

Intussusceptions Analysis of 57 cases of intussusceptions at Alkarama Teaching Hospital Wassit-Al-kut

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الخلاصة

أجريت دراسته مستقبلية على (57 حالة من حالات تداخل الامعاء والتي ادخلت الى مستشفى الكرامة التعليمي في بغداد للفترة من الاول من اب 2011 الى الاول من اذار 2014. معدل الاعمار كان من شهر واحد الى ثلاث سنوات ومتوسط العمر كان ستة شهور، وكانت اغلب اعمار المرضى تتراوح بين (6-12) شهر. نسبة الذكور الى الاناث كانت (1:1.7). ان تداخل الامعاء سائد اكثر في فصل الربيع. كانت الاعراض الرئيسية كالآتي: الام البطن في 55 مريض (96.5%) يتبعها النزف الدموي من المستقيم في 50 مريض (87.7%) من المرضى والتقيئ عند 45 مريض (78.9%). العلامة الأكثر عمومية كانت ورم البطن في 31 مريض (54.4%).

معظم المرضى 35 (61.4%) حضروا خلال (24-48) ساعه من حدوث الاعراض. اعتمد التشخيص بشكل رئيسي على الفحص السريري للمريض ومدعوم بالاشعة السينية والموجات فوق الصوتية(السونار) لعدم توفر حقنة الباريوم. التدبير الجراحي كان الخيار الوحيد لجميع المرضى، الارجاع اليدوي البسيط للامعاء مع استئصال الزائدة الدودية كان الاجراء لـ 44 مريض (77.2%)، غنغرينية الامعاء وجدت عند 7 مرضى (12.3%) اجريت لهم عملية استئصال جزئي مع ربط الامعاء الاولي لـ 6 مرضى هذا كان غير ممكن مع المريض السابع (1.8%) حيث تم اجراء عملية تقويه الامعاء الدقيقة. وجد تداخل الامعاء الثانوي عند 6 مرضى (10.5%) وكان انبعاث مكل النقطة الدالة لـ 4 مرضى والمرضى الاخرين كان البوليبيد (سليلة مخاطية) السبب وعولج جميعهم بالاستئصال الجزئي للامعاء والربط الاولي للامعاء. مضاعفات (عقائيل) العملية الجراحية سجلت في 21 مريض (36.8%) وكان معدل الوفاة مريض واحد (1.8%).

Abstract:

This is a prospective study of 57 cases of intussusception who were admitted to the Alkarama Teaching Hospital in Al-kut from the 1st of October 2011 to the 1st of March 2014.

Age ranging was from one month to three years and the mean age was (6 months); the commonest age group affected was those between (6-12) months, the male: female ratio was (1.7:1), the disease was more prevalent in spring time.

The cardinal symptoms were abdominal pain in 55 patients (96.5%), followed by the passage of red currant jelly stool in 50 patients (87.7%) and vomiting was present in 45 patients (78.9%).

The most common sign was abdominal mass in 31 patients (54.4%).

Most of the patients 35 (61.4%) presented in the (24-48) hours from onset of symptoms.

In diagnosis we depended mostly on the clinical picture of the disease supported by plain abdominal x-ray, ultrasonography as Barium enema was not feasible.

Surgical management was the only option for patients. Simple manual reduction of the bowel with appendectomy was the procedure in 44 (77.2%) of patients and in 7 patients (12.3%) resection was done due to gangrenous bowel with primary anastomosis which was not possible in one of them (1.8%) and ended with ileostomy.

Six patients (10.5%) had secondary intussusception and in 4 of them, Meckel's diverticulum was the lead point and the other 2 cases the polyps were the cause and all were treated by resection and primary anastomosis. Postoperative complications were recorded in 21 patients (36.8%) and mortality rate was recorded in one patient (1.8%).

Introduction

Intussusception is defined as when one portion of the gut (intussusceptum) becomes invaginated within an immediately adjacent segment (intussusceptient), invariably it is the proximal into the distal bowel. The lead point or the apex of the intussusception is typically a peyer's patches in the terminal ileum, the

iliocecal valve itself, or apart of the cecal wall, but in pediatrics an intussusception has a pathological lead point.^(1,2)

The apex commonly reach the transverse colon, but can proceed as far distally as on the rectum and on rare occasions may appear outside the anal verge so mimics a rectal prolapse. The incidence is highest in infant

between (4 -10) months of age , but earlier or later presentation are not unusual.⁽²⁾

Aim of the study

The aim of this study is to assess the clinical presentation of patients who were diagnosed and treated as cases of intussusception.

The objectives of this study fall in the following points :

1. To determine the relation of the age , gender and built of the patients with clinical outcome.
2. To decide whether the type of intussusception has any effect on the outcome of the disease .
3. To choose the less harmful mode for diagnosis .
4. To find if there is any seasonal influence on the increase in the number of cases .

Patients and methods

This is a prospective study of 57 patients with intussusception admitted to the Alkarama Teaching Hospital from the first of october 2011 to the first of March 2011

Table (1): Age incidence

Age/month	No.	percentage
Less than 6	16	28.1
6-12	35	61.4
12-24	4	7.0
More than 24	2	3.5

2. Gender incidence:

There were (36) males (63.2%) and (21) female (36.8%) and the male to female ratio in this study was (1.7:1) , table (2)

Table (2): Gender incidence

Gender	number	percentage
Male	36	63.2
Female	21	36.8

3. Seasonal incidence :

Many of the patients 29 (50.9%) admitted in Spring season and only 6 patient (10.5) admitted in Summer , table(3).

Table (3): Seasonal incidence

Season	No.	Percentage
Spring	29	50.9
Winter	13	22.8
Autumn	9	15.8
Summer	6	10.5

4. Duration of symptoms:

Data collected from these patients were focused on age, sex, season, duration of symptoms , date of admission, chief compliant, associated symptoms, past medical and surgical history .

The diagnosis in this study depended on the clinical bases (abdominal pain , vomiting , passage of red current jelly stool) together with palpation of the mass abdominally or rectally.

Plain abdominal radiograph was done for all patients ,U/S was done for 43 patients (75.4%) and Barium enema was not performed for any of the patients because the contrast material was not available .

Result

1. Age incidence:

The majority of our patients were under the age of one year(51) (89.5 %) , 6-12 months being the commonest age group 35 (61.4%).Only 4 (10.5%) of patients were between 1-2 years , and only 2 patients more than 2 years. The youngest age in this study was a male aged one month and the oldest was a female aged 3 years table(1).

The majority of cases 35(61.4%) presented within 24-48 hours of the onset of

symptoms and only 13 (22.8%) of cases presented after 48 hours one case presented after one week . Nine (15.8%) of cases presented within the first 24 hours of onset of symptoms, the earliest was in few hours, table (4).

Table (4): Duration of symptoms

Duration of symptoms/hour	No.	Percentage
Less than 24	9	15.8
24-48	35	61.4
More than 48	13	22.8

5. Mode of presentation:

The majority of patients in this study presented with abdominal pain (screaming attacks) ,vomiting , bleeding per rectum and in late cases with constipation and abdominal distention.

On physical examination, abdominal tenderness and red currant jelly stool were detected in the majority of patients , abdominal mass was detected in more than half of patients and palpable mass detected on rectal examination in 11 patients tables (5)

Table (5): Signs and symptoms at presentation

Sings&Symptoms	No.	Percentage
Abdominal pain	55	96.5
Red currant jelly stool	50	87.7
Vomiting	45	78.9
Abdominal distention	43	75.4
Abdominal mass	31	54.4
Palpable mass per rectum	11	19.3

6. Location of the mass :

On physical examination, abdominal mass was palpable in 31 patients (54.4%) and in 11 patients(19.3%) the mass was palpable on rectal examination. No mass could be felt in 15 patients (26.3%) table (6) .

Table (6) : Location of the mas

Location of the mass	No.	Percentage
No mass	15	26.3
Rt hypochondrium	13	22.8
Per rectal exam	11	19.3
Left iliac fossa	7	12.3
Epigasterium	5	8.8
Left hypochondrium	4	7.0
Right iliac fossa	2	3.5.

7. Coexisting illness:

Coexisting medical problems was detected in 37(64.9%) patients most of which 21(56.8%) was upper respiratory tract infection. Gastroenteritis detected in 14(37.8%) and typhoid fever in one (2.7%) and Henoch-Schonlien purpura in one (2.7%) table (7).

Table (7): Coexisting illness

Coexisting illness	No.	Percentage
Upper resp. tract infection	21	56.8
Gastroenteritis	14	37.8
Typhoid fever	1	2.7
Henoch-Schonlin purpura	1	2.7

8. Regarding the operative finding and measures

In 44 patients (77.2%) there was intussusception with a viable bowel, while gangrenous bowel were found in 7 patients (12.3%).

Specific lead point were detected in 6 patients (10.5%) 4 of which were Meckel's diverticulum, and 2 of which were polyps , table (8).

Table (8) Operative finding and measures

Operative finding and measures	No. of patients		percentage
Simple reduction of viable bowel	44		77.2%
Gangrenous bowel (Resection)	7	Primary anastomosis	6 12.3%
		Stoma formation	1
Specific lead point	6		10.5%

9. Types of intussusceptions

Ileocolic type of intussusception was the most frequently encountered 44 (77.2%). Followed by ileoileocolic in 6 (10.5%) of patients, ileoileal in 4 (7.0%), colocolic in 2 (3.5) and ileocolic with retrograde colocolic 1 (1.8%) table (9).

Table (9) Types of intussusception

Type of intussusception	No. of cases	percentage
Ileocolic	44	77.2
Ileoileocolic	6	10.5
Ileoileal	4	7.0
Colocolic	2	3.5
ileocolic with retrograde colocolic	1	1.8

Postoperative complications:

Early complications :

Superficial wound infection occurred in 7 (12.3%) patients. Wound dehiscence occurred in 2 patient (3.5%). Anastamotic leak occurred in one patients(1.8 %), while postoperative diarrhea occurred in 5 patients (8.8%).

Bronchopneumonia occurred in 6 patient (10.5%), and one patient died mostly due to electrolyte disturbances and delayed recovery from anesthesia.

Late complications:

There was one case of postoperative intestinal obstruction after reduction of intussusception about 2 months after surgery who was treated conservatively, there were 2 cases of incisional hernia treated after 6 and 8 months after primary operation.

Hospital stay:

Hospital stay after operative reduction is about two to seven days which is shorter than when resection and anastomosis done where it is about five to fourteen days.

Mortality:

one patient died after surgery had delayed presentation, more than 72 hours from the onset of symptoms.

Methods of referral:

Of 57 patients , 21 cases(36.8%) were referred from other hospitals or private clinic

and 36 cases (63 2%) were direct visitors of our hospital

Discussion

Intussusception is a condition in which one segment of the bowel tunnels into an adjoining segment, like a collapsible telescope. Intussusception is one of most common causes of intestinal obstruction in infants and young children can occur in the colon , the small bowel, or between the small bowel and colon. The result is a blocked small bowel or colon.⁽³⁸⁾

This study showed that, the age at presentation varied from one month to three years the mean age was(6 months). The majority were under one year (.89.5%) and the commonest affected age group was 6- 12 months, this is similar to the results gained from previous studies done by M.K. Al-sultan ⁽³⁹⁾ , D. A. R. Mohammed ⁽⁴⁰⁾ , and I.R.Al-hadithi.⁽⁴¹⁾,

There was a male predominance with a male to female ratio of (1.7 :1) this is less than the finding of D.A.R. Mohammed(2.3:1)⁽⁴⁰⁾, but more than to that of I.R. Al-Hadithi(1.5:1).⁽⁴¹⁾

In this study, the peak seasonal incidence was in Spring with a definite peak in March which differs from other studies where Ashcraft and baily in Europe found an additional peak at Summer ^(1,8) and

D.A.R.Mohammed also found an additional peak at Autumn.⁽⁴⁰⁾

In this study, the majority of our patients 35 (61.4%) presented with symptoms within 24-48 hours which is similar to William H. Snyder⁽⁴²⁾ who reported a presentation within the first 48 hours. but differs from other studies in which the majority of their patients presented within the first 24 hours ^(39,40,41) , this delay in presentation may be due to the variability of signs and symptoms , lack of awareness of the attending practitioners or delay in transporting the patients to our center.

Despite Ravitch (1952) pointing out that "one must ever keep in mind the occasional occurrence of chronic ,non-strangulating, incompletely obstructing Intussusception ,. chronic Intussusception as clinical entity is poorly recognized and rarely included in the differential diagnosis of prolonged abdominal symptoms.(43)

In this study, 55 (96.5%) patients presented with abdominal cramps (screaming attacks , with drawing up the knees) , the frequency of this intermittent abdominal pain higher than what reported by D.A.R. Muhammad (88.1%)⁽⁴⁰⁾ M.K. Al-sultan who reported (94.8%)⁽³⁹⁾.

Vomiting was presented in 45 (78.9%) patients which lower than what reported by D.A.R.Muhammad(81.5%)⁽⁴⁰⁾ to M.K. Al-sultan who reported (85.9%)⁽³⁹⁾.

Red currant jelly on rectal examination was present in 50(87.7%) of patients ,this is also higher than what was found by D.A.R.Muhammad(81.3%)⁽⁴⁰⁾ ,by Judith M. Sondheimer(50%),⁽¹⁰⁾ or by Forfar(56%)⁽²²⁾ , but it is lower to M. K. Al-sultan(91%)⁽³⁹⁾ .This high incidence of red current jelly may be due to a delayed presentation of our patients.

Regarding abdominal examination, abdominal mass was palpable in 31(54.4%) of patients, which is lower than what reported by D. A. R. Mohammed study(64.4%)⁽⁴⁰⁾ and William H. Snyder(69%)⁽⁴²⁾ but less than M.K. Al-sultan study (84.6%).⁽³⁹⁾

The site of the palpable abdominal mass was comparable to other studies ,but it differs in that they reported a prolapsing mass from rectum(1%) while no mass prolapsing from anus was encountered in this study .^(17,18,19)

We found that there is a relationship between the duration of the symptoms and the site of the palpable mass. Abdominal distention was detected in 43(75.4%) of patients which is higher than D. A. R. Mohammed (22.3%).⁽⁴⁰⁾

Thirty seven (64.9%) patients attended medical advise for febrile illness where 21(56.8%) patients were having upper respiratory tract infection , 14(37.8%) patients having gastroenteritis and one case(2.7%) had typhoid fever ,one case (2.7%)had Henoch-Schonlien purpura, this may reflect the infective etiology that is suggested by others^(8,22)

Radiographic study with plain abdominal films was done in all patients (100%) ,but it was inconclusive in most cases, and contrast study was not done for any of our patients this differs from the study done by D. A. R. Mohammad who found it to be diagnostic in(23.6%) of his cases.⁽⁴⁰⁾ U/S was done in only43 (75.4%)of our patients and it was positive in all cases ,this is nearly similar to M.K. Al-sultan result as a positive U/S in (96.2%)of cases⁽³⁹⁾.

. The majority of them 44(77.2%) had simple reduction with appendectomy without bowel resection , in (7) patients (12.3%) required resection of the gangrenous bowel, a specific leading points were found in the remaining (6) patients (10.5%) and were treated by resection and primary end - to- end anastomosis.

Appendectomy is considered as a routine in all patients in this study which did not affect the postoperative course or the final outcomes. The specific lead point was reported in 6 (10.5%) of patients ,it ranged from (2-12%) in previous reported studies⁽⁸⁾ , four of these leading points were Meckel`s diverticulum and 2 of these lead points were polyps, all of which were involved in the pathology of intussusception and treated by

resection and primary end to end anastomosis .

In this study the most common type of intussusception was ileocolic detected in 44(77.2%) of cases , ileoileocolic was the second common type and detected in 6(10.5%), while colocolic detected in 2(3.5%) , the ileoileal type was detected in only 4(7.0%) .This is similar to other reported studies except in ileoileal was more in this study ^(8,40).

There were higher complication rate in comparison with other studies ^(39,40,41).

The early complication occurred in 21 patients(36,8%) : **Superficial wound infection** occurred in 7 patients(12.3%), which responded to antibiotics , **wound dehiscence** occurred in 2 patient(3.5%) who were treated by immediate surgery in one case and conservative treatment in the other .

,**anastamotic leak** in one patients(1.8%) treated by ileostomy and then closure, **postoperative diarrhea** occurred in 5 patients(8.8%) and treated conservatively , One patient (1.8%) died mostly due to electrolyte disturbance and delayed recovery from anesthesia. Other early postoperative complication is the **bronchopneumonia** which occurred in 6 patient(10.5%) and treated with antibiotics.

Regarding the **late postoperative complications** ; it occurred in One patients (1.8%) who suffered from **intestinal obstruction** after operative reduction of intussusception developed 2 months after surgery he respond to conservative treatment .

Incisional hernia occurred in 2 patients (3.5%),and were treated by repair after 6 monthes and 8 monthes.

In this study, the length of hospital stay depended on the type of surgery, intraoperative pathology, and patient`s condition. In cases of simple reduction it ranged from (2-7) days, while when bowel resection is required it ranged from(5-14) days.

In our study , there is a lower mortality rate (1.8%)as compared with other

studies:D.A.R.Mohammad (2.6%),⁽⁴⁰⁾Judith M. Sondheimer had(1-2%).⁽¹⁰⁾

Conclusions

1. Intussusception is a frequent cause of intestinal obstruction in children under the age of two years.
2. Childhood Intussusception is usually idiopathic in origin and in only a small proportion is a pathological lesion at the lead point identified
3. Clinical diagnosis of intussusception is still primarily the golden mode of diagnosis.
4. Delayed presentation is the main factor that increases morbidity and mortality rate.
5. There is a shortage of help of the investigations in the diagnosis.

Recommendations

1. The practitioners and physicians should improve their knowledge and awareness about possibility of intussusception specially when facing a case of bloody diarrhea.
2. Admission every child or infant with a triad of pain , vomiting , and bleeding per rectum .
3. Increase awareness about the condition in the pediatric medicine department in order not to miss a case.
4. The family should be informed a bout the possibility of recurrence and follow up is important to detect these recurrences
5. U/S and other radiological facilities should be available at all times in pediatric hospitals.

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