3%) and vomiting (66.6%). Other signs and symptoms include abdominal distension, abdominal mass, diarrhea, constipation, rectal bleed and fever [Table 2]. The commonest site of intussusception was the ileo-colic (I-C) junction (46.7%, 7cases). There were four cases (26.7%) involving the jejunum (jejuno-jejunal, J-J) and two cases involving the ileum (ileo-ileal, I-I cases, 13.3%). There were also two other cases of colonic intussusception, not involving the ileo-colic (I-C) junction (13.3%). [Table 3]

Among the pathological causes of intussusception, a pathological causes was identified in 11 cases, four cases were secondary to diffuse large B cell lymphoma (DLBCL), four due to submucosal lipomas, two cases secondary to peutz jegher (P-J) polyps, one case of carcinoid involving the appendix and four being idiopathic. All cases were treated surgically. [Table 4]

**Table 1:** Etiology of intussusception

|  |
|--|
| ▪ Postoperative adhesions  |
| ▪ Iatrogenic presence of intestinal tubes, jejunostomy feeding tubes / after gastric surgery |
| ▪ Metastatic neoplasms   |
| ▪ Benign / malignant tumors  |
| ▪ Inflammatory bowel disease   |
| ▪ Meckel’s diverticulum  |

**Table 2:** Signs and symptoms of intussusception

| Signs and symptoms   | Number (%) |
|----------------------|------------|
| Abdominal pain       | 13 (86.6%) |
| Vomiting             | 10 (66.6%) |
| Nausea               | 11 (73.3%) |
| Abdominal mass       | 3 (20%)    |
| Abdominal distension | 3 (20%)    |
| Constipation         | 1 (6.6%)   |
| Diarrhoea            | 1 (6.6%)   |
| Rectal bleed         | 1 (6.6%)   |
| Fever                | 1 (6.6%)   |

**Table 3:** Categorization based on site on involvement

| Site                 | No of Cases             | Percentage |
|----------------------|-------------------------|------------|
| Entero-enteric (E-C) | 4 (jejuno-jejunal, J-J) | 26.7       |
|                      | 2 (ileo-ileal; I-I)     | 13.3       |
| Ileo-colic (I-C)     | 7                       | 46.7       |
| Colo-colic (C-C)     | 2                       | 13.3       |

**Table 4:** Clinical, pathological and surgical details of patients with intussusception

| No | Age | Sex | Site | Pathology   | Sugery   |
|----|-----|-----|------|---|--|
| 1  | 32  | F   | I-C  | Non hodgkins lymphoma (NHL) DLBCL with chronic appendicitis               | Right hemicolectomy  |
| 2  | 55  | M   | I-I  | Ileal ulcer, adhesions, non-specific inflammation with Reactive lymphnode | Exploratory laparotomy (EL) with Bowel resection               |
| 3  | 60  | M   | C-C  | Multiple angioliopomas of colon   | EL, Subtotal colectomy with ileo-sigmoid anastomosis           |
| 4  | 25  | M   | J-J  | Peutz Jegher Polyp  | EL, jejunal resection & anastomosis                            |
| 5  | 36  | M   | I-C  | NHL-DLBCL   | Ileo-Colic segmental resection, Chemotherapy (RCHOP)           |
| 6  | 27  | M   | J-J  | Peutz Jegher Polyp  | Jejunal resection and anastomosis                              |
| 7  | 71  | M   | I-I  | Idiopathic (associated gangrenous changes)                                | EL, Right hemicolectomy with Ileal-Ascending colon anastomosis |
| 8  | 61  | F   | J-J  | Submucosal lipoma   | Intestinal resection with anastomosis                          |
| 9  | 33  | F   | I-C  | Gangrene, Carcinoid appendix  | Right hemicolectomy  |
| 10 | 33  | M   | J-J  | Idiopathic  | EL, Jejunal resection & anastomosis                            |
| 11 | 38  | M   | I-C  | Submucosal lipoma   | Right hemicolectomy  |
| 12 | 32  | M   | I-C  | Idiopathic  | Right hemicolectomy  |
| 13 | 35  | M   | I-C  | NHL- DLBCL  | Right hemicolectomy, RCHOP                                     |
| 14 | 53  | M   | I-C  | NHL- DLBCL, with tubular adenoma  | Right hemicolectomy  |
| 15 | 35  | F   | C-C  | Submucosal lipoma   | Left hemicolectomy   |

**Table 5:** Comparision of the present study with the study of Yakan S *et al.*

| Pathological causes                        | Present study (15cases) | Yakan S <i>et al.</i> (20 cases) |
|--|-------------------------|----------------------------------|
| Submucosal lipoma,                         | 4                       | 3                                |
| Hamartomatous polyp (Peutz Jeghers polyps) | 2                       | 3                                |
| Inflammatory fibroid polyp,                | -                       | 4                                |
| Intussuscepting Meckel diverticulum,       | -                       | 2                                |
| Fibrous polyp                              | -                       | 1                                |
| Congenital band adhesions                  | -                       | 1                                |
| Metastatic lung adenocarcinoma             | -                       | 1                                |
| NHL-DLBCL                                  | 4                       | 1                                |
| Adenocarcinoma                             | -                       | 2                                |
| Carcinoid-appendix                         | 1                       | -                                |
| Idiopathic                                 | 4                       | 2                                |

**Discussion**

Intussusception is defined as the telescoping of a proximal segment of the gastrointestinal (GI) tract, called intussusceptum, into the lumen of the adjacent distal segment of the GI tract, called intussusciptens [1, 4, 8]. In adults, the exact mechanism of bowel intussusception is unknown and is more likely to occur in the small intestine. On the other hand, secondary intussusception is believed to initiate from any pathologic lesion of the bowel wall or irritant within the lumen that alters normal peristaltic activity and serves as a lead point, which is able to initiate an invagination of one segment of the bowel into the other [2, 4, 5].

Based on their location, intussusceptions have been classified into four categories: (1) those confine to the small bowel (entero-enteric) (2) those, involving the large bowel only (colo-colic), (3) ileo-colic, that occurs as the prolapse of the terminal ileum within the ascending colon and (4) ileo-cecal, when the ileo-cecal valve acts as a lead point of the intussusception. While colo-colonic intussusception is predominately caused by malignancy (70% of cases), 70% of small intestine intussusceptions are caused by a benign pathology [1, 5, 7, 9].

Considering the pathological causes of intussusception in the present study, four cases were secondary to diffuse large B cell lymphoma (DLBCL), however Yakan S *et al.* [1] has reported one case of DLBCL. The most common site of primary extranodal non-Hodgkin’s lymphoma (NHL) is the GI tract. The most common type of lymphoma causing intussusception is diffuse B-cell NHL [2]. A pediatric case of large B-cell lymphoma causing an ileo-colic intussusception has also been reported [5, 6]. A few reported cases of Burkits lymphoma-related intussusception also have been challenging to diagnose [7].

Lipoma of the large intestine is rare accounting for 0.2%–4.4%. While many of them are asymptomatic; a few rarely present with intussusception. Patients with multiple submucosal lipomas can present with repeated intussusceptions [8, 9]. In the present study, 2 cases of submucosal lipomas involved the colon, one involved the jejunum and one at the I-C region. One case was of multiple angilipomas.

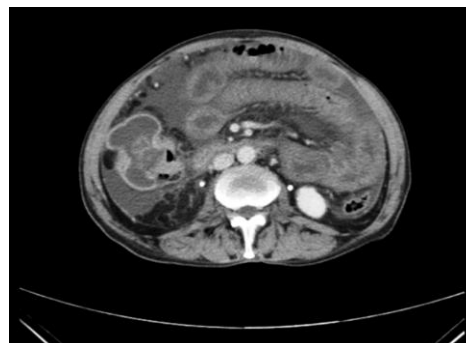
Intussusception as a clinical presentation in Peutz Jegher Polyps (PJP) has been observed in 47% to 69% of adult patients, with majority of them involving the small intestine either the ileum or jejunum. Colo-colonic intussusception is reported in only a few cases [10, 11]. In the present study, 2 cases of PJP were identified as the causes of obstruction in the jejunum.

Appendiceal carcinoids can also very cause intussusception [12]. In the present study carcinoid of the appendix was identified as a cause of intussusception involving the ileo caecal junction.

Preoperatively several imaging modalities are helpful to accurately identify the causative lesion. The first diagnostic tool being the plain abdominal X-rays. However CT has become the first imaging method performed which usually has a “target mass” with enveloped, eccentrically located areas of low density. In many chronic cases, contrast imaging studies help to identify the site and cause of the intussusception. A “cup-shaped” filling defect is a characteristic finding on barium enema examination which is useful in patients with colonic or ileocolic intussusception

[1, 2, 5].

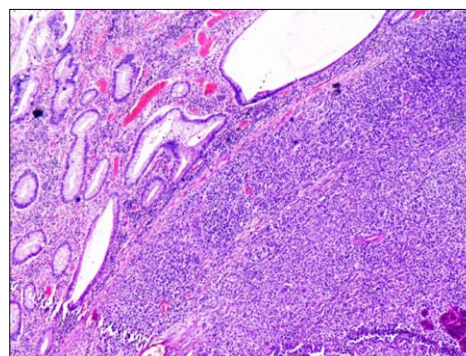
Majority of cases require resection of the involved bowel segment. In small-bowel intussusception where malignancy is not suspected, reduction may be the option if the segment involved is viable. As a high incidence of malignancy in known in colonic intussusceptions, a segmental bowel resection is generally considered [4, 5, 6, 12].



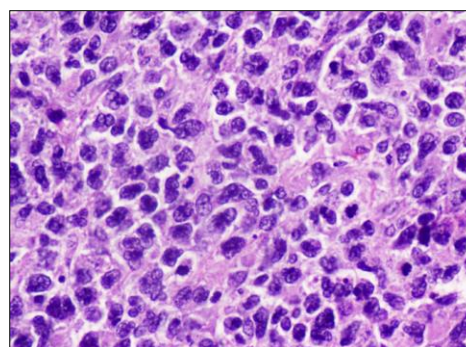
**Fig 1:** Computerised tomography (CT) showing the “Target sign” in a case of DLBCL involving the intestine



**Fig 2:** Gross photograph of DLBCL involving the intestine



**Fig 3:** Diffuse large B cell lymphoma involving the intestine [H&E x40]



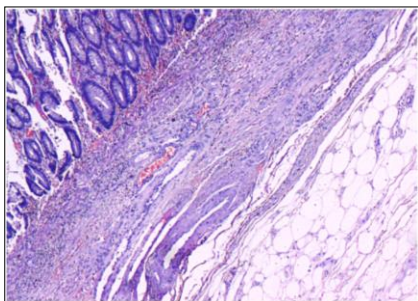
**Fig 4:** Diffuse large B cell lymphoma involving the intestine [H&E x400]



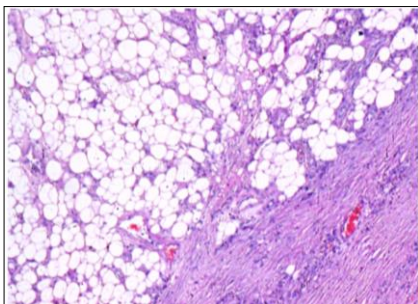
**Fig 5:** CT image showing target sign in a case of submucosal lipoma causing intussusception



**Fig 6:** Gross photograph showing a submucosal lipoma of the intestine as a cause of intussusception



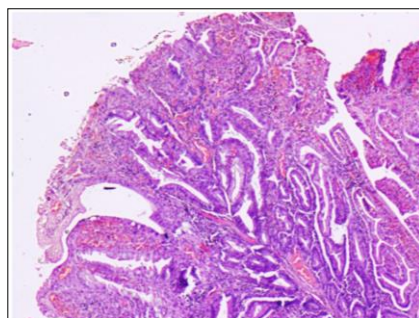
**Fig 7:** Microscopy showing submucosal lipoma [H&E x40]



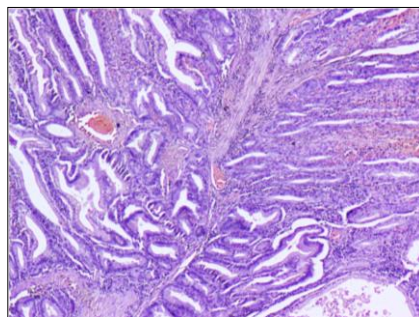
**Fig 8:** Proliferation of adipose tissue in a submucosal lipoma [H&E x400]



**Fig 9:** Gross photograph of Peutz Jegher Polyps (PJP) as a cause of intussusception



**Fig 10:** Microscopy of Peutz Jegher Polyps (PJP) [H&E x40]



**Fig 11:** Microscopy showing intersection smooth muscle fibers in Peutz Jegher Polyps. [H&E x400]

**Conclusion**

Malignant lesions account for majority of causes of adult intussusception involving the colon. Adult intussusception is a challenging condition for the surgeon and is very often a preoperative diagnostic problem when compared to that in children. In addition to clinical features, CT is the most useful, sensitive imaging modality in the diagnosis of intussusception. A sound knowledge of the various causes of intussusception, the presenting signs and symptoms, complimented with CT could help in early diagnosis and management in all cases of intussusception.

**Acknowledgement**

We wish to thank all the technical faculty at the department of pathology, Kasturba medical college, Manipal.university

**References**

1. Yakan S, Caliskan C, Makay O, Denecli AG, Korkut MA. Intussusception in adults: clinical characteristics, diagnosis and operative strategies. *World J Gastroenterol.* 2009; 15(16):1985-1989.
2. Xu XQ, Hong T, Li BL, Liu W. Ileo-ileal intussusception caused by diffuse large B-cell lymphoma of the ileum. *World J Gastroenterol.* 2013; 19(45):8449-8452.
3. Azar T, Berger DL. Adult intussusception. *Ann Surg.* 1997; 226:134-138.
4. Akbulut S. Unusual cause of adult intussusception: diffuse large B-cell non-Hodgkin’s lymphoma: a case report and review. *Eur Rev Med Pharmacol Sci.* 2012; 16:1938-1946.
5. D’Angelo G, Marseglia L, Manti M *et al.* An unusual and malignant intussusception in a child. *Ital J Pediatr.* 2016; 42:72.
6. Yagmur Y, Gumus S. Burkitt’s Lymphoma Causing Intussusception in Adults: Report of two Cases and Review of the Literature. *Journal of Gastroenterology*

- and Hepatology Research. 2015; 4(7):1702-1689.
7. Kulendran K, Choy KT, Keogh C, Ratnapala D. An Exceptional Case of Ileocolic Intussusception Secondary to Burkitt's Lymphoma: What Variations Are There in the Presentation and management of Those Patients Who Approach Adolescence? Case Rep Surg. 2018; 2018:6251321.
  8. Yadav P, Tanveer N. Giant submucosal lipoma of colon causing intussusception in an adult. Clin Cancer Investig J. 2020; 9:25-6.
  9. Ahmed M, Habis S, Saeed R, Mahmoud A, Plurad D. Submucosal Lipomas Causing Intussusception and Small Bowel Obstruction: A Case Report. Cureus. 2018; 10(12):e3692.
  10. Ozer A, Sarkut P, Ozturk E, Yilmazlar T. Jejunoduodenal intussusception caused by a solitary polyp in a woman with Peutz-Jeghers syndrome: a case report. J Med Case Rep. 2014; 8:13.
  11. Thakker HH, Joshi A, Deshpande A. Peutz-Jegher's syndrome presenting as jejunoileal intussusception in an adult male: a case report. Cases J. 2009; 2:8865-8868.
  12. Skaane P, Eide TJ. Malignant appendiceal carcinoid with intussusception of the base manifesting as a cecal tumor: Report of a case. Dis Colon Rectum. 1977; 20:511-514.