Case Report

Left sided reverse colocolic intussusception secondary to malignant polypoidal growth: a rare clinical entity

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ABSTRACT

Intussusception is telescoping of a segment of gastrointestinal tract into an adjacent one (mostly distal, sometimes proximal). Though common in children in the first two years of life (90-95%), it is uncommon in adults (5-10%). Adult intussusception is most commonly ileocolic, ileo-ileocolic, ileoileal, colocolic, multiple and retrograde. While benign tumours account for most of the small intestine intussusceptions, malignant tumours account for 50% of colocolic intussusception. Adult colocolic intussusception is very rare on left side of colon, especially at splenic flexure. It is rarest to find a reverse intussusception of left sided colon with descending colon intussuscepting into transverse colon with adenocarcinoma as the lead point. Only 25 cases of retrograde intussusception of colon have been reported. This patient had oncological resection of the colon.

Keywords: Reverse, Colocolic, Intussusception, Malignant

INTRODUCTION

Adult intussusception accounts for 5% of all cases of bowel obstruction and 5-10% of all intussusceptions, with 90-95% occurring in children.¹ 90% of intussusception in adults have a definable cause with 50% having malignant tumour as lead point, in contrast to childhood intussusception which is idiopathic in 90% cases.¹ Reverse colocolic intussusception is even rare, with only 25 cases reported so far.² Until obstruction supervenes, diagnosis is difficult due to non-specific symptoms and requires high index of suspicion. Ultrasonography (USG) and Computed Tomography (CT) are commonly used diagnostic modalities. Adult colonic intussusception usually requires surgical excision, to rule out malignancy as lead point, in contrast to children, where hydrostatic reduction is tried. The intussusception in sequence of their occurrence are ileocolic, ileoileocolic, ileoileal, colocolic, multiple and retrograde.³ Our patient had reverse intussusception of left side of colon with

descending colon intussuscepting into transverse colon with adenocarcinoma as the lead point, which has not been reported so far.

CASE REPORT

35 years, male presented with symptoms of pain in right upper and lower abdomen since two months along with occasional abdominal distension, which had aggravated since two days. The pain was sudden onset, colicky, off and on, localised to right side of abdomen, progressive and used to subside by medications. The pain was associated with progressive abdominal distension and occasional vomiting and used to subside by passage of large volume of stools. The patient had total six such episodes in last two months, which had required hospitalization twice but was not definitively diagnosed and treated. He also had history of constipation alternate with diarrhoea. There was no history of fresh or altered

blood in stools or malena. The patient had loss of weight and appetite in last two months.

On examination, the patient was pale, anicteric with no clubbing, no lymphadenopathy or oedema feet. His vitals were Pulse 90/min, BP 110/70 mmHg and RR 16/min. Abdominal examination revealed a distended but soft, non-tender abdomen with resonant flanks.

Investigations revealed abnormal hemogram with haemoglobin of 9.8 gm%, TLC count of 10000/mm³ and ESR 20 mm in first hour. Serum Carcinoembryonic antigen was 2.7 ng/dl and stool occult blood was negative. Kidney and liver function tests were within normal limits. CXR was within normal limits while X ray abdomen standing revealed multiple air fluid levels. Outside USG abdomen and pelvis had suggested circumferential mucosal thickening of 12-14 mm noted at splenic flexure and descending colon likely to be intraluminal mass. USG abdomen and pelvis at our hospital revealed multiple dilated loops all over abdomen and pelvis with minimal free fluid with pseudo-kidney appearance or target appearance at left hypochondrium likely to be colocolic intussusception.

The patient was started on conservative management. The pain subsided in two days and patient was started orally on 3rd day after return of bowel sounds. CT scan abdomen and pelvis along with CT virtual colonoscopy revealed colocolic intussusception with reverse herniation of the descending colon into the transverse colon at the splenic flexure. An ill-defined polypoidal mass soft tissue density mass, measuring 3.5 x 1.4 cm was noted at the tip of the intussusceptum along with focal herniation of the mesocolon into the intussusceptions. Mild soft tissue strangling was noted at the pericolic fat planes with small lymph nodes (Figure 1). Considering the recurrent nature of obstruction and keeping a possibility of malignancy, an exploratory laparotomy was planned. Intraoperatively, reverse colocolic intussusception was seen with herniation of the descending colon into the transverse colon. Because of an inability to reduce the intussusception, resection of the intussuscepted portion along with mesocolon, with wide margins on either side was performed with subsequent colocolic anastomosis of remaining transverse to descending colon. The peritoneal cavity was washed and abdomen was closed in layers with a pelvic and left paracolic drain. Anal stretching was performed to paralyse anal sphincter.

Gross examination of the specimen, split longitudinally, revealed two hard nodules, larger measuring 4 x 2.5 x 2 cm and smaller measuring 2.5 x 2 x 1 cm, located 5 cm from one surgical cut margin and 8 cm from another surgical cut margin (Figure 2). Cut surface of the nodule was homogenous grey white. Specimen also showed areas of mucosal folds with areas of hardening of mucosal lining around nodular areas. Surgical cut margins were uninvolved. Multiple sections taken from two nodules showed mucin secreting adenocarcinoma

involving full thickness of the bowel wall. The mesocolon and omentum was however, free of metastatic lymph nodes and tumour cells.

Figure 1: Shows virtual colonoscopy of patient depicting reverse colocolic intussusception with descending colon intussuscepting into transverse colon secondary to growth at splenic flexure.

Figure 2: Shows resected specimen of colon, cut open, with polyps which turned out to be adenocarcinoma on histopathology and were the lead point of reverse colocolic intussusception.

The patient had an uneventful recovery. The patient was started orally on 3rd day. The drain had only serous discharge and was removed on 4th day. The patient was discharged on 10 day. Post-operative adjuvant chemotherapy was planned with 5 fluorouracil 750 mg and calcium leucovorin 30 mg for five days for six cycles. The patient received his first chemotherapy before discharge and is under regular follow up with no recurrence after three months.

DISCUSSION

Adult intussusceptions is rare, with incidence of two to three cases per one million population per annum³ and less than 0.1% of all adult hospital admissions.⁴ Barbet of Amsterdam first reported intussusception in 1674,⁵ first detailed description was given by John Hunter in 1789 and first successful operation was done by Sir Jonathan Hutchinson in 1871.⁴

Intussusception is the leading cause of intestinal obstruction in children, second most common cause of acute abdominal emergency in children, after appendicitis, but it accounts for only 5% cases of intestinal obstruction in adults. Intussusception occurs when a segment of bowel, the intussusceptum, invaginates into the lumen of the more distal bowel, the intussusceptions, secondary to peristalsis or hyperperistalsis.

While colonic intussusception in children is mainly congenital, in adults it is mainly pathological. 90 % of adult intussusception has a definable cause, which may be either intraluminal, mural or extraluminal lesions.⁴ Idiopathic intussusception (5% cases) have no discernable cause, is very rare with no clear pathogenesis.

Most adult intussusception occur in distal small bowel (52% to 55%) followed by large intestine (38% to 45%).⁶ 10% adult intussusception involve stomach and surgically created stomas. Colonic intussusceptions commonly occur in flexible regions of colon e.g. caecum, sigmoid and transverse colon.

Malignant tumours (adenocarcinoma, lymphoma, leiomyosarcoma and metastasis)⁷ are the lead points in 50-60% cases, followed by benign tumours (adenomatous polyp, lipoma, leiomyoma) in 30% cases.⁵ Endometriosis, inflammatory disease of colon, appendiceal and previous anastomosis are non-neoplastic causes of intussusception. The incidence of pathological lead points increases with age and recurrent episodes. Only 24 cases of adult colonic intussusception were reported in Mayo Clinic over a period of 23 years. Most retrograde intussusception occurs in sigmoid colon and is initiated by antiperistalsis.

Most cases of childhood intussusception occurs within 2 years of age (male: female = 3:1). The mean age for adult intussusception is 50 years, with a nearly equal male to female ratio. Adult colonic intussusception represents a diagnostic challenge due to atypical, non-specific, vague symptoms. Intermittent abdominal pain, with waxing and waning episodes, ranging from mild colics to severe cramps, is most common symptom, seen in 71-90% of cases and is due to partial intestinal obstruction.⁸ Most pain episodes resolve spontaneously, leading to delayed diagnosis, with only 50% cases diagnosed preoperatively. Other symptoms include nausea, vomiting, recurrent diarrhoea and constipation and bleeding from rectum.

Abdominal lump is seen in 24% to 42% cases.⁹ Acute episodes are due to traumatic, inflammatory changes, adjacent to lead point, causing ulceration.¹⁰ The classic clinical trial of abdominal pain, palpable sausage shaped mass, and "red currant-jelly" stools is rarely present in adults.

Approximately 50% of patients have symptoms of partial intestinal obstruction, for more than one month, before acute exacerbation, that points towards diagnosis.⁸ The physical findings and laboratory investigations are non-specific and most patients are labelled as irritable bowel syndrome. Bowel necrosis occurs in 1% of cases.¹¹ Size of the tumour is a predictor of symptomatology. Tumours >4 cm produce symptoms in 75% of cases.¹²

Most patients are diagnosed at emergency laparotomy, performed for intestinal obstruction. USG and CT scan are most commonly used preoperative diagnostic modalities. Early diagnosis prevents intestinal obstruction and bowel ischaemia.¹³ Ultrasonography has high specificity and sensitivity, and depicts "doughnut sign" or "target lesion" in a transverse plane, corresponding to several concentric rings of bowel. The thick hypoechoic rim of edematous intussusceptions is seen encircling the middle echogenic area of intussusceptum i.e. mesenteric fat. Sometimes, an additional anechoic spot, seen within the central echogenic area, represents fluid collection in apex of intussusceptum.¹³ On longitudinal plane of USG, intussusception appears as multiple parallel lines, depicting "sandwich appearance" or "pseudo-kidney sign". The lines demonstrate bowel walls and their layers. The major limitation of ultrasonography is presence of bowel gas, causing poor transmission and difficult interpretation and operator dependency.

CT scan also identifies intussusception with high sensitivity and specificity. With thickening of bowel and necrotic changes, the intussuscepted mass becomes more unstructured.¹⁴ MRI has been used successfully, but is still under evaluation. The coronal view shows length of intussusceptions and displays lead point anatomically.¹⁴

Plain abdominal radiograph is the first diagnostic tool and shows multiple air fluid levels and site of intestinal obstruction. Barium enema shows reverse claw hand sign in retrograde intussusception along with a spiral and coiled spring appearance. Colonoscopy permits visualization, biopsy and rules out organic lesion.

Treatment of adult intussusception is oncological resection in malignant pathology and limited resection in benign pathology.¹⁵ The decision of primary anastomosis or stoma formation depends on location of intussusceptions, bowel wall integrity, degree of contamination and surgeon's preference. No cases of laparoscopic resection of malignant adult intussusceptions has been reported. The diameter and length of invagination, presence of associated lesion and

inflammation and type of invagination are predictors of spontaneous resolution.¹⁵

The intussuscepted portion is resected along with 5 cm margin of colon on either side along with wide resection of mesocolon. The most common post-operative adjuvant therapy used, in cases of malignancy, is calcium leucovorin with 5 fluorouracil, given for 5 days for six cycles.¹⁵

CONCLUSION

Adult colocolic intussusception is rare, with retrograde intussusception being rarest. Vague, atypical, nonspecific clinical features makes preoperative diagnosis difficult and high index of suspicion is required for early diagnosis of colonic intussusceptions, 50% of whom have malignant tumour as lead point. Diagnosis is delayed due to longstanding and intermittent symptoms. Ultrasonography and CT have been proven to be effective diagnostic modalities. Most cases are diagnosed at emergency laparotomy. In adults, intussusception is usually associated with an underlying cause and requires surgical resection. It is very rare for elderly adults to get retrograde intussusceptions of the descending colon into the transverse colon at a non-flexible site like splenic flexure.

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