

Case Report

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Case of Megacolon due to Bowel Intussusception in an Elderly Patient: A Case Report

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Abstract

Introduction: Intussusception is the telescoping of a proximal segment of the gastrointestinal tract into the lumen of the more distal segment. A rare but still encountered entity, bowel intussusception, is a surgical emergency that should not be taken lightly. Although it is common in those under two years of age, it is one of the less likely diagnoses in adult populations, with only 5% of all cases occurring in adults.

Case Presentation: We report the case of an 86-year-old gentleman who presented to the Emergency Department (ED) complaining of abdominal distension. An abdominopelvic CT scan with IV contrast showed evidence of a transition point at the level of the sigmoid, with a small bowel of normal caliber and a homogeneously dilated colon reaching 16 cm in its largest diameter. An exploratory laparotomy was opted for during which a colectomy was performed. Pathology results revealed chronic sigmoidal diverticulitis causing severe luminal narrowing with moderate chronic nonspecific inflammatory changes and acting as a lead point for intussusception, thus leading to obstruction, and megacolon.

Conclusion: Intussusception is a challenging entity in terms of diagnosis and treatment when it occurs in adults. Clinical symptoms are usually nonspecific and imaging features are variable, making the preoperative diagnosis often missed or delayed. Up to 20% of cases are idiopathic, with the rest being secondary to an organic cause that must be determined for proper management. Laparotomy remains the best way to diagnose adult intussusception and to determine any underlying pathology for adequate treatment.

Keywords: sigmoid intussusception, chronic sigmoidal diverticulitis, megacolon, bowel obstruction, total colectomy, adult intussusception, chronic abdominal pain, challenging diagnosis

Background

Barbette of Amsterdam first reported intussusception in 1674 and suggested surgical reduction, while John Hunter described it further in 1789 as the telescoping of a proximal part “intussusceptum” of the digestive tract, into the distal part lumen “intussusciens” [1,2]. It wasn't until 1871 that the surgeon Sir Jonathan Hutchinson first succeeded in manually reducing an intussusception in a 2-year-old child [3].

Bowel intussusception is a surgical emergency that should not be taken lightly. While it is a common surgical emergency in patients below two years of age, it remains one of the less likely diagnoses in adult populations.

Adult intussusception does not commonly lead to obstruction. While up to 20% of intussusceptions are idiopathic, the rest of the cases are secondary to organic pathologies that function as lead points. When affecting the small bowels, these lead points are more commonly benign compared to large bowels [4].

Adults usually present with nonspecific symptoms that are mostly chronic and similar to partial obstruction, making the diagnosis challenging pre-operatively. Less common symptoms and signs include nausea and vomiting, hematochezia or melena, diarrhea or constipation [4]. While only 25% of cases have identified lead points in pediatric intussusception, the adult intussusception has a known lead point in 70-90% of cases [4,5].

In adults, diagnosis is still problematic and often not made until laparotomy. Abdominal computed tomography (CT) remains the most useful imaging technique with a sensitivity of 58%-100% [6].

Due to the high risk of malignant etiology, cases of adult intussusception generally require definite treatment, most often being surgical resection.

We report the case of an elderly patient who presented complaining of abdominal distention. He was found to have a bowel obstruction and megacolon due to a sigmoid intussusception that is secondary to chronic sigmoid diverticulitis. This rare and challenging diagnosis was established postoperatively on pathology.

We report this case to shed the light on this rare cause and presentation of sigmoid obstruction in adults and to discuss our management.

Case Report

This is the case of an 86-year-old gentleman presenting to the ED complaining of abdominal



Figure 1: Image showing the patient's severely distended abdomen on presentation to the ED

distension (Fig. 1). The patient had diastolic heart failure and a history of an umbilical hernia repair with the Chevrel technique but no other past surgeries or medical history. He had been suffering from progressive abdominal distension for the past 5 months. He denies any abdominal pain, change in bowel habits or stool caliber, melena or hematochezia, decrease in appetite or weight loss. Flatus and bowel movements were still present. The patient attempted a non-medical remedy by a “cloth button” above his umbilicus to relieve the abdominal distention that he attributed to a hernia, but it kept increasing and in the last 2 days, initiated symptoms of mechanical dyspnea. The patient reported no history of colon cancer in the family.

On examination, the abdomen was soft, non-tender, though heavily distended, with audible bowel sounds. Vitals were stable. Digital rectal examination was positive for brown colored stools. Laboratory exams were within the normal range, with a white blood count of 6.7 mg/dL, non-significant C-reactive protein (1.7 mg/dL), balanced electrolytes and normal albumin (3.6 mg/dL).

An upright chest x-ray was performed to rule out a possible perforation, considering the severity of the distension. No signs of perforation were detected, but the diaphragm was found to be elevated, occupying the mid thorax (Fig. 2, 3). An abdominopelvic CT scan with IV contrast showed evidence of a transition point at the level of the sigmoid, with a small bowel of normal caliber and a homogeneously dilated colon reaching 16 cm in its largest diameter (Fig. 4). No peritoneal signs or bowel suffering were noted.

Considering the chronicity of the case, and with the patient only complaining of abdominal distention with mild respiratory discomfort, we

opted for a colonoscopy for decompression purposes and to rule out suspected sigmoid



Figure 2: Upright anteroposterior CXR showing an elevated diaphragm (black arrow) with no signs of perforation (no air under the diaphragm)

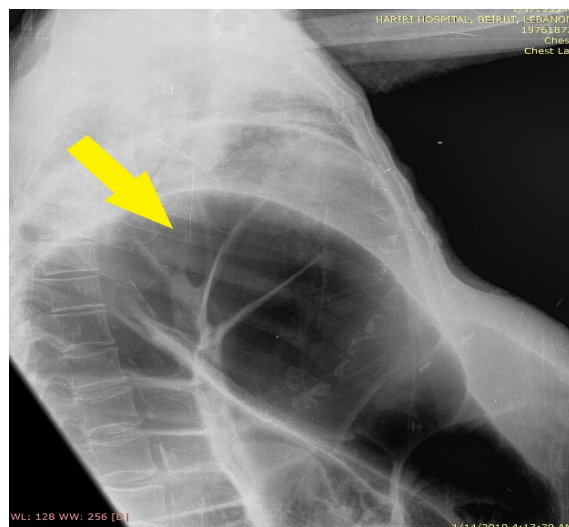


Figure 3: Lateral CXR showing the distended transverse colon (15.5cm) (yellow arrow) in the thoracic area

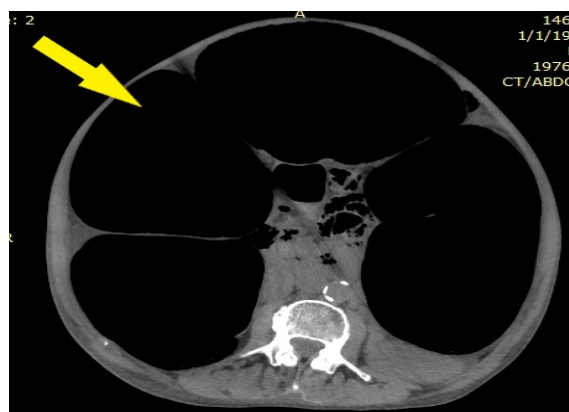


Figure 4: abdominopelvic CT scan showing the magnitude of the dilated colon (yellow arrow pointing at the dilated transverse colon)

pathology. However, the preparation of the colon was inadequate and no conclusive findings were noted. A rectal tube was inserted during endoscopy to help decompress the colon, but despite its presence, the distension re-occurred quickly after the procedure.

The CT scan was then repeated with rectal contrast to better visualize the pathology and showed intra-luminal sigmoid thickening (Fig. 5a). A diagnosis of sigmoid cancer was suspected. To note, the obstruction was not complete as the contrast reached the descending colon bypassing the lesion (Fig. 5b).

The operation was scheduled on the same day as rectal tube insertion. The patient underwent

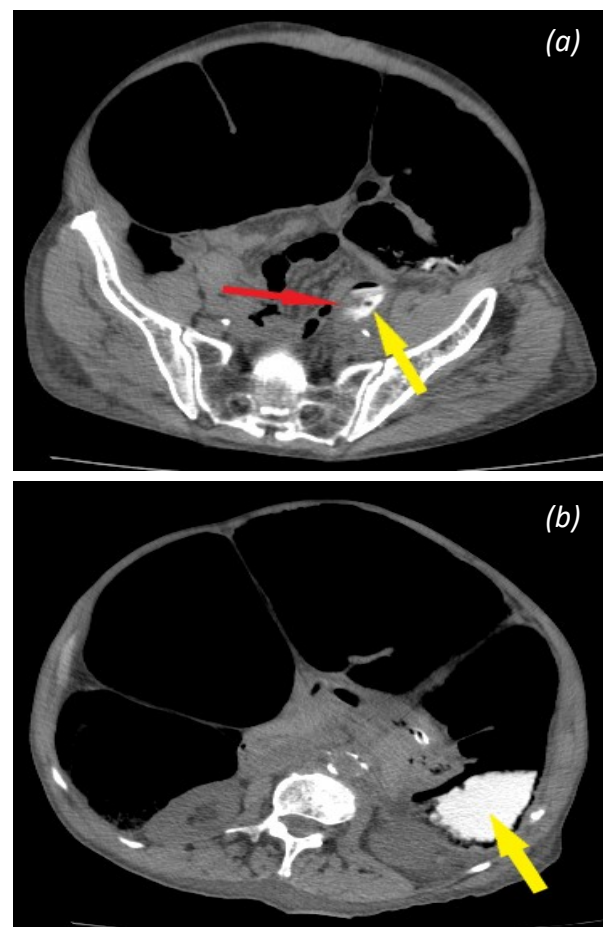


Figure 5: (a) Abdominopelvic CT scan showing suspected sigmoidal stenotic lesion of 3.5 cm diameter (red arrow) delineated by the contrast (yellow arrow) (b) Abdominopelvic CT scan showing the contrast in the descending colon (yellow arrow) bypassing the stenotic lesion and a prominently dilated colon

proper assessment and medical clearance with the improvement of pulmonary function by a pulmonologist through nebulizers as well as cardiac assessment and preparation by a cardiologist. An intensive care unit bed was

reserved due to the postoperative risk of pulmonary insufficiency, taking into consideration the preoperative dyspnea of the patient. Due to the CT findings of obstruction and prominent colonic distention, a preoperative colonic preparation was not an option.

Intraoperatively, upon reaching the abdominal cavity through a laparotomy, the distended colon was inspected. It looked diseased, nonfunctional, gigantic in size, and had very thin walls that lacked peristalsis (Fig. 6a,6b). The sigmoid colon was shrunken in size. The surgical team decided to perform a total colectomy with side-to-side ileorectal mechanical anastomosis. Resection was performed without ileostomy, to prevent

postoperative dehydration and electrolyte disturbances (Fig. 6c). The patient was extubated and transferred to the coronary cardiac unit (CCU) due to suspicious electrocardiogram changes in the post-anesthesia care unit (PACU). After 24 hours of monitoring, he was transferred to the regular floor. A clear liquid diet was started and progressed daily. The patient had a smooth recovery. He passed flatus on day 4 and had a bowel movement on day 5. He was discharged home on day 8.

Pathology results revealed chronic sigmoidal diverticulitis causing severe luminal narrowing with moderate chronic nonspecific inflammatory changes and acting as a lead point for intussusception, thus leading to obstruction, and megacolon.

Discussion

Adult intussusception accounts for only 5% of all intussusception cases, and 1 to 5% of bowel obstructions occurring in adults. The risk of malignant etiology is 65% regardless of anatomic location [4,8]. Adult bowel intussusceptions are challenging to diagnose because the patient may present only with a vague abdominal discomfort, without any specific obstructive symptoms, as was the case in our patient [4].

Based on location, intussusceptions are categorized into four classes (1) entero-enteric when limited to the small bowel, (2) colo-colonic when limited to the colon, as in this case, (3) ileocolonic, with the terminal ileum prolapsing through the ascending colon or (4) ileocecal, where the ileocecal valve acts as a lead point for the intussusception, distinguishing it, though with difficulty, from the ileocolonic class [9,10,11]. Intussusception most commonly takes place at the junctions between mobile parts of the digestive tract and retroperitoneal or adhesion-related immobile parts [12].

Despite being the best available diagnostic tool, the sensitivity of abdominal CT varies between 58% and 100% [6]. Features may include a nonhomogeneous “target” or “sausage” shaped tissue mass. Intraluminal mesenteric vessels can also be seen [13]. A CT scan provides the most valuable information concerning this pathology including the location, the nature of the lead point, and its relationship to its surrounding structures. Additionally, it is a staging tool if malignancy turns out to be the etiology of the intussusception. However, diagnosis remains challenging due to the variable clinical presentation and imaging characteristics. More often than not, the diagnosis is not made preoperatively, with 40.7%

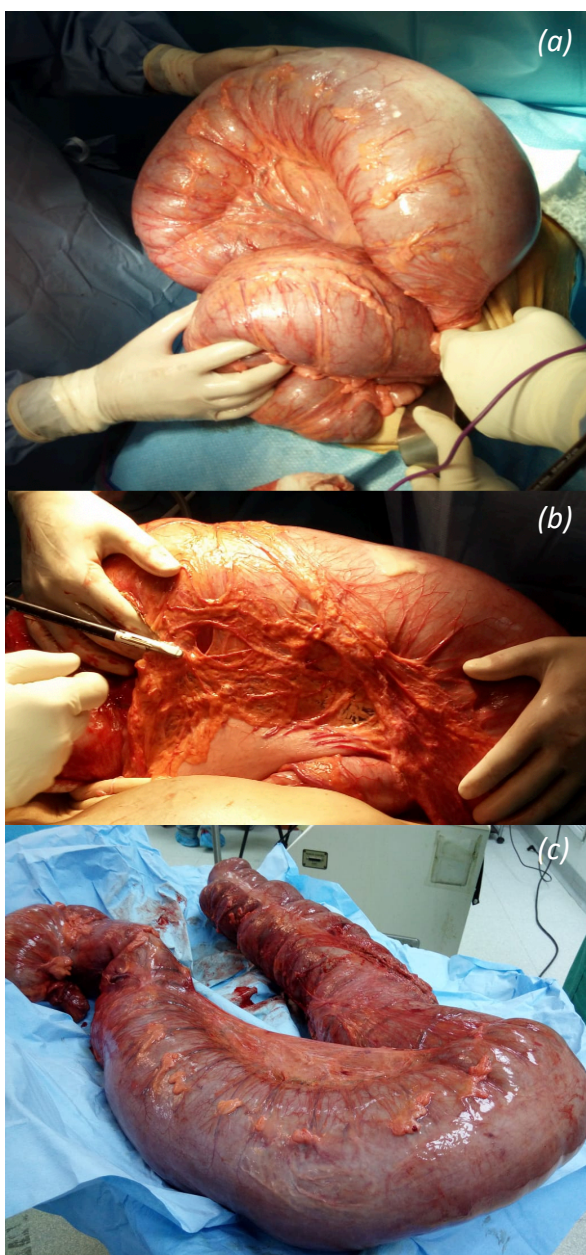


Figure 6: (a,b) Intraoperative images showing impressively distended colon (c) Resected colon on surgical table

to 50% of cases not diagnosed before the surgical intervention, as in the case of our patient [14, 15].

Adult intussusception differs from pediatric intussusception by etiologies and management strategies. Most of the cases in the pediatric population are idiopathic and benign. Management, in that case, is either by pneumatic or hydrostatic reduction, which are successful in 80% of cases. In adults, however, 90% of cases have a lead point that may be a malignant lesion, benign polyps, Meckel's colonic diverticulum, strictures, etc. The exact lead point is usually identified intraoperatively [9, 16, and 17]. Since around 65% of adult cases are associated with malignancy, endoscopic decompression is not recommended, and surgery remains the best choice of treatment [10, 18-21].

Therefore, cases of ileocecal, ileocolic and colocolonic intussusceptions in patients above 60 years old, must undergo a formal oncological resection with primary anastomosis of healthy tissue, because malignancy is the most common etiology [10, 13-15]. In total, up to 90% of cases in the adult population will need definitive surgical management with resection being the treatment of choice [13].

The surgical limits of the bowel resection while reducing the intussuscepted bowel remain a subject of controversy [12]. Total colectomy was opted for in our patient for the following three reasons 1) Risk of performing an anastomosis involving the diseased colon, 2) Risk of leaving out a possible underlying tumor and 3) Risk incurred by a need to re-operate and postoperative complications considering the frailty risk of the patient (Frailty Index for Elders FIFE= 3) [6].

Colonic intussusceptions taking place at the right colon may be managed with resection and immediate primary anastomosis even in urgent conditions where bowels are unprepared. Although, this doesn't always apply for left colonic intussusceptions, where colonic segmentectomy and the formation of a colostomy (Hartmann's procedure) then an elective re-anastomosis is a safer option in the emergency setting and high surgical risk patients, even though resection and immediate primary anastomosis can be a good option for an uncomplicated malignant left colonic obstruction when other risk factors are absent [6,22]. Only if a benign disease was confirmed as a cause preoperatively, then the surgeon can safely proceed with reduction by milking the

intussuscepted bowel out from distal into proximal part [23].

We presented this case to highlight 1) an interesting clinical scenario of an elderly patient who seeks medical care after a long-standing distention of his abdomen with recent mild dyspnea, while not having any other symptoms related to his severely distended abdomen, 2) a challenging diagnosis of intussusception despite the use of multiple diagnostic modalities, 3) a rare etiology of intussusception, and 4) a case of a severely distended colon reaching 16 cm in diameter which, to the best of our knowledge, is not previously reported.

Conclusion

Intestinal intussusception in adults remains a challenging diagnosis because of its rarity, nonspecific clinical symptoms, and variable imaging features, making preoperative diagnosis often missed or delayed, with a majority of the cases diagnosed intraoperatively. With the majority of cases in adults having a lead point with a high risk of malignant etiology, surgical resection is the treatment of choice, except in cases with a confirmed non-malignant etiology.

References

1. de Moulin D. Paul Barbet, M.D.: a seventeenth-century Amsterdam author of best-selling textbooks. *Bull Hist Med.* 1985 Winter;59(4):506-14. PMID: 3912022.
2. Noble, I. Master surgeon: John Hunter. [Internet]. J. Messner; 1971
3. Hutchinson, Herbert. Jonathan Hutchinson: Life and Letters/cby Herbert Hutchinson; with a Foreword by J. Johnston Abraham. [Internet] Heinemann; 1946.
4. Wilson A, Elias G, Dupiton R. Adult colocolic intussusception and literature review. *Case Rep Gastroenterol.* 2013 Sep 5;7(3):381-7. <https://doi.org/10.1159/000355155> . PMID: 24163649; PMCID: PMC3806710.
5. Ntoulia A, Tharakan SJ, Reid JR, Mahboubi S. Failed Intussusception Reduction in Children: Correlation Between Radiologic, Surgical, and Pathologic Findings. *AJR Am J Roentgenol.* 2016 Aug;207(2):424-33. <https://doi.org/10.2214/AJR.15.15659> . Epub 2016 May 25. PMID: 27224637.
6. Azar T, Berger DL. Adult intussusception. *Ann Surg.* 1997 Aug;226(2):134-8. <https://doi.org/10.1097/0000658-199708000-00003> . PMID: 9296505; PMCID: PMC1190946. <https://doi.org/10.1097/0000658-199708000-00003>
7. Tocchi C, Dixon J, Naylor M, Jeon S, McCorkle R. Development of a frailty measure for older adults: the frailty index for elders. *J Nurs Meas.* 2014;22(2):223-40. <https://doi.org/10.1891/1061-3749.22.2.223> . PMID: 25255675.

8. Mohamed M, Elghawy K, Scholten D, Wilson K, McCann M. Adult sigmoidorectal intussusception related to colonic lipoma: A rare case report with an atypical presentation. *Int J Surg Case Rep.* 2015;10:134-7. <https://doi.org/10.1016/j.ijscr.2015.03.035> . Epub 2015 Mar 20. PMID: 25839433; PMCID: PMC4430077.
9. Weilbaecher D, Bolin JA, Hearn D, Ogden W 2nd. Intussusception in adults. Review of 160 cases. *Am J Surg.* 1971 May;121(5):531-5. [https://doi.org/10.1016/0002-9610\(71\)90133-4](https://doi.org/10.1016/0002-9610(71)90133-4) . PMID: 5557762.
10. Nagorney DM, Sarr MG, McIlrath DC. Surgical management of intussusception in the adult. *Ann Surg.* 1981 Feb;193(2):230-6. <https://doi.org/10.1097/00000658-198102000-00019> . PMID: 7469558; PMCID: PMC1345048.
11. Agha FP. Intussusception in adults. *AJR Am J Roentgenol.* 1986 Mar;146(3):527-31. <https://doi.org/10.2214/ajr.146.3.527> . PMID: 3484870.
12. Sachs M, Encke A. Enteroenterale Invagination des Dünndarms beim Erwachsenen. Eine seltene Ursache des "unklaren Abdomens" [Entero-ental invagination of the small intestine in adults. A rare cause of "uncertain abdomen"]. *Langenbecks Arch Chir.* 1993;378(5):288-91. German. <https://doi.org/10.1007/BF00183966> . PMID: 8412437.
13. Begos DG, Sandor A, Modlin IM. The diagnosis and management of adult intussusception. *Am J Surg.* 1997 Feb;173(2):88-94. [https://doi.org/10.1016/S0002-9610\(96\)00419-9](https://doi.org/10.1016/S0002-9610(96)00419-9). PMID: 9074370.
14. Reijnen HA, Joosten HJ, de Boer HH. Diagnosis and treatment of adult intussusception. *Am J Surg.* 1989 Jul;158(1):25-8. [https://doi.org/10.1016/0002-9610\(89\)90309-7](https://doi.org/10.1016/0002-9610(89)90309-7) . PMID: 2662787.
15. Eisen LK, Cunningham JD, Aufses AH Jr. Intussusception in adults: institutional review. *J Am Coll Surg.* 1999 Apr;188(4):390-5. [https://doi.org/10.1016/S1072-7515\(98\)00331-7](https://doi.org/10.1016/S1072-7515(98)00331-7). PMID: 10195723.
16. Stubenbord WT, Thorbjarnarson B. Intussusception in adults. *Ann Surg.* 1970 Aug;172(2):306-10. <https://doi.org/10.1097/00000658-197008000-00019>. PMID: 5433296; PMCID: PMC1397058.
17. Akçay MN, Polat M, Cadirci M, Gencer B. Tumor-induced ileo-ileal invagination in adults. *Am Surg.* 1994 Dec;60(12):980-1. PMID: 7992979.
18. Haas EM, Etter EL, Ellis S, Taylor TV. Adult intussusception. *Am J Surg.* 2003 Jul;186(1):75-6. [https://doi.org/10.1016/S0002-9610\(03\)00108-9](https://doi.org/10.1016/S0002-9610(03)00108-9). PMID: 12842754.
19. Bagherzadeh Saba R, Sadeghi A, Rad N, Safari MT, Barzegar F. Colonic intussusception in descending colon: An unusual presentation of colon lipoma. *Gastroenterol Hepatol Bed Bench.* 2016 Dec;9(Suppl1):S93-S96. PMID: 28224035; PMCID: PMC5310807.
20. Shenoy S. Adult intussusception: A case series and review. *World J Gastrointest Endosc.* 2017 May 16;9(5):220-227. <https://doi.org/10.4253/wjge.v9.i5.220>. PMID: 28572876; PMCID: PMC5437388.
21. Sarma D, Prabhu R, Rodrigues G. Adult intussusception: a six-year experience at a single center. *Ann Gastroenterol.* 2012;25(2):128-132. PMID: 24714146; PMCID: PMC3959399.
22. Pisano M, Zorcolo L, Merli C, Cimbanassi S, Poiasina E, Ceresoli M, Agresta F, Allievi N, Bellanova G, Coccolini F, Coy C, Fugazzola P, Martinez CA, Montori G, Paolillo C, Penachim TJ, Pereira B, Reis T, Restivo A, Rezende-Neto J, Sartelli M, Valentino M, Abu-Zidan FM, Ashkenazi I, Bala M, Chiara O, De' Angelis N, Deidda S, De Simone B, Di Saverio S, Finotti E, Kenji I, Moore E, Wexner S, Biffi W, Coimbra R, Guttadauro A, Leppäniemi A, Maier R, Magnone S, Mefire AC, Peitzmann A, Sakakushev B, Sugrue M, Viale P, Weber D, Kashuk J, Fraga GP, Kluger I, Catena F, Ansaloni L. 2017 WSES guidelines on colon and rectal cancer emergencies: obstruction and perforation. *World J Emerg Surg.* 2018 Aug 13;13:36. <https://doi.org/10.1186/s13017-018-0192-3>. PMID: 30123315; PMCID: PMC6090779.
23. Wolff BC, Boller AM. Large bowel obstruction. Cameron JL. *Current surgical therapy.* Philadelphia: Mosby Elsevier [Internet]. 2008:189-92.