



## INTUSSUSCEPTIONS IN ADULTS (ABOUT 06 CASES)

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**ABSTRACT** **Background :** Intussusception in adults is a rare condition that is difficult to diagnose due to its clinical polymorphism. Its diagnosis has become easier thanks to advances in medical imaging. The treatment of intussusceptions in adults is surgical because of the high incidence of causative organic lesions. **Objective :** Our work is a prospective study which aims to determine the clinical and etiological peculiarities of acute intussusceptions in adults, to specify the diagnostic and therapeutic difficulties and to draw practical conclusions regarding the optimal therapeutic management of this rare condition. **Materials and methods:** Our work is a retrospective study, covering a series of 06 cases of acute intussusception operated on in the visceral surgery department of the Avicenna Military Hospital in Marrakech, over a period of 6 years, from January 2014 to May 2020. Data relating to clinical features, diagnosis, treatment and histological reports were collected and analyzed. **Results:** Six cases of acute intussusceptions in adults were collected over a period of six years, amounting one case per year. The average age was 52 with a female predominance of 66%. Four out of 6 patients had been seen urgently. The diagnosis was made preoperatively in all cases, ie 100% by using ultrasonography and CT. The ultrasound showed a "target" image in one case and a "pseudo-kidney" image in another. CT made it possible to make the diagnosis in all cases, and objectified an etiological diagnosis in 4 patients, ie 66.6% of cases. The pure enteric form was the most frequent (3 out of 6 cases), ie 50% of cases. There was one case of intestinal necrosis. Bowel resection was performed in 6 cases, or 100%. The cause of intussusception was found in all patients, including a benign tumor cause in 66.6% of cases. The immediate postoperative follow-up was straightforward in all patients **Conclusion:** We can conclude that the acute intussusception in adults is a rare entity that should be considered in any patient with subacute abdominal pain. And we propose that oncological resection should be carried out in all cases of intestinal intussusception without attempting reduction regardless the site of the invagination, In view of the high rate of malignancy.

## KEYWORDS :

## INTRODUCTION

Intussusception is typically a disease of childhood, and its presence in adults is an infrequent clinical entity [1]

Intestinal intussusception is defined by penetration or telescoping of an intestinal segment and its mesentery (invaginated) in the lumen of the immediately underlying (invagant) segment. This telescoping of the intestine may lead to bowel obstruction and includes the risk of ischemia, perforation and peritonitis [2]

Despite the evolution of imaging procedures, the diagnosis of intussusception in adults is often difficult, often made at laparotomy

Our study will concern a series of 06 cases of acute intestinal intussusception operated in the visceral surgery department of the Avicenna Military Hospital of Marrakech, over a period of 6 years, from January 2014 to May 2020

## MATERIALS AND METHODS

Our work is a retrospective study, having focused on a series of 06 cases of acute intestinal intussusception operated in the visceral surgery department I of the Avicenna Military Hospital of Marrakech, over a period of 6 years, going from January 2014 to May 2022

## RESULTS

06 cases were collected in the visceral surgery department of the Avicenna military hospital in Marrakech for AI, during a period of 06 years from January 2014 to May 2020.

During these 06 years, 250 intestinal obstructions have been identified

in adults, of which 06 cases are caused by intestinal intussusceptions, amounting to 2,4%

The average age of our patients was 52 years, with extremes ranging from 19 years to 80 years.

Our series counts 4 women and 2 men, amounting percentages of 66,6% and 33,3%

The average duration of evolution before the consultation was 11,5 days with extremes ranging from 12 hours to 1 month

All patients reported abdominal pain and Vomiting. Transit disorders Have been noticed in 4 patients and no patient had rectal bleeding.

In our series, 2 patients presented a deterioration of the general state with an unquantified weight loss, amounting 33,3 % of cases and 1 patient in our series had a fever.

Plain abdominal X-ray (AXR), was done in 5 patients, or 83,3% of the cases, was the first-line examination in the 4 patients admitted in emergency. It did not show any specific signs apart from a distension of the intestinal loops and air-fluid levels in 4 patients.

An abdominal ultrasound was performed on 3 of our patients (50% of cases). It allowed the diagnosis of intestinal intussusceptions in 2 patients (or 33,3 % of cases), by objectifying a pseudo-kidney image in 1 patient and a "target" sign image in 1 patient

Abdominal CT scan was performed at all the patients either 100 % of

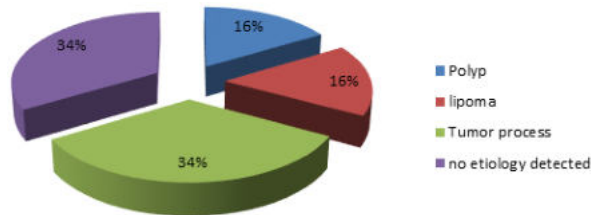
case. It has allowed the diagnosis of intestinal intussusception in all cases, and has objectified an etiological diagnosis in 4 patients or 66,6 % of cases. It showed the different aspects found in the table below (table I, II, figure 1, 2)

**Table I: CT scan results of patients in our series**

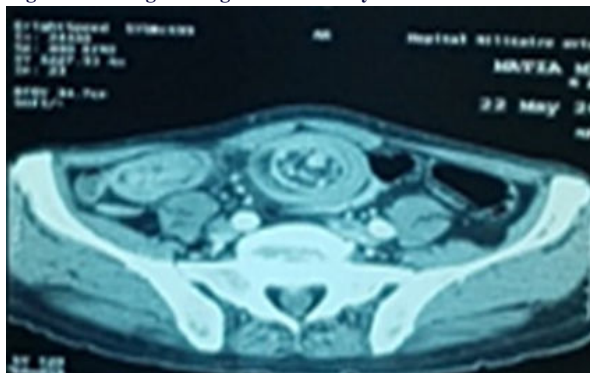
Case	Results of CT
1	Invagination of the terminal ileum with intestinal dilation upstream, without hydro-aeric level, or signs of parietal distress of the intestine (Target image)
2	Acute small-fine intussusception.
3	A mid-enteric caliber disparity with a multi-layered appearance of the intussusception with an image of tissue density within the lesion.
4	Ileocolonic intussusception by showing a characteristic and pathognomonic image called "target image". The CT-scan also objectified the presence of a tumor process of the ascending colon in the form of a thickening of the wall, responsible for the intussusception.
5	Thickened loop of the small intestine containing vascular elements and a target image strongly suggestive of jejunum-jejunal intussusception on a well-defined mass with low fat density
6	Significant colonic distension upstream of intussusception on a tumor process of fat density, homogeneous, well limited, measuring 3 cm on the long axis, involving the right colic angle.

**Table II: The types of invagination specified by CT**

Intussusception type	Number	Percentage
Enteric	ileo-ileal	1 16,6%
	jejuno-jejunal	2 33,3%
Colic	colo-colic	1 16,6%
Mixed	ileo-coeco-colic	1 16,6%
	ileo-colic	1 16,6%



**Figure 1: Etiological diagnoses evoked by abdominal CT**



**Figure 2: An abdominal tomography showing small intestine intussusception.**

In our series, all patients underwent a laparotomy with a midline incision straddling the umbilicus

3 intussusceptions of the enteric type were observed (ie 50% of cases) (figure3). The ileocolic intussusception was found in 2 patients (ie 33.3% of cases), only 1 patient in our series had a colo-colic intussusception (ie 16.6% of cases).

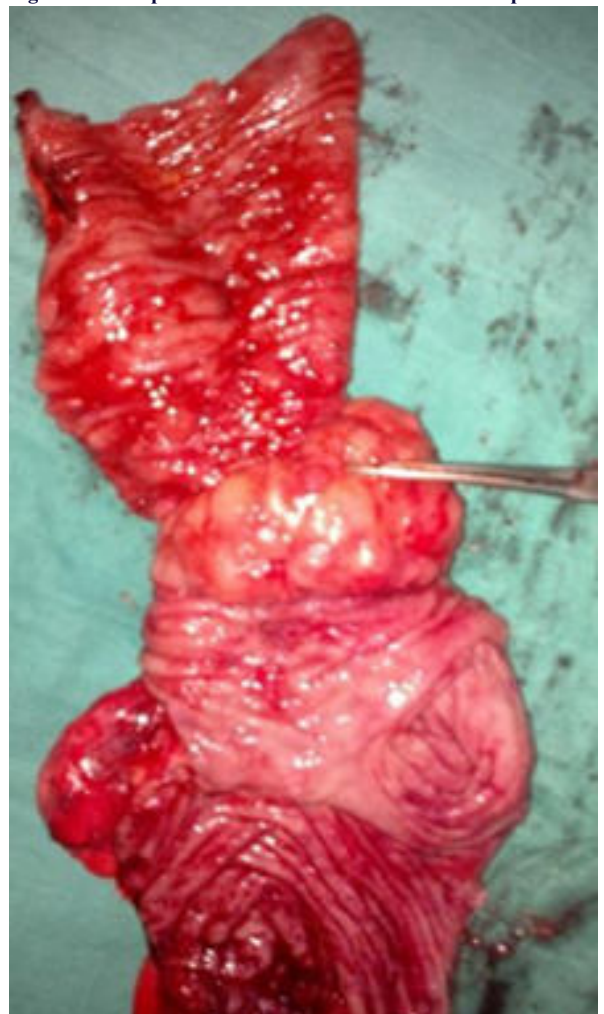
During surgical exploration, we found necrosis of the invaginated portion and of the caecum with satellite mesenteric lymphadenopathy in one patient, ie 16.6%.

The surgical procedure varies depending on the case, in fact:

- A segmental intestinal resection of the small intestine with an anastomosis was performed in 3 patients.
- An ileocecal resection was performed by removing the ischemic segments, with an immediate ileocolic anastomosis and abdominal drainage on ileocecal invagination.
- A carcinological right hemi-colectomy with lymph node dissection and end-to-side ileotransverse anastomosis in a single step in a patient with ileocolic intussusceptions (figure4).
- A disinvasion was performed to discover a well rounded tumor of the ascending colon. Thus, a right hemicolectomy was performed with a connection of both colonic and ileal ends in a double Bouilly Wolkman-style stoma in the right hypochondrium in a patient with colo-colic IIA on lipoma



**Figure 3: Intraoperative view of enteroenteric intussusception**

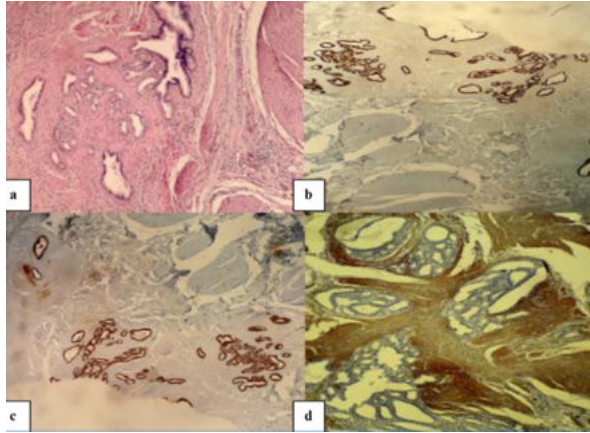


**Figure 4: Open surgical specimen showing the cause of the intussusception: colonic tumor**

The postoperative course for all the patients was uneventful and no

case of postoperative death was mentioned in our series.

Pathological examination of the surgical specimens identified the etiology of intussusception in all 6 cases (100%) (figure5, tableIII).



**Figure 5:-Histological features and immunohistochemical profile of the tumor: (a): the tumor composed of glandular structures surrounded by bundles of smooth muscle cells in the submucosa of the ileum. (Hematoxylin-eosin stain,×4). The tumor cells express CK 7 (b) and CK 19 (c). The bundles of smooth muscle cells are strongly positive of smooth muscle actin (d).**

**Table III: Distribution of cases according to the etiology of intussusception and its type.**

	Results	Number of cases N=6	Percentage %	Type of invagination
<b>Benign etiologies</b>	Polyp	2	33,3%	Jejuno-jejunal
	Lipoma	1	16,6%	Colo-colic
	Adenomyoma	1	16,6%	Ileocecal
<b>Malignant etiologies</b>	Lymphoma	1	16,6%	Ileocolic
	Gastrointestinal stromal tumor	1	16,6%	Ileo-ileal

Adjuvant chemotherapy was indicated in 1 of our patients who was referred to the oncology department.

**DISCUSSION**

Intestinal intussusceptions are relatively rare in adults. They represent 2 to 4% of intestinal obstructions in adults [3]

It is difficult to find a predominant age[4,5], even if the average age of the various published series is between 35 and 50 with extremes ranging from 15 to 93 years [6,7,8,9,10]

The female predominance commonly found in the world series [6,7,8,4,9,11], was found in our series with a sex ratio of ½ The mode of presentation is usually subacute or even chronic, spanning several weeks already months [3,10]. The more rare acute forms are often the prerogative of entero-enteral invaginations [12]. In our series, the average duration of evolution of the clinical history before consultation was 11.5

The classic clinical signs of AII, including the triad associating paroxysmal abdominal pain, bloody diarrhea and palpable mass on examination, are found in children but are only very rarely present in adults, estimated at 9.8% cases in a large series out of 41 patients treated surgically for digestive intussusception[13]. In fact, in adults, the presentation is often non-specific with symptoms that can evolve in a chronic mode, including nausea, vomiting, constipation, weight loss or even abdominal distension [14]. When the intussusception coexists with a malignant lesion, symptoms may also include weight loss, melena, or a palpable abdominal mass [15].

Among the general signs described, there is the alteration of the general state made essentially of a weight loss and anorexia. These two signs are generally found in patients with organic lesion. Therefore, the presence of weight loss or anemia should alert surgeons to suspect a malignant tumor [16]

Due to the difficulty of clinical diagnosis of acute intestinal intussusception in adults, radiological investigations play a key role in

the preoperative diagnosis of this pathology.

**Abdominal X-Ray** It is a simple radiological procedure that is not very contributory, it rarely pauses the diagnosis of the intussusception by showing the opacity of the intussusception pudding in the form of a homogeneous rounded opacity of water tone circumscribed on one side by a clear crescent and which may contain within it clear arciform images which give it a "coil spring" appearance. However, this examination brings informations of great importance such as air-fluid levels related to an intestinal obstruction, or by objectifying an intraperitoneal fluid, or a gas effusion testifying to complications as peritonitis [7,17,11]

**Abdominal ultrasonography** is limited in some cases by the presence of obesity or significant distension. The characteristic images are "target" or "doughnut" and "hay-fork" or "pseudo-kidney" [18]

CT is an effective means of diagnosis because it makes it possible to make diagnose preoperatively the intussusception, with an accuracy estimated at 58-100% [13,19].

The CT image of the intussusception appears, as in ultrasonography, in the form of an unhomogeneous "target" or "sausage"- shaped soft-tissue mass with a layering effect

An occlusive syndrome is objectified by the demonstration of a localized or more diffuse distension of a digestive segment, with the presence of handles dilated to more than 25 mm in diameter for the small intestine and 50 mm for the colon.

CT can also identify the site of intestinal intussusception [20]. Sometimes CT allows the etiological diagnosis to be made by identifying the underlying lesion, particularly if the latter presents characteristic images on CT, such as a negative density for a lipoma

The CT scan is the best test for predicting intestinal distress [18].

An organic cause is found in 70 to 90% of cases and idiopathic in 8 to 20%, while in children the intestinal intussusception is primary in 90%[21,22]

- Organic etiologies:
- tumor lesions (benign and malignant) considered the most common cause of intestinal intussusception in adults, they are responsible for intussusception in 55 to 75% of cases [23]
- Malformations: Meckel's diverticulum can be complicated by intussusception in rare cases in adults, The ectopic pancreas, Duplication of the terminal ileum and Endometriosis [24,25,26,27]
- Digestive system infectious diseases : Intestinal tuberculosis, Typhoid fever, Intestinal amebiasis, intestinal parasites... [24]
- Inflammatory bowel pathologies : Celiac disease and Crohn's disease[28,29]
- Post-operative invaginations : bridle or digestive anastomosis [30]

**Idiopathic intussusceptions:** In the absence of any anatomical lesion, we talk about idiopathic invagination, also called "primary" or "functional. while in adults it represents only 10% of cases [21]

Treatment of intestinal intussusception in adults is surgical due to the high incidence of causative organ damage. The choice of the surgical method remains influenced by the site, size, cause and viability of the invaginated loop [26,,31]

The recommended procedure is laparotomy [32] but laparoscopic surgery for adult intussusception has been increasingly performed in recent years because of its proven benefits such as faster recovery, less pain and minimal scarring.

The therapeutic methods used for the treatment of intestinal intussusception in adults are of two types: either resection or reduction, the method used depends on the type of intussusception, etiology and also the viability of the intestinal loop [18].

**CONCLUSION**

Currently, early diagnosis is easily made by computed tomography (CT). It is the most precise and efficient diagnostic modality. It is the best test for predicting intestinal suffering which allows better management and good therapeutic behavior. If the appearance of

intussusception is characteristic on CT, determining the etiology remains difficult.

Intussusception in adults is mainly associated with an underlying disease that requires surgery.

Given the high rate of associated malignancy, the en-bloc resection without attempting reduction should be the treatment of choice regardless of the site of invagination.

The prognosis of this affection is conditioned by the patient's disposition, the cause, the evolutionary stage of intestinal lesions, and therefore the early diagnosis and surgery

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