***Case report***

**Laparoscopic Management of Giant Submucosal Caecal Lipoma Presenting with colocolic Intussusception- A rare case report**

**Abstract**

Intussusception occurs when a proximal segment of the gastrointestinal tract telescopes into the lumen of an adjacent distal segment. It is rare in adults, particularly when it involves the colon—referred to as colocolic intussusception. In adults, it is often associated with a pathological lead point, such as a tumour, and can result in bowel obstruction.

Clinical presentation in adults may include abdominal pain, vomiting, rectal bleeding, or other signs of intestinal obstruction. Although abdominal CT scanning can aid in diagnosis, many cases are only confirmed during surgery. Colocolic intussusception remains an uncommon cause of intestinal obstruction in the adult population. A case of a 23-year-old female diagnosed with colocolic intussusception due to a giant submucosal lipoma in the cecum was reported, which served as the lead point.

Diagnosis was made preoperatively using CT imaging. She underwent a laparoscopic right hemicolectomy with side-to-side ileocolic anastomosis and had an uneventful postoperative recovery. The most sensitive imaging modality for diagnosing intussusception, with sensitivity ranging from 71% to 87% and specificity approaching 100%.

Laparoscopic resection has become the gold standard for the removal of symptomatic colonic lipomas greater than 2–3 cm in diameter, offering the benefits of reduced postoperative pain, shorter hospital stays, and faster recovery compared to open surgery.

**Key words**

Adult colocolic intussusceptions, giant submucosal lipoma, intestinal obstruction, laparoscopic hemicolectomy

**Introduction**

Intussusception is commonly seen in children under two years of age but is rare in adults, accounting for only about 5% of all cases. In adults, it comprises just 1–5% of all intestinal obstructions and is typically associated with a pathological lead point, such as a colonic malignancy or a benign submucosal lipoma. In contrast to pediatric cases—where approximately 90% are idiopathic—a specific lead point is identified in 70–90% of adult cases. [1,2,3]

Colonic lipomas are rare, benign, non-epithelial tumours that originate from adipose tissue. They are the second most common benign tumours of the colon after adenomas. These tumours are most frequently found in the cecum and ascending colon and have a higher incidence in women than in men. The tumour mucosa may have congestion and oedema, focal erosion, or even ulceration, leading to bloody stool. The clinical manifestations of this disease lack specificity, and some physicians lack understanding and experience, making it prone to misdiagnosis (Gao et al., 2023). Their size can range from as small as 2 mm to as large as 30 cm, with lipomas larger than 5 cm referred to as giant lipomas. Around 90% of colonic lipomas are submucosal, while the remaining 10% are subserosal. [4,5,6]

When colonic lipomas cause colocolic intussusception, the most commonly affected locations are the transverse colon (28%), sigmoid colon (20%), cecum (19%), ascending colon (15%), descending colon (14%), and rectum (4%) [1,2,3]. They are frequently confused with colon malignancies due to the symptoms they cause, their location, and structural features. Differential diagnosis of malignant tumors with preoperative imaging methods is very important in determining the treatment option in these patients (Kafadar et al., 2021; Fiordaliso et al., 2024).

The abdominal CT scan is the imaging modality of choice for diagnosing intussusception, often revealing the characteristic “target sign” or a soft tissue mass with concentric layers. Colonoscopy can aid in direct visualisation and typically shows a smooth, rounded, yellowish polypoid lesion. Ultrasonography may also demonstrate the classic “target sign,” further supporting the diagnosis. [4,5,6]

**Case Report**

A 23-year-old female was admitted to our centre on 28/05/2025, presenting with abdominal pain, vomiting, and the passage of red currant jelly-like stools per rectum. On physical examination, a tender lump was palpable in the right upper quadrant of the abdomen.

A contrast-enhanced CT scan of the abdomen revealed a colocolic intussusception extending up to the proximal transverse colon. A lobulated fat-density lesion, measuring 6.5 × 3.4 × 4.6 cm, was identified as the lead point. Associated findings included edematous wall thickening of the ascending colon and hepatic flexure, with no signs of bowel ischemia.

Her haemoglobin was 12.2 g/dL, and all other laboratory investigations were within normal limits. Blood group was O Rh-positive. Based on clinical findings and CT imaging, a diagnosis of colocolic intussusception was confirmed.

A laparoscopic-assisted right hemicolectomy was planned. Under general anaesthesia, the patient was placed in a supine position. Pneumoperitoneum was established through a 10 mm umbilical camera port. Two additional ports were inserted in the left upper and lower quadrants for the operating surgeon, and a 5 mm port was placed in the right iliac fossa for the assistant. Diagnostic laparoscopy confirmed colocolic intussusception, with the cecum telescoped through the ascending colon and hepatic flexure into the proximal transverse colon. Using an atraumatic bowel grasper and the pull-push technique, the intussusception was successfully reduced.

The operating table was then tilted to a slight head-up and left-down position to facilitate mobilisation of the hepatic flexure. The hepato-colic ligament was divided using a harmonic scalpel, and the ascending colon was mobilised. The ileocolic vessels were ligated, and the entire right colon, including the cecum and terminal ileum, was mobilised.

A mini right paramedian incision was made to perform the laparoscopic-assisted right hemicolectomy. The mobilised colon was delivered through the incision, and a right hemicolectomy with side-to-side ileocolic anastomosis was performed extracorporeally using staplers. A drain was placed, and the abdominal incision was closed. The drain was removed on the fifth postoperative day.

Gross examination of the resected specimen revealed an intraluminal, submucosal, multilobulated mass arising from the cecum, measuring 7 × 4.5 cm. Histopathological analysis showed sheets of mature adipocytes separated by fibrous tissue, consistent with a submucosal cecal lipoma. The patient's postoperative recovery was uneventful, and she was discharged on the eighth postoperative day.

**[Fig 1-10]**

**Fig-1. Axial CT scan abdomen revealed a colocolic intussusception a non-nonhomogeneous soft tissue** **mass** (**Target Sign**)

**Fig-2. Laparoscopic photograph showing colocolic intussusception up to proximal part of transverse colon**

**Fig-4. Laparoscopic photograph showing complete reduction of colocolic intussusception**

**Fig-3. Laparoscopic photograph showing Laparoscopic reduction of colocolic intussusception with atraumatic bowel graspers**

**Fig-6. Laparoscopic photograph showing the ascending colon and hepatic flexure mobilized from the base of appendix**

**Fig-5. Laparoscopic photograph showing caecal mass**

**Fig-7. Laparoscopic photograph showing the hepato-colic ligament was divided with harmonic scalpel**

**Fig-8 Photograph showing mini laparotomy with caecal mass**

**Fig-10 Histopathology photograph showing intestinal mucosa, submucosal and tumor composed of sheets of mature adipocytes suggestive of submucosal lipoma**

**Fig-9 Gross specimen showing giant multiple submucosal caecal lipoma of size 7x4.5 cm**

**Discussion**

A submucosal lipoma of the cecum is a benign fatty tumour located beneath the mucosal lining of the cecum. These tumours are typically asymptomatic and are often discovered incidentally during colonoscopy. However, larger or "giant" lipomas can cause clinical symptoms such as abdominal pain, rectal bleeding, and, in rare cases, colocolic intussusception. [1,2,3,4]

Intussusception is an uncommon cause of intestinal obstruction in adults, accounting for only 1–5% of bowel obstructions and approximately 0.003% of all hospital admissions. It can be classified based on location—colocolic, ileocecal, or ileo-ileal—and aetiology, which may be idiopathic, benign, or malignant. Colonic lipomas, which are the second most common benign tumours of the colon after adenomas, serve as a frequent benign lead point in adult intussusception. [4,5,6,7]

About 90% of colonic lipomas originate from the submucosa and most commonly arise in the cecum and ascending colon. They are generally solitary, but may be multiple in some cases. These tumours typically occur in the fifth or sixth decade of life and have a slight female predominance. While most lipomas are asymptomatic, around 25% of patients with lipomas larger than 5 cm in diameter (giant lipomas) may experience symptoms such as abdominal pain, bowel obstruction, or rectal bleeding. [1,8,9]

**Diagnosis**  
 On colonoscopy, they appear as smooth, rounded, yellowish polyps, often with a thick stalk. Typical colonoscopic signs include: Cushion sign (or Pillow sign): Indentation of the mass when pressed with biopsy forceps. Naked fat sign: Extrusion of yellowish fat upon biopsy. The overlying mucosa is usually intact. [5,6,7]

Barium enema may reveal a smooth, well-demarcated filling defect. The “squeeze sign”—a change in size and shape of the lesion during peristalsis—is another classic finding. [1,2,3]

Radiological investigations include: Abdominal X-ray: May show multiple air-fluid levels in case of obstruction. Ultrasonography: Shows the classic “target sign” in intussusception. [4,5,6]

CT scan: The most sensitive imaging modality for diagnosing intussusception, with sensitivity ranging from 71% to 87% and specificity approaching 100%. CT typically reveals a non-homogeneous “target” or “sausage”-shaped soft tissue mass with a layered appearance and mesenteric vessels dragged into the lumen. [6,7]

Endoscopic Ultrasonography (EUS) is highly effective for evaluating submucosal tumours, as it determines the layer of origin. Colonic lipomas appear as hyperechoic, homogeneous masses arising from the third (submucosal) layer. [8,9,10]

**Treatment** Management of colonic lipomas depends on their size, symptoms, and appearance:

* Asymptomatic lipomas <2 cm and pedunculated: May be safely removed endoscopically using techniques such as endo-loop ligation. [1,2,3]
* Symptomatic lipomas or those >2 cm, particularly sessile or broad-based lesions: Endoscopic removal carries a higher risk of perforation, so surgical excision is preferred. [4,5]
* Laparoscopic surgery is now considered the gold standard for removing lipomas larger than 2 cm. It is associated with reduced postoperative pain, shorter hospital stays, and quicker recovery compared to open surgery. [10,11,12]
* Open surgery is recommended for: Lipomas >4 cm in diameter, sessile lesions associated with intussusception, tumours involving deeper muscular or serosal layers and tumours not amenable to complete endoscopic resection. For large or symptomatic lipoma, surgical resection is advised. Depending on the location and extent, this may involve segmental resection, right or left hemicolectomy, or subtotal colectomy [1,2,3].

**Conclusion**

Adult colocolic intussusception is a rare condition, typically associated with a pathological lead point such as a tumour—most commonly an adenocarcinoma—or a benign submucosal lipoma. This condition can lead to bowel obstruction and often requires prompt diagnosis and intervention.

Abdominal CT scan plays a crucial role in the diagnosis of colonic intussusception. Surgical management is warranted due to the increased risk of complications such as obstruction or perforation. Surgical options include local excision, segmental resection, hemicolectomy, or subtotal colectomy, depending on the size, location, and characteristics of the lesion.

Laparoscopic resection has become the gold standard for the removal of symptomatic colonic lipomas greater than 2–3 cm in diameter, offering the benefits of reduced postoperative pain, shorter hospital stays, and faster recovery compared to open surgery.

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Top of Form

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