



Case Report

Mucinous Adenocarcinoma of Colon in Young Patient - A Rare Cause of Late Onset Intussusception- A Case Report

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ABSTRACT

Adult intussusception is uncommon and usually has an identifiable pathological lead point, particularly when the colon is involved. We report a case of a 30-year-old male who presented with intermittent right lower abdominal pain for three months, followed by acute worsening with vomiting, abdominal distension, and non-passage of stool and flatus. Examination revealed a mobile, sausage-shaped mass in the right abdomen. Ultrasonography showed a target-like lesion, while contrast-enhanced computed tomography confirmed ileocolic intussusception with a caecal mass near the ileocecal valve acting as the lead point. Emergency exploratory laparotomy demonstrated ileocolic intussusception with a firm caecal growth. An en bloc right hemicolectomy with regional lymphadenectomy and ileotransverse anastomosis was performed without forceful reduction. Gross examination showed an ulceroproliferative, gelatinous caecal tumour. Histopathology revealed moderately differentiated mucinous adenocarcinoma with extracellular mucin involving more than 50% of the tumour, invasion into pericolic adipose tissue, lymphovascular invasion, and metastasis in two of eighteen regional lymph nodes. Resection margins were free of tumour, and the final stage was pT3N1bM0, stage IIIB. This case highlights that ileocolic intussusception in a young adult should raise suspicion of an underlying colonic malignancy. Early imaging, oncological resection, complete histopathological staging, adjuvant treatment, and hereditary cancer evaluation are essential for appropriate management.

Keywords: Adult intussusception, Ileocolic intussusception, Mucinous adenocarcinoma, Caecal carcinoma, Colorectal malignancy.

INTRODUCTION

Colorectal cancer is a malignant growth arising from the inner lining of the colon or rectum. Most colorectal cancers are adenocarcinomas, which develop from mucus-producing glandular cells. The disease is a global health problem worldwide, with a rise in cases, deaths, and disability reported across many regions during the last three decades.[1] Although colorectal cancer is more common in older adults, its occurrence among people younger than 50 years is increasingly recognised. This form is called early-onset colorectal cancer. Young patients are not usually included in routine screening programmes and may therefore be diagnosed after symptoms become persistent, severe, or complicated by intestinal obstruction.[2] The burden of colorectal cancer in India is increasing, although incidence varies between regions and populations. Changes in diet, obesity, physical inactivity, tobacco use, alcohol exposure, genetic susceptibility, and improved detection may contribute to this pattern. Awareness is important when young adults present with unexplained gastrointestinal symptoms.[3]

Early-onset colorectal cancer may differ from later-onset disease in its pathological behaviour. Younger patients are more likely to have advanced disease at diagnosis and may show aggressive features such as poor differentiation, mucinous

change, or signet-ring-cell components. These features can affect the pattern of spread, treatment response, and overall outcome.[4] Mucinous adenocarcinoma is a histological subtype of colorectal adenocarcinoma. It is defined by abundant extracellular mucin forming at least half of the tumour volume, with malignant glandular cells lying within pools of mucus. This subtype is associated with right-sided tumours, advanced presentation, and molecular characteristics different from conventional adenocarcinoma.[5] Symptoms of early-onset colorectal cancer are nonspecific and may be mistaken for benign gastrointestinal conditions. Warning features include abdominal pain, rectal bleeding, altered bowel habits, diarrhoea, constipation, unexplained weight loss, fatigue, and iron-deficiency anaemia. Delayed recognition can allow the tumour to enlarge and produce an acute surgical complication.[6] Intussusception is the telescoping of one segment of intestine into the adjoining distal segment. The entering bowel carries its mesentery and blood vessels, causing venous congestion, swelling, obstruction, and, in severe cases, reduced arterial supply, ischaemia, necrosis, or perforation. It is common in children but uncommon after childhood.[7]

Unlike childhood intussusception, which is often idiopathic, late-onset or adult intussusception usually has an identifiable structural lead point. Polyps, lipomas, inflammatory lesions, diverticula, and malignant tumours can act as this lead point. When the colon is involved, an underlying carcinoma is a possibility that must be excluded.[8] A colonic adenocarcinoma can trigger intussusception when the tumour projects into the bowel lumen and is pulled forward by normal peristaltic movements. The tumour-bearing segment slides into the adjacent bowel. Depending on the involved segments, the condition may be described as ileocolic, ileocecal, colocolic, or colorectal intussusception.[9] Patients may present with intermittent cramping pain, vomiting, abdominal distension, constipation, inability to pass flatus, rectal bleeding, or a palpable abdominal mass. The classical childhood triad of pain, bloody stool, and a mass is absent in adults. Repeated episodes may occur before complete obstruction develops, making diagnosis difficult.[10] Contrast-enhanced computed tomography is the most useful imaging investigation because it can demonstrate a bowel-within-bowel or target appearance, identify the involved segments, show obstruction or compromised blood supply, and sometimes reveal the underlying mass. Colonoscopy and biopsy may help in stable patients, but emergency surgery may be required when ischaemia is suspected.[11] Treatment of tumour-related colonic intussusception requires oncological resection of the affected bowel with its regional lymph nodes. Forceful reduction before resection is often avoided when malignancy is suspected because of possible perforation or tumour dissemination. Histopathology confirms mucinous differentiation, tumour grade, resection margins, lymph-node involvement, and final stage.[12]

CASE PRESENTATION

A 30-year-old male presented to the Department of General Surgery with intermittent abdominal pain for three months, which had become severe and continuous for the preceding three days. The pain was colicky in nature, predominantly located in the right lower abdomen, and was associated with repeated episodes of non-bilious vomiting, progressive abdominal distension, and inability to pass stool and flatus for two days. He also reported reduced appetite and an unintentional weight loss of approximately 5 kg over the previous three months. There was no history of fever, jaundice, haematemesis, melaena, or previous abdominal surgery. He had no known history of inflammatory bowel disease or any chronic medical illness. There was no known family history of colorectal cancer, polyposis syndrome, or other gastrointestinal malignancy.

On admission, the patient was conscious, oriented, and moderately dehydrated. His pulse rate was 104 beats/minute, blood pressure was 110/70 mmHg, respiratory rate was 20 breaths/minute, temperature was 37.2°C, and oxygen saturation was 98% on room air. Mild pallor was present. There was no icterus, cyanosis, clubbing, lymphadenopathy, or pedal oedema. Abdominal examination revealed mild distension with visible fullness in the right iliac and right lumbar regions. Tenderness was present over the right lower quadrant without guarding, rigidity, or rebound tenderness. A firm, mildly tender, mobile, sausage-shaped mass measuring approximately 8 cm × 5 cm was palpable in the right lumbar region. Bowel sounds were increased and high-pitched. Digital rectal examination revealed an empty rectum, with no blood or mucus on the examining finger.

Laboratory investigations showed haemoglobin of 10.2 g/dL, total leucocyte count of 13,600 cells/mm³, platelet count of 3.8 × 10⁵/mm³, serum creatinine of 1.1 mg/dL, blood urea nitrogen of 24 mg/dL, serum sodium of 134 mmol/L, and serum potassium of 3.4 mmol/L. Liver-function tests were within normal limits. Serum albumin was 3.2 g/dL. Serum carcinoembryonic antigen was mildly elevated at 7.8 ng/mL. Peripheral smear showed microcytic hypochromic anaemia. Abdominal ultrasonography demonstrated a concentric target-like lesion in the right lower abdomen, suggestive of intussusception. Contrast-enhanced computed tomography of the abdomen and pelvis showed telescoping of the terminal ileum and ileocecal junction into the ascending colon, producing an ileocolic intussusception. The intussuscepted segment measured approximately 11 cm in length. An irregular heterogeneously enhancing mass measuring 5.8 cm × 4.9 cm was noted in the caecum near the ileocecal valve and appeared to act as the lead point. Multiple enlarged regional lymph nodes were present along the ileocolic and right colic vessels, the largest measuring 1.4 cm. Proximal small-bowel loops were dilated, with multiple air-fluid levels. There was no radiological evidence of bowel perforation, liver metastasis, peritoneal deposits, or ascites.

A provisional diagnosis of acute intestinal obstruction due to ileocolic intussusception secondary to a caecal neoplasm was made. The patient was kept nil per oral and was resuscitated with intravenous fluids. Nasogastric decompression was performed, electrolyte abnormalities were corrected, and intravenous antibiotics, analgesics, and antiemetics were administered. After adequate resuscitation, the patient was taken up for emergency exploratory laparotomy.

Intraoperatively, the terminal ileum, ileocecal junction, caecum, and proximal ascending colon were found telescoping into the distal ascending colon, confirming ileocolic intussusception. The intussuscepted bowel was congested but viable. A firm mass was palpable in the caecum and was considered the pathological lead point. Multiple enlarged regional lymph nodes were present along the ileocolic mesentery. There was no gross evidence of liver metastasis, peritoneal deposits, ascites, or direct invasion of adjacent organs.

Considering the high possibility of an underlying malignant colonic lesion, forceful reduction of the intussusception was avoided. An en bloc oncological right hemicolectomy was performed, including resection of approximately 15 cm of terminal ileum, the caecum, ascending colon, proximal transverse colon, and corresponding mesocolon with regional lymphadenectomy. Bowel continuity was restored by a side-to-side stapled ileotransverse anastomosis. The resected specimen was sent for histopathological examination.

Gross examination of the specimen revealed an ulceroproliferative growth measuring 6.0 cm × 5.0 cm × 3.2 cm in the caecum, extending close to the ileocecal valve. The tumour caused marked narrowing of the bowel lumen and acted as the lead point for intussusception. The cut surface was grey-white and gelatinous, with abundant mucinous material. The tumour extended through the muscularis propria into the pericolic adipose tissue but did not involve the serosal surface. The proximal, distal, and radial resection margins appeared free of tumour. Eighteen regional lymph nodes were identified. Microscopic examination showed malignant gland-forming epithelial cells arranged in irregular clusters and cribriform structures within large pools of extracellular mucin. Extracellular mucin constituted more than 50% of the tumour area, confirming mucinous adenocarcinoma. The tumour was moderately differentiated and invaded through the muscularis propria into the pericolic adipose tissue. Lymphovascular invasion was present, while perineural invasion was absent. Two of the eighteen regional lymph nodes showed metastatic tumour deposits. The proximal, distal, and circumferential resection margins were free of tumour. No tumour perforation was identified.

The final histopathological diagnosis was moderately differentiated mucinous adenocarcinoma of the caecum, measuring 6.0 cm in maximum dimension, with invasion into the pericolic adipose tissue and metastasis to two regional lymph nodes. The pathological stage was pT3N1bM0, corresponding to stage IIIB carcinoma of the colon.

Immunohistochemistry for mismatch-repair proteins showed retained nuclear expression of MLH1, PMS2, MSH2, and MSH6, indicating mismatch-repair-proficient tumour status. In view of the young age at presentation, the patient was advised genetic counselling and germline multigene testing despite the absence of a significant family history.

The postoperative period was uneventful. Bowel sounds returned on the third postoperative day, oral liquids were started on the fourth day, and a soft diet was gradually introduced. The abdominal drain was removed on the fifth postoperative day. The patient was discharged on the eighth postoperative day in a stable condition.

Following multidisciplinary tumour-board discussion, adjuvant chemotherapy was advised because of stage III disease. The patient was started on a CAPOX regimen consisting of capecitabine and oxaliplatin. At the six-month follow-up, he remained clinically well, had regained weight, and had no evidence of local recurrence or distant metastasis on clinical examination and follow-up imaging.

Final Diagnosis

Ileocolic intussusception caused by moderately differentiated mucinous adenocarcinoma of the caecum in a 30-year-old male, pathological stage pT3N1bM0, stage IIIB.

MATERIALS AND METHODS

This descriptive case report was prepared from the clinical records of a 30-year-old male who presented with features of intestinal obstruction and was clinically and radiologically diagnosed with ileocolic intussusception. Relevant demographic details, clinical history, physical examination findings, laboratory investigations, ultrasonography, contrast-enhanced computed tomography findings, operative observations, treatment, and postoperative outcome were recorded. The resected bowel specimen was examined grossly and microscopically using routine haematoxylin and eosin staining. The final diagnosis of mucinous adenocarcinoma of the colon was established by the presence of malignant glandular cells within extracellular mucin constituting more than 50% of the tumour. Tumour invasion, resection margins, lymphovascular and perineural invasion, and regional lymph-node involvement were assessed for pathological staging. Written informed consent was obtained from the patient for treatment and publication of anonymised clinical information.

RESULTS

The patient presented with intermittent right lower abdominal pain for three months, with acute worsening for three days. The pain was associated with repeated non-bilious vomiting, abdominal distension, and non-passage of stool and flatus for two days. Examination revealed moderate dehydration, mild pallor, right lower-quadrant tenderness, and a firm, mobile, sausage-shaped mass in the right lumbar region. Increased high-pitched bowel sounds were present, suggesting intestinal obstruction.

Table 1. Important clinical and laboratory findings

Parameter	Finding
Abdominal pain	Intermittent for 3 months; severe and continuous for 3 days
Associated symptoms	Non-bilious vomiting, abdominal distension, and non-passage of stool and flatus
Weight loss	Approximately 5 kg over 3 months
Abdominal mass	Firm, mobile, mildly tender, sausage-shaped mass measuring approximately 8 × 5 cm
Bowel sounds	Increased and high-pitched
Haemoglobin	10.2 g/dL
Total leucocyte count	13,600 cells/mm ³
Serum albumin	3.2 g/dL
Serum carcinoembryonic antigen	7.8 ng/mL
Provisional diagnosis	Intestinal obstruction due to ileocolic intussusception

Ultrasonography showed a target-like lesion in the right lower abdomen. Contrast-enhanced computed tomography demonstrated telescoping of the terminal ileum and ileocecal junction into the ascending colon, confirming ileocolic intussusception. An irregular caecal mass near the ileocecal valve was identified as the lead point. Multiple enlarged regional lymph nodes and proximal small-bowel dilatation were present. No liver metastasis, peritoneal deposits, ascites, or bowel perforation was detected.

Emergency exploratory laparotomy confirmed ileocolic intussusception with a firm caecal growth acting as the lead point. The intussuscepted bowel was congested but viable. An en bloc right hemicolectomy with regional lymphadenectomy and ileotransverse anastomosis was performed without forceful reduction.

Table 2. Radiological and operative findings

Parameter	Finding
Ultrasonography	Target-like lesion in the right lower abdomen
CT diagnosis	Ileocolic intussusception
Intussuscepted segment	Terminal ileum and ileocecal junction extending into the ascending colon
Length of intussusception	Approximately 11 cm
Lead-point lesion	Irregular caecal mass near the ileocecal valve
Tumour size on CT	5.8 × 4.9 cm
Regional lymph nodes	Enlarged; largest measuring approximately 1.4 cm
Proximal bowel	Dilated with multiple air-fluid levels
Distant metastasis	Not detected
Intraoperative finding	Ileocolic intussusception with a firm caecal growth
Bowel viability	Congested but viable
Surgical procedure	En bloc right hemicolectomy with regional lymphadenectomy
Reconstruction	Side-to-side ileotransverse anastomosis

Gross examination of the resected specimen revealed an ulceroproliferative growth in the caecum near the ileocecal valve. The tumour measured 6.0 × 5.0 × 3.2 cm and showed a grey-white, gelatinous cut surface with abundant mucin.

Microscopic examination showed malignant gland-forming epithelial cells arranged within large pools of extracellular mucin. Extracellular mucin involved more than 50% of the tumour area, confirming mucinous adenocarcinoma. The tumour was moderately differentiated and invaded through the muscularis propria into the pericolic adipose tissue. Lymphovascular invasion was present, while perineural invasion was absent. Two of the eighteen regional lymph nodes showed metastatic tumour deposits. All resection margins were free of tumour.

Table 3. Histopathological findings

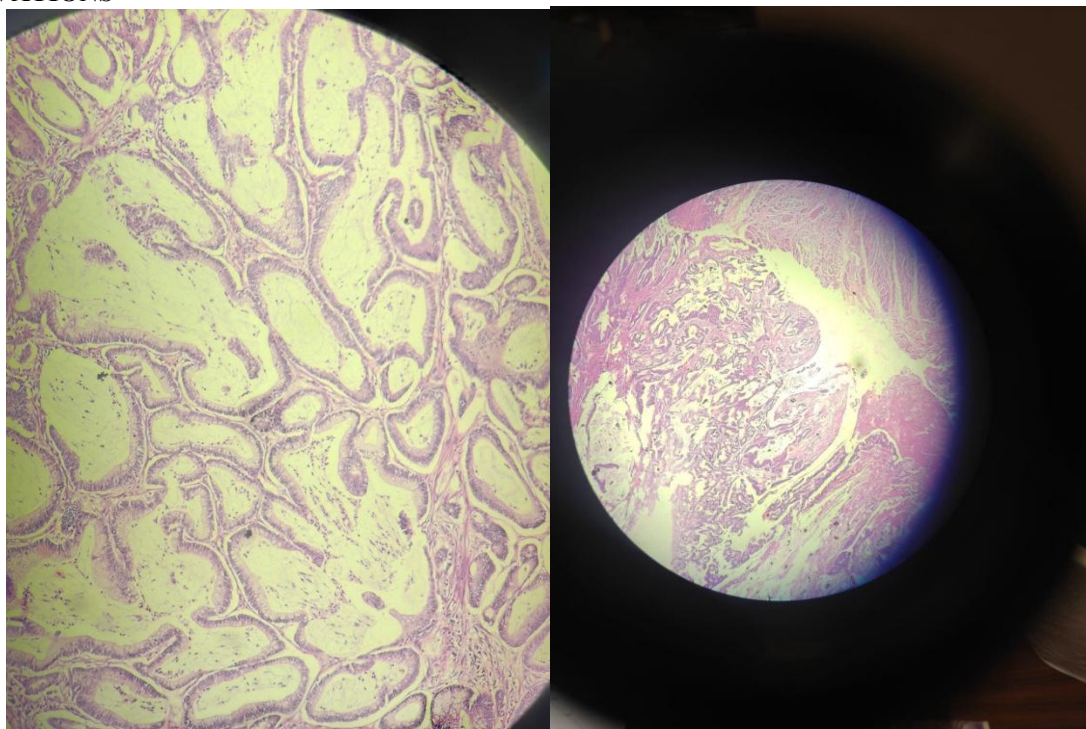
Histopathological parameter	Finding
Tumour site	Caecum near the ileocecal valve

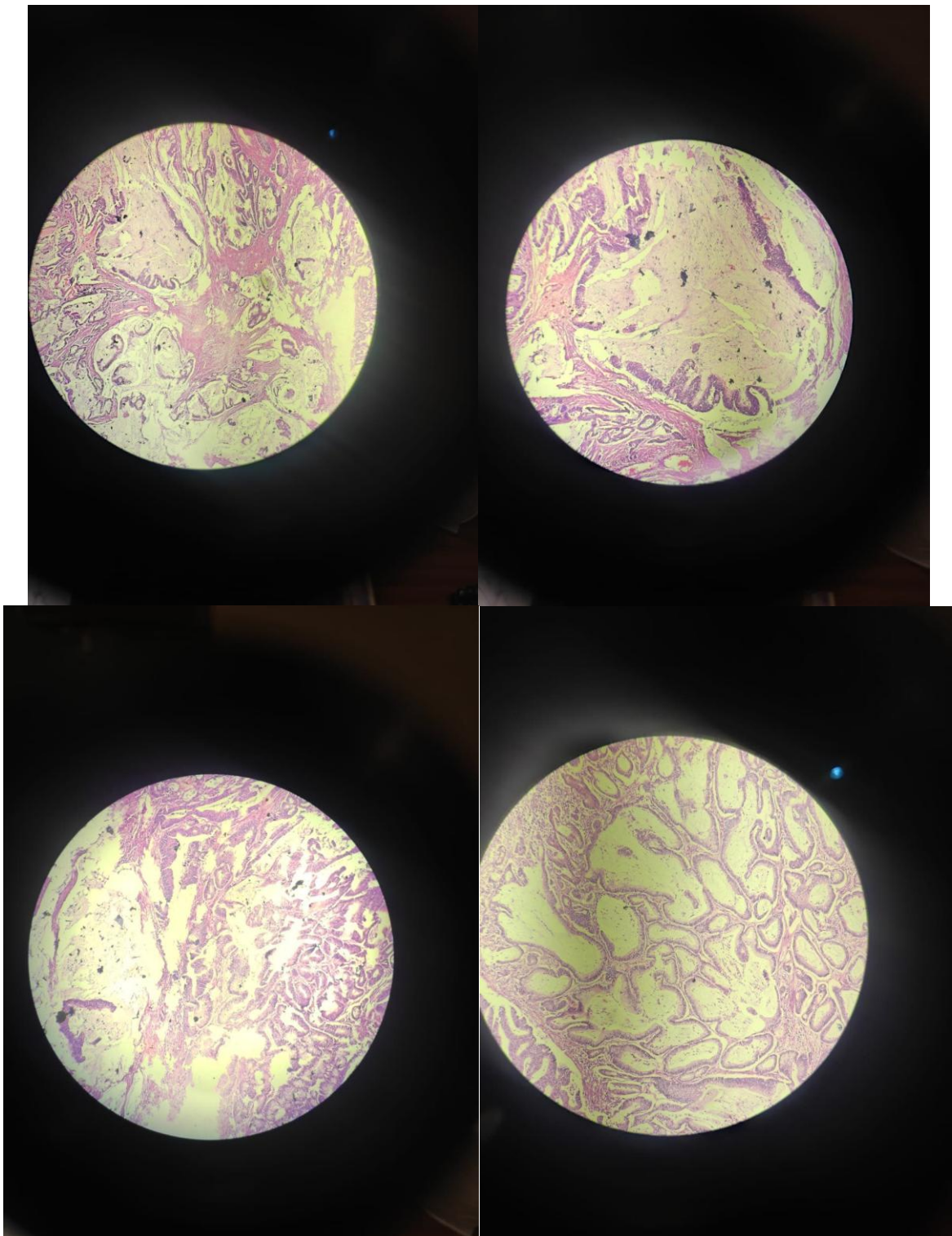
Gross appearance	Ulceroproliferative growth with gelatinous cut surface
Gross tumour size	6.0 × 5.0 × 3.2 cm
Histological diagnosis	Mucinous adenocarcinoma
Extracellular mucin	More than 50% of tumour area
Tumour differentiation	Moderately differentiated
Depth of invasion	Through muscularis propria into pericolic adipose tissue
Lymphovascular invasion	Present
Perineural invasion	Absent
Regional lymph nodes examined	18
Regional lymph nodes involved	2
Resection margins	Free of tumour
Pathological stage	pT3N1bM0
Overall stage	Stage IIIB

Table 4. Clinicoradiological–histopathological correlation

Finding	Correlation
Colicky abdominal pain, vomiting, distension, and obstipation	Indicated intestinal obstruction
Mobile sausage-shaped abdominal mass	Clinically supported intussusception
Target sign on ultrasonography	Suggested bowel telescoping
Ileocolic intussusception on CT	Confirmed the anatomical diagnosis
Caecal mass near the ileocecal valve	Identified the pathological lead point
Firm caecal growth during surgery	Confirmed the tumour as the cause of intussusception
Gelatinous tumour cut surface	Suggested abundant mucin production
Extracellular mucin involving more than 50% of the tumour	Confirmed mucinous adenocarcinoma
Invasion into pericolic adipose tissue	Established pT3 category
Two positive regional lymph nodes	Established pN1b category
Absence of distant metastasis	Supported M0 status
Final interpretation	Mucinous adenocarcinoma of the caecum acting as the lead point for ileocolic intussusception

OBSERVATIONS





DISCUSSION

Adult intussusception is uncommon and, unlike childhood intussusception, usually has an identifiable pathological lead point. The present case involved a 30-year-old male with mucinous adenocarcinoma of the caecum presenting as ileocolic intussusception. He had intermittent right lower abdominal pain for three months, followed by acute intestinal obstruction manifested by severe pain, vomiting, abdominal distension, and obstipation. Heersche et al. (2025) reported that adult intussusception frequently results from an underlying structural lesion and that malignancy is particularly important when the colon is involved.[7]

The young age of the patient is clinically significant because colorectal carcinoma is traditionally associated with older adults. The presence of weight loss, pallor, anaemia, prolonged abdominal pain, and acute obstruction suggested an underlying malignant process despite his age. Lawler et al. (2024) observed that early-onset colorectal cancers may

demonstrate aggressive pathological characteristics, including mucinous and signet-ring-cell differentiation.[4] Ultrasonography demonstrated a target-like lesion, while contrast-enhanced computed tomography confirmed an 11-cm ileocolic intussusception and identified a 5.8 × 4.9-cm caecal mass near the ileocecal valve as the lead point. Khurshed et al. (2025) similarly described a young adult with ileocolic intussusception caused by a caecal or ascending colonic malignancy, supporting the importance of CT in identifying both the intussusception and its underlying cause.[8]

Johari et al. (2025) also reported ileocolic intussusception caused by mucinous adenocarcinoma in a middle-aged man.[10] In both that report and the present case, the malignant colonic mass acted as a mechanical lead point and required definitive surgical resection. Javed et al. (2023) described caecal adenocarcinoma presenting as intussusception in a young adult, showing that caecal tumours may produce acute obstruction even in patients considerably younger than the usual colorectal cancer population.[11]

Long et al. (2024) reported appendiceal intussusception associated with caecal adenocarcinoma in a patient with abdominal colic.[13] Although their case involved inversion of the appendix rather than telescoping of the terminal ileum, both cases demonstrate that malignant lesions around the caecum and ileocecal region can produce unusual forms of intussusception. Thibodeau et al. (2021) described a 15-year-old male with intermittent severe right-sided abdominal pain, constipation, and inability to pass flatus due to a colonic mass associated with intussusception.[14] Histopathology showed poorly differentiated signet-ring-cell adenocarcinoma, whereas the present case showed moderately differentiated mucinous adenocarcinoma. Both cases demonstrate that aggressive colorectal malignancies should be considered in young patients presenting with recurrent abdominal pain and intestinal obstruction.

Khokhar et al. (2025) reported intussusception as the presenting manifestation of colorectal carcinoma associated with Lynch syndrome in a young adult.[15] This comparison is relevant because the present patient developed colorectal cancer at only 30 years of age. Even without a known family history, mismatch-repair testing, genetic counselling, and germline evaluation should be considered in such patients.

Mremi and Yahaya (2020) described a 14-year-old male with recurrent abdominal pain and advanced mucinous adenocarcinoma of the transverse colon.[16] Their tumour was advanced and inoperable, whereas the present tumour was completely resected with negative margins and no distant metastasis. However, two of eighteen lymph nodes were positive, resulting in pT3N1bM0, stage IIIB disease.

In the present case, en bloc right hemicolectomy was performed without forceful reduction because malignancy was suspected. Histopathology confirmed extracellular mucin in more than 50% of the tumour, invasion into pericolic fat, lymphovascular invasion, and regional nodal metastasis. The case highlights that ileocolic intussusception in a young adult should prompt careful evaluation for a malignant lead point, followed by oncological resection, complete pathological staging, adjuvant treatment, and hereditary cancer assessment.

CONCLUSION

Ileocolic intussusception in adults is rare and should prompt careful evaluation for an underlying structural or malignant lead point. This case demonstrates that mucinous adenocarcinoma of the caecum can present with intermittent abdominal symptoms followed by acute intestinal obstruction, even in a young adult. Contrast-enhanced computed tomography was essential for identifying both the intussusception and the caecal mass. En bloc right hemicolectomy provided definitive treatment and allowed complete pathological staging. Histopathology confirmed stage IIIB mucinous adenocarcinoma. Early recognition, oncological resection, adjuvant therapy, and evaluation for hereditary colorectal cancer are essential for improving outcomes in similar young patients.

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