

Ileo-ceco-descendente-colic Intussusception in Adult - A Case Report

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Rezumat

Invaginația ileo-ceco-descendente-colică la adult - prezentare de caz clinic

Introducere: Invaginația intestinală la adult reprezintă o cauză rară de ocluzie intestinală; metodele de diagnostic clinic, paraclinic și conduita terapeutică aplicată trebuie adaptate cazului.

Material și metodă: Se prezintă cazul unei paciente în vârstă de 30 de ani, internată în serviciul nostru cu simptomatologie de tip subocluziv. În urma investigațiilor preoperatorii efectuate în alte servicii, se ridică suspiciunea de invaginație intestinală. Intraoperator se constată prezența unei formațiuni tumorale ileale (4x5x5 cm) cu segmentul intestinal invaginat progresat pe traiectul ileo-ceco-transverso-descendente-colic. Se practică hemicolecomie dreaptă standard cu anastomoză ileo-transversă termino-terminală, după parțială dezinvinare.

Rezultate: Evoluția postoperatorie este favorabilă, cu externare în ziua a 7-a postoperator. Examenul histopatologic stabilește diagnosticul de lipom submucos ileal.

Concluzii: Ocluziile intestinale mecanice la adult pot avea ca etiologie tumori ale ileonului terminal sau ale ceco-ascendentului, acestea putând duce la invaginații intestinale progresive, uneori până în colonul descendent.

Cuvinte cheie: invaginație intestinală, tumoră de ileon terminal, lipom submucos

Abstract

Introduction: Intestinal intussusception in adult represents a rare cause of intestinal obstruction, therefore the diagnostic and therapeutic methods must be adapted to each case.

Materials and methods: We present the case of a 30 year old female admitted in our service suffering from a subocclusive symptomatology. After preoperative tests were completed in another medical unit, we presumed the possibility of intestinal intussusception. The intraoperative exploration revealed the presence of a terminal ileum tumor (4x5x5 cm) with the invaginated segment progressed on ileo-ceco-transverso-descendente-colic trajectory. After partial desinvagination, we performed right hemicolecotomy with ileo-transverse end-to-end anastomosis.

Results: The patient was discharged healthy on the 7th postoperative day. The histopathological findings revealed submucosal ileal lipoma.

Conclusions: Tumors of the terminal ileum, cecum or right colon could have an important role in the etiology of mechanical intestinal obstructions. These tumors can be a starting point for intestinal intussusception, which can advance to the left colon.

Key words: intestinal intussusception, terminal ileum tumor, submucosal lipoma

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Introduction

Intestinal intussusception is defined by the telescoping of an intestinal segment with its mesentery or meso as a result of peristalsis, into the downstream intestinal lumen (1). In most cases, the causes of colic intussusception in adults are represented by malignant disease, while the causes for small bowel intussusception are commonly benign (lipoma, polyps, adenomas, Meckel diverticulum) (1). However, the causes in 8-20% of intussusceptions are not known and are considered as primary or idiopathic (1). The first case of intestinal intussusception was described in 1674 by Paul Barbette, and the subject was further developed by John Hunter in 1789 (2,3). Surgery is first applied successfully by Wilson in 1831, and in 1876 Hirschprung introduces the technique of hydrostatic reduction, unfortunately with high mortality (4). Intestinal intussusception in adults is considered a rare pathology and represents 5% of the total cases of intestinal intussusception (children and adults) and 1-5% of all the cases of intestinal obstruction (5,6). In children the incidence of intussusception is more common (1.5 to 4 cases / 1,000 new births), the age group of 9-24 months is most interested, especially in boys (ratio between male and female 3 / 2) (7,8). Seasonal incidence of intussusception (a peak in spring, summer and mid-winter) corresponds to the increased incidence of gastro-enteritis and upper respiratory tract infections (9,10). The well-established classification of intussusception in four categories (entero-enteric intussusception, colo-colic, ileo-colic and ileo-cecal) proved to be insufficient in our case (the invaginated segment advanced on the ileo-ceco-descendocolic path, up to the descending colon), which determined us to report it (11). The etiology of colic intussusception in adults is most often represented by adenocarcinomas which are large and polypoid at cecum level. Terminal ileum adenocarcinomas have an annular form, a constrictive nature and an eccentric growth causing the thickening of the intestinal wall. However, very rarely pedicled or polypoid tumors of terminal ileum can cause intestinal intussusception (12). The method of choice in the diagnosis and preoperative imaging of intestinal intussusception is contrast enhanced computed tomography. Even if it is more accessible and non-irradiating, abdominal ultrasound takes a secondary role in the diagnosis of intestinal intussusception (13). The imagistic description of a heterogeneous tumor mass with characteristic fat density areas (mesentery, mesocolon) also with the vessels of the invaginated intestinal segment being visible, is enlightening for the diagnosis. Although not a pathognomonic tomographic image, the "target" or "bull's eye" appearance and hyperdense concentric circles associated with intestinal wall narrowing are suggestive for intestinal intussusception (14). The perfusion of the invaginated intestinal segment may be compromised in neglected cases, resulting in venous congestion and edema, finally leading to intestinal necrosis with the CT appearance of an amorphous mass and the presence of gas bubbles in the thickness of the intestinal wall (15). Although the diagnosis of intestinal intussusception is easily determined by computer tomography examination, the cause remains more suspected than defined, and finally certified postoperatively.

Case report

A 30-year-old woman was admitted to our hospital (Surgery Clinic I of Târgu Mureş) under emergency transfer from a county hospital with a diagnosis of intestinal subocclusion and suspicion of ileo-colic intussusception. At admission the symptomatology was represented by diffuse abdominal pain, with maximum intensity in the epigastric region with dorsal irradiation. The patient reported repeated episodes of nausea and vomiting 1-2 hours after a meal. The symptomatology was completed by loss of appetite and weight, approximately 3 kg in 10 days. Family history had no significance for the current disease and from the personal medical history we noted only the appendectomy performed 11 years ago. The patient reported the sudden onset of symptoms 10 days prior, reason for admission in another hospital unit where she received symptomatic treatment during hospitalization (painkillers, antispasmodic agents, antiemetic and hypervolemic perfusions). The CT scan during the hospitalization was suggestive for an intestinal intussusception. The impaired general condition, intestinal obstruction syndrome (initially high and then low) confirmed radiographically (Fig. 1), were the reasons for emergency patient transfer to Surgery Clinic I Târgu Mureş.

Physical examination revealed the abdominal level with the xiphoid-pubic plane, and a healed postoperative scar in the right iliac fossa corresponding to the appendectomy performed. Palpation objectified pain in the epigastrium and right abdominal flank, at which level an imprecise bounded pseudotumoral mass with rentent-elastic consistency could be felt, tympanic slapper and battle bowel sounds. On the left side

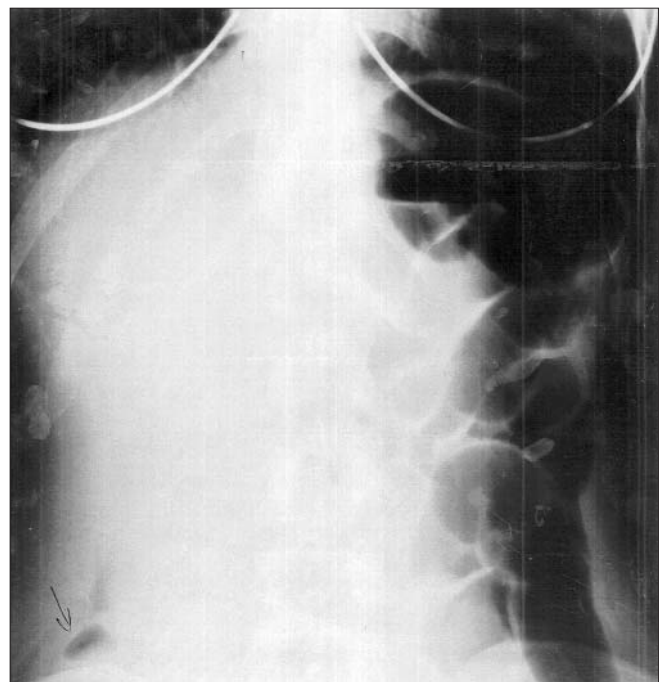


Figure 1. The simple abdominal radiography reveals large air-water level images located on the colic path

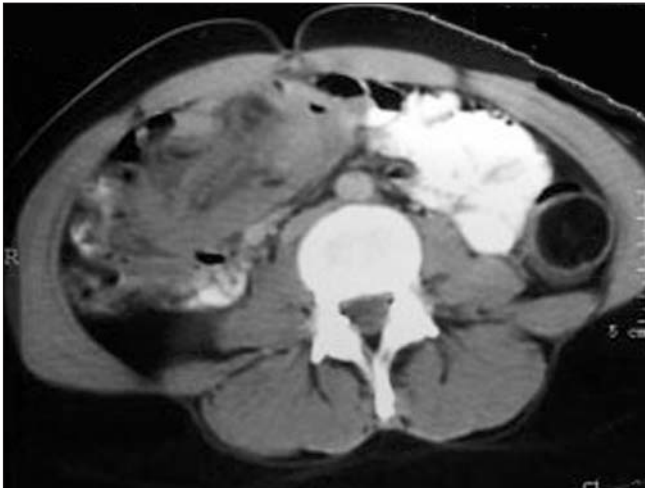


Figure 2. The contrast enhanced tomography reveals characteristic image of “target” or “bull’s eye” appearance

of the abdomen tenderness with muscular defense and a 10-15 cm tumor, imprecisely defined, mat to percussion could be determined. Digital rectal examination revealed no pathological changes. Laboratory result showed leucocytosis (9900 mmol / L), mild decrease in hematocrit (34%) and hemoglobin (11 g%), increased blood glucose (166 mg%) and amylase (212 U/L), with special mention that the patient was infused with glucose solutions. Contrast enhanced computer tomography showed colic wall thickening in the ascending and transverse colon (maximum thickness of 7 mm) without penetration at this level of the oral contrast substance (100ml IOMERON 350). The colic lumen was described as being occupied beyond the splenic angle by a tumor of isodense image aspect (Fig. 2).

Having the diagnosis of intestinal obstruction, after a short and energetic proper preoperative preparation, we performed the surgical intervention under general anesthesia with oro-tracheal intubation. Intraoperatively we discovered the presence of dilated intestinal loops with fluid content and an intestinal intussusception on the ileo-ceco-descendento-colic path, with the intestinal segment exceeding 10-15 cm the splenic angle and telescoped into the descending colon. We attempted to reduce the intussusception (Fig. 3) and managed the desinvagination until the ascending colon. Mesentery inspection showed the presence of multiple lymph nodes.

The intraoperative diagnosis of intestinal obstruction by ileo-ceco-descendento-colic intussusception, tumor of the terminal ileum was confirmed. We reduced the intussusception by partial desinvagination, checking and testing the intestinal viability (Fig. 4) and decided that standard right hemicolectomy with ileo-transverse monoplane end-to-end anastomosis (Fig. 5) and drainage of right parieto-colic space and Douglas pouch was the right choice for the case. Postoperative evolution was favorable, the intestinal transit was re-established and the wound healed per primam with the discharge of the patient being made after 7 days. Histopathological findings confirmed the diagnosis of ileal submucosal

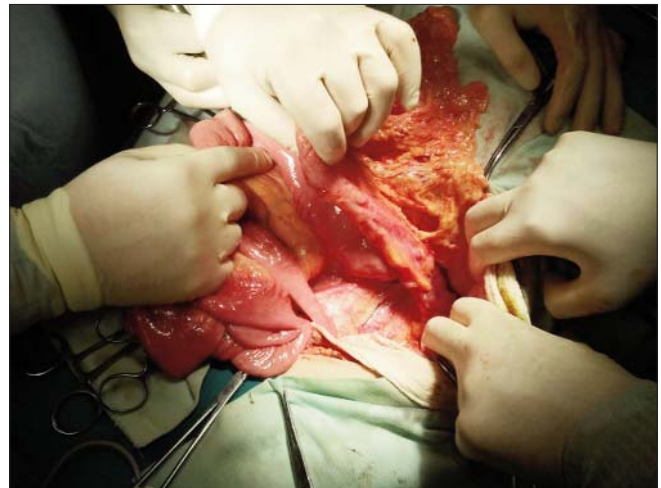


Figure 3. Intraoperative image: the intussusception progressed to the junction between the descending colon and the first sigmoidal loop. Desinvagination is started

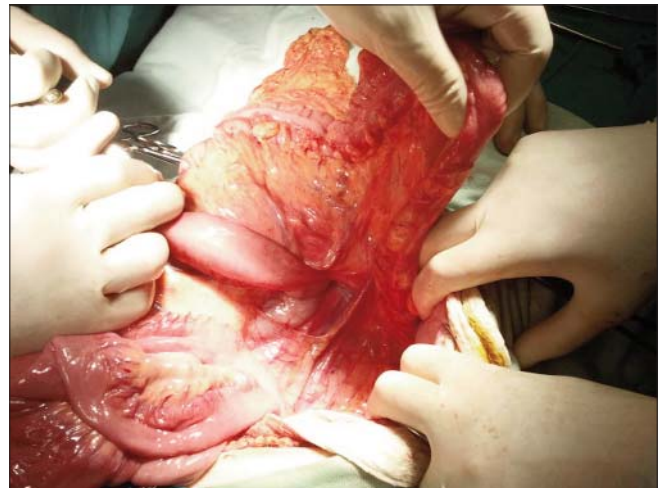


Figure 4. Intraoperative image: Complete desinvagination with testing of intestinal viability

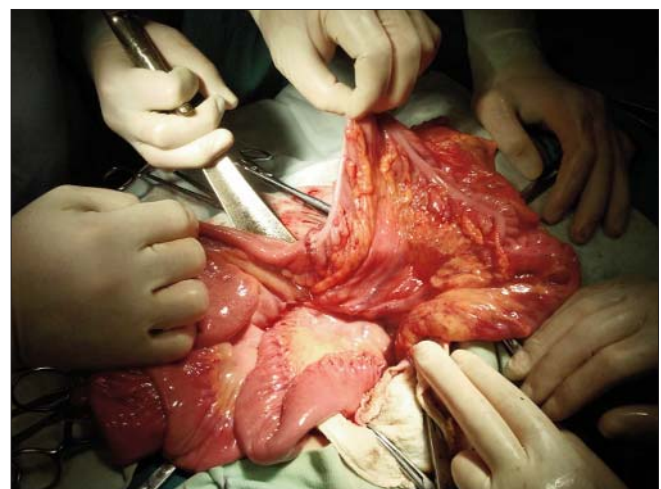


Figure 5. Intraoperative image: Ileo-transverse end-to-end anastomosis after performing standard right hemicolectomy.

lipoma and the irreversible histopathological changes of the invaginated intestinal segments (terminal ileum, cecum, ascending colon, liver angle of the colon).

Discussion

Out of all cases of intestinal intussusception the small bowel is involved in 52-55% of cases and the colon in 38-45% of the cases. Depending on the etiology of the intussusception, it can be classified of benignant, malignant or idiopathic nature, 66% of the cases having a malignant cause (16). The symptoms of intestinal intussusception in adults are chronic, with episodic subocclusive manifestations, and less frequently with acute surgical abdomen as it was in the case presented by us (17). In children, however, the symptomatology is acute and described by the triad of colicky abdominal pain, bloody diarrhea stools and palpable tumor mass (18). Intestinal intussusception can be diagnosed with ultrasound, but computer tomography is superior and has an accuracy of 58-100% (19). In the absence of acute occlusive syndrome, highlighting the tumoral pathology as a cause of intestinal intussusception, elective situations may include colonoscopy with biopsy or virtual colonoscopy. The treatment in adult intestinal intussusception is surgical, with the resection of the invaginated intestinal segment, irreversibly compromised by desinvagination, followed by restoring transit through different types of anastomosis (entero-enteric, entero-colic, colo-colic) during the same operative session. The treatment of intussusception by the administration of barium or air is not recommended in adults because the risk of intestinal perforation is significantly high (20).

Conclusions

Intestinal intussusception in adults represents a rare cause of intestinal obstruction. Clinical and paraclinical diagnostic methods used in intestinal intussusception (contrast enhanced computer tomography, abdominal ultrasound) contribute to acting quickly and performing limited intestinal resections. Tumors of terminal ileum or ceum and ascending colon represent possible causes of progressive intestinal intussusception, rarely advanced into the descending colon. The particularity of this case allows us to add a new type of intussusception to the well-known classification: the ileo-ceco-descendentocolic type.

References

1. Kim YH, Blake MA, Harisinghani MG, Archer-Arroyo K, Hahn PF, Pitman MB, et al. Adult intestinal intussusception: CT appearances and identification of a causative lead point. *Radiographics*. 2006;26(3):733-44.
2. de Moulin D. Paul Barbette MD. Paul Barbette, M.D.: a seventeenth-century Amsterdam author of best-selling textbooks. *Bull Hist Med*. 1985;59(4):506-14.
3. Noble I. *Master Surgeon: John Hunter*. New York, NY: J Messner; 1971.
4. Hirschsprung H. Et Tilfaeldeaftubakuttarminvagination. *Hospitals - Tidende*. 1876;3:312-327.
5. Ozoemena OFN, Mba AU, Mgbor SO, Onuigbo NI. Gastrointestinal Kaposi sarcoma presenting in a Nigerian African with HIV, AIDS. *Niger J Clinic Pract*. 2003;6:117-119.
6. Vizeteu R, Damian M. Intussusception in adult--a rare case. *Chirurgia (Bucur)*. 2011;106(1):119-20. Romanian
7. DiFiore JW. Intussusception. *Semin Pediatr Surg*. 1999;8(4):214-20.
8. Simpson T, Ivey J, Borkowski S. Pediatric management problems. Intussusception. *Pediatr Nurs*. 2004;30(4):326-7.
9. Kuppermann N, O'Dea T, Pinckney L, Hoecker C. Predictors of intussusception in young children. *Arch Pediatr Adolesc Med*. 2000;154(3):250-5.
10. Dennison WH, Shaker M. Intussusception in infancy and childhood. *Br J Surg*. 1970;57(9):679-84.
11. Schiud F, van Gansbecke D, Ansey J. Intussusception in adults - report of 3 cases. *Acta Chir Belg*. 1985;85(1):55-60.
12. Hoeffel C, Crema MD, Belkacem A, Azizi L, Lewin M, Arrivé L, et al. Multi-detector row CT: Spectrum of diseases involving the ileocecal area. *Radiographics*. 2006;26(5):1373-90.
13. Azar T, Berger DL. Adult intussusception. *Ann Surg*. 1997;226(2):134-8.
14. Lorenzi M, Iroatulam AJ, Vernillo R, Banducci T, Mancini S, Tiribocchi A, et al. Adult colic intussusception caused by malignant tumor of the transverse colon. *Am Surg*. 1999;65(1):11-4.
15. Iko BO, Teal JS, Siram SM, Chinwuba CE, Roux VJ, Scott VF. Computed tomography of adult colonic intussusception: clinical and experimental studies. *AJR Am J Roentgenol*. 1984;143(4):769-72.
16. Takeuchi K, Tsuzuki Y, Ando T, Sekihara M, Hara T, Kori T, et al. The diagnosis and treatment of adult intussusception. *J Clin Gastroenterol*. 2003;36(1):18-21.
17. Franc-Law JM, Bégin LR, Vasilevsky CA, Gordon PH. The dramatic presentation of lipomata. Report of two cases and review of literature. *Am Surg*. 2001;67(5):491-4.
18. Marinis A, Yiallourou A, Samanides L, Dafnios N, Anastasopoulos G, Vassiliou I, Theodosopoulos T, et al. Intussusception of the bowel in adults: a review. *World J Gastroenterol*. 2009;15(4):407-11.
19. Gayer G, Apter S, Hofmann C, Nass S, Amitai M, Zissin R, et al. Intussusception in adults: CT diagnosis. *Clin Radiol*. 1998;53(1):53-7.
20. Reijnen HA, Joosten HJ, de Boer HH. Diagnosis and treatment of adult intussusception. *Am J Surg*. 1989;158(1):25-8.