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Adult intussusceptions: Clinical presentation, diagnosis and therapeutic management



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ABSTRACT

BACKGROUND: Adult intussusception is a rare clinical entity. It is an uncommon cause of intestinal obstruction in adult. It often presents with nonspecific symptoms and preoperative diagnosis remains difficult. The purpose of this study was to determine the clinical entity and surgical approach of adult intussusception.

METHODS: We have conducted a retrospective descriptive study starting from 2006 until 2014. We reviewed data for all patients that had been admitted to our department for intestinal intussusception.

RESULTS: Eight consecutive patients were admitted to our department. The mean age was 48 years old (20–71). The sex ratio was 0,6. The clinical presentation was acute in 5 cases. A computed tomography was performed in 6 cases. The diagnosis of gastrointestinal intussusception was made preoperatively in 100% of patients. All patients underwent surgery. An organic lesion was identified in 100% of the cases. In all cases, resection of the intussuscepted intestinal loop was done without intestinal reduction. All patients were well followed up and recurrences have been documented.

CONCLUSION: In adults, intussusception is usually secondary to an organic cause. In the absence of signs of severity, etiologic diagnosis based on CT allows the diagnosis of the intussusception and sometimes can detect the causal lesion. Therapeutic sanction of intussusception is surgery and there is more emphasis towards resection without reduction.

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1. Introduction

Adult intussusception is a rare clinical entity. First reported in 1674 by Barbet of Amsterdam, it is the cause of 1–3% of all cases of intestinal obstructions [1,2]. Despite in children intussusception is usually idiopathic, in adults an organic etiology is identified in more than 90% of cases [3,4]. The preoperative diagnosis of adult intussusceptions remains difficult and surgery is still the recommended treatment.

In this study, we try to present our experience of adult intussusceptions in order to analyze the cause, clinical features, diagnosis, and management of this rare pathology.

2. Patients and methods

We have conducted a retrospective descriptive study starting from 2006 until 2014. We reviewed data for all patients that had been admitted to our department for intestinal intussusception. The database has been studied to evaluate different parameters of the patients.

We collected:

- Epidemiologic and clinical characteristics: Acute or sub acute presentation, symptoms and signs and the results of radiological investigations if performed
- The files were also reviewed for operative and pathology parameters: We compared the preoperative diagnosis to the operative findings and to the conclusion of the pathology of the operative specimen.

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Table 1
Demographic data of patients with intestinal intussusception.

Characteristic	n
Total patients	8
Mean age (years) (range)	48 (20–71)
Sex (male: female)	(3:5)
Benign 22	5
Malignant 3	2

Table 2
Symptoms and signs of patients with intussusception.

Symptoms and signs	N
Pain	7
Rectal bleeding	0
Fever	0
Nausea	
Vomiting	5
Diarrhea	0
Constipation	2
Abdominal mass	3



Fig. 1. Abdominal computed tomography scan showing the intussusceptions.

3. Results

3.1. Demographics and clinical features

Between 2006 and 2014, 8 consecutive patients were admitted to our department. The mean age was 48 years old (20–71). The sex ratio was 0,6 (3 men and 5 women). Patient demographic data is summarized in Table 1.

The clinical presentation was acute in 5 cases. These patients presented with an acute intestinal obstruction that required hospitalization in the intensive care unit for gastric suction. The three remnant cases had subacute on set of the intussusception. They presented either with pain in the lower right quadrant mimicking an appendicitis or with iterative subocclusion. The different symptoms are summed up in Table 2.

Physical examination was remarkable for abdominal mass in three cases that was located in the right Iliac Fossa.

3.2. Radiological investigation: (Fig. 1)

All patients admitted in our department with acute intestinal occlusion had abdominal X-ray with “air-fluid levels”. In one case, we indicated an intestinal opacification because of the persistent air-fluid levels despite the restoration of the intestinal transit after gastric suction. It showed a “trident” sign.

A computed tomography was performed in 6 cases. The diagnosis of gastrointestinal intussusception was made preoperatively

in 100% of patients. The underlying lesions discussed after imaging were cecal tumor in 2 cases, cecal polyp in one case, ileal tumor in one case and ileal diverticulum in one other case. The clinical presentation and the preoperative etiologies are summarized in Tables 1 and 3.

3.3. Operative findings: (Figs. 2–4)

All patients underwent surgery that proved a gastrointestinal intussusception in all. 5 patients had midline laparotomy and the three others had laparoscopy. In all cases, resection of the intussuscepted intestinal loop was done without intestinal reduction. The choice of procedure was determined by location, size, cause and viability of the bowel: 3 oncologic right colectomies, 4 intestinal resections and one ileo-cecal resection were performed. The postoperative course was unremarkable for complications in all cases. Overall, no patient suffered postoperative complications. In this study, no anastomotic leak was noticed.

3.4. Pathology findings

In all cases, the pathology examination discovered an underlying lesion. It concluded to 2 cases of ileal lipoma, 2 cases of cecal lipoma, one case of an adenomatous polyp of the ileum, one case of cecal adenocarcinoma, one case of ileal teratoma and one case of jejunal stromal tumor. All cases with clinical presentation, preoperative diagnosis and pathology findings are summarized in Table 3.

All patients were well followed up. No recurrences have been documented.

4. Discussion

Adult intussusception is a rare clinical entity. It is the cause of 1–3% of all cases of intestinal obstructions [1]. The first clinical case of intussusception was reported in 1674 by Barbette of Amsterdam [2]. It is defined by the invagination of a segment of bowel and its mesentery (intussusceptum) in the downstream lumen of the same loop of bowel (intussusciens), leading to intestinal obstruction and ischemia.

It is difficult to find a predominant gender or age [3,4]. Most patients with adult intussusceptions in our series were female. The sex ratio was 0,6 (3 men and 5 women). The mean age at presentation in our study was 48 years old (range: 20–71).

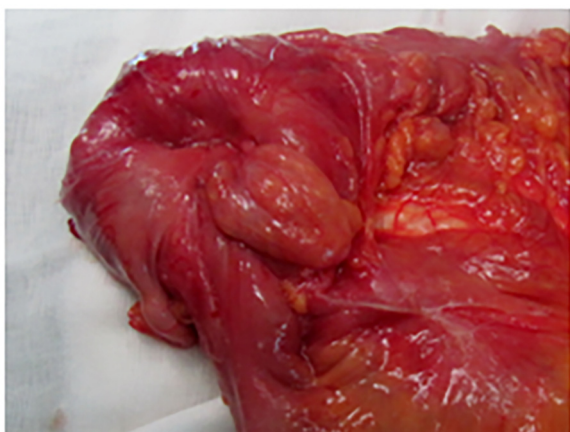
The exact mechanism is still unknown. It is believed that the causative lead point can be any lesion in the bowel wall or within the lumen that alters normal peristaltic activity. This will induce an area of constriction above the stimulus and relaxation below. Which result on the telescoping of the lead point through the distal bowel lumen [4].

Patients often present with subacute or chronic symptoms. The predominant symptoms are those associated with some form of bowel obstruction. In fact, most series report abdominal pain, nausea, vomiting and bleeding per rectum as the common symptoms. Abdominal mass is noted in 10–47% of cases [1,5]. In our series, an abdominal mass was noted in three cases. The characteristic triad of abdominal pain, palpable abdominal mass and bloody stool often seen in pediatric cases, is rare in adult. Intussusceptions have been classified according to location and to malignancy. In our series, most of the lesions were enteric.

Despite in children intussusception is usually idiopathic, in adults an organic etiology is identified in more than 90% of cases [4]. This lead point can be benign, malignant or idiopathic causes. It can be a benign polyp, a lipoma, a Meckel’s diverticulum, or a malignant tumor. In our current series, a proven pathological entity was associated with 100% of the intussusceptions. 37.5% percent of the organic lesions were malignant. The lipoma represent the principal

Table 3
Pathology and treatment.

No. of patients	Age	Gender	Location of the lesion	Preoperative diagnosis	Surgical treatment	Pathology
1	50	Male	Ileum		Intestinal resection	Lipoma
2	54	Male	Caecum	Polyp	Right colectomy	Lipoma
3	55	Female	Caecum	Tumor	Right colectomy	Lipoma
4	49	Female	Ileum		Ileo-cecal resection	Adenomatous polyp
5	30	Female	Ileum	Tumor	Intestinal resection	Lipoma
6	71	Female	Caecum	Tumor	Right colectomy	Adenocarcinoma
7	20	Female	Ileum	diverticulum	Intestinal resection	Teratoma
8	53	Male	Jejunum	Tumor	Intestinal resection	Stromal tumor



Figs. 2–4. Operatives pictures demonstrating intussusceptions.

cause in our series. The preoperative diagnosis of intussusception still very difficult due to the variability of the clinical presentation. Thus, the use of investigations including, ultrasound, and computed tomography can be helpful to establish the diagnosis. A computed tomography was performed in 6 cases.

A number of different radiological and endoscopic methods have been described as useful in the diagnosis of intussusceptions. Ultrasonography which represent the principal radiological procedure in pediatrics, is also a useful investigation for the diagnosis of adult intussusceptions. It can show two principal signs: the ‘target’ or ‘doughnut’ sign in the Transverse view and the ‘pseudo-kidney’ or ‘hay-fork’ sign in the longitudinal view.

But the most sensitive radiological method to confirm adult intussusception is abdominal computed tomography (CT). Its accuracy range from 58% to 100% [1,5,6].

It also can precise the site, level, the cause of intestinal obstructions or demonstrate threatening signs of bowel Of non viability. The classic features in Ct scan are the signs of target or sausage, mesenteric fat and vessels. In our study, a computed tomography was performed in 6 cases. The diagnosis of gastrointestinal intussusception was made preoperatively in 100% of patients.

In adults, due to the risk of intestinal ischemia and possible malignancy of the lead point of invagination, the treatment of intussusception is always surgical [7].

The surgical procedure depends upon the location of intussusceptions and viability of the intestine at the time of laparotomy.

Some authors advocate reducing the intussusception before resection to limit the extent of resection especially when the small bowel is involved. But, no clear evidence exists on this issue. However, reducing the intussusception expose to a risk of disseminating cancer cells. Thus, some authors recommend the first resection without reduction the choice of surgical approach will depend on the clinical condition of the patient, the location of intussusception, the nature of the aetiological lesion, the bowel vitality, and the expertise of the surgeon in matters of laparoscopic surgery. Several reports have described the laparoscopic as a good approach to diagnose and sometimes treat intussusception of the small and large bowel [8–11]. But, it requires expertise in laparoscopic surgery due to distension of the bowel loops. The prognosis of adult intussusception after surgery is good except in cases of malignancy.

5. Conclusion

Intussusception is an uncommon cause of intestinal obstruction in adult. It often presents with non specific symptoms and preoperative diagnosis remains difficult. Almost 90% of adult intussusceptions are secondary to a pathologic condition. The most sensitive diagnostic approach is abdominal CT scan. Therapeutic sanction of intussusception is surgery and there is more emphasis towards resection without reduction.

Competing interests

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Consent for publication

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All of them accepted the submission of the article.

Authors' contributions

AM, AM, AS, AM analyzed and interpreted the patient data regarding. HM, RR, MJ were majors contributor in writing the manuscript. All authors read and approved the final manuscript.

Guarantor

Maghrebi Houcine.

Availability of data and material

Materials described in the manuscript, including all relevant raw data, will be freely available to any scientist wishing to use them for non-commercial purposes.

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All contributors meet the criteria for authorship.

The work has been reported in line with the PROCESS criteria [12].

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