Incidentally diagnosed intussusception spontaneously resolved in an adult patient after blunt trauma: A rare case report

**Catherine R Lewis, Omar K Danner, Kenneth L Wilson,
L Ray Matthews**

ABSTRACT

Introduction: Although intussusception is a rare cause of mechanical bowel obstruction in adults, traumatic intussusception is exceedingly rare. In adults, intussusception contributes less than 1–5% of bowel obstructions. The first report of the diagnosis of intussusceptions was over three centuries ago (1674) by Barbette in Amsterdam. However, the first surgical treatment for this condition in literature was not until almost 100 years later in 1871 by Sir Jonathan Hutchinson, who operated on a child with intussusceptions. Risk factors include age, sex, abnormal peristalsis and pre-existing abdominal pathology.

Case Report: A case of jejunojejunal intussusception in an otherwise healthy 48-year-old female following blunt trauma is presented. The patient was treated conservatively with complete spontaneous resolution of her symptoms. Intussusceptions following blunt trauma is a very rare condition, which may be difficult to diagnose, and usually present as incidental findings. Laparotomy may be necessary in unstable trauma patients and in those individuals whose symptoms of mechanical bowel obstruction fail to resolve in a timely manner or who develop acute peritonitis. In conclusion, intussusception associated with blunt trauma may occur more frequently than previously suspected. Surgical intervention is not always necessary. Conservative management of patients that present with post-traumatic intussusception without other symptomatology may be safely undertaken, unless changes in clinical exam warrant operative intervention.

Conclusion: Trauma surgeons should be aware of the possibility of intussusception in any patient that presents with obstructive symptoms after blunt trauma. Early diagnosis is the key to avoiding bowel ischemia and resection.

International Journal of Case Reports and Images (IJCRI)

International Journal of Case Reports and Images (IJCRI) is an international, peer reviewed, monthly, open access, online journal, publishing high-quality, articles in all areas of basic medical sciences and clinical specialties.

Aim of IJCRI is to encourage the publication of new information by providing a platform for reporting of unique, unusual and rare cases which enhance understanding of disease process, its diagnosis, management and clinico-pathologic correlations.

IJCRI publishes Review Articles, Case Series, Case Reports, Case in Images, Clinical Images and Letters to Editor.

Website: www.ijcasereportsandimages.com

CASE REPORT

OPEN ACCESS

Incidentally diagnosed intussusception spontaneously resolved in an adult patient after blunt trauma: A rare case report

Catherine R Lewis, Omar K Danner, Kenneth L Wilson,
L Ray Matthews

ABSTRACT

Introduction: Although intussusception is a rare cause of mechanical bowel obstruction in adults, traumatic intussusception is exceedingly rare. In adults, intussusception contributes less than 1–5% of bowel obstructions. The first report of the diagnosis of intussusceptions was over three centuries ago (1674) by Barbette in Amsterdam. However, the first surgical treatment for this condition in literature was not until almost 100 years later in 1871 by Sir Jonathan Hutchinson, who operated on a child with intussusceptions. Risk factors include age, sex, abnormal peristalsis and pre-existing abdominal pathology. **Case Report:** A case of jejunojejunal intussusception in an otherwise healthy 48-year-old female following blunt trauma is presented. The patient was treated conservatively with complete spontaneous resolution of her symptoms. Intussusceptions following blunt trauma is a very rare condition,

which may be difficult to diagnose, and usually present as incidental findings. Laparotomy may be necessary in unstable trauma patients and in those individuals whose symptoms of mechanical bowel obstruction fail to resolve in a timely manner or who develop acute peritonitis. In conclusion, intussusception associated with blunt trauma may occur more frequently than previously suspected. Surgical intervention is not always necessary. Conservative management of patients that present with post-traumatic intussusception without other symptomatology may be safely undertaken, unless changes in clinical exam warrant operative intervention. **Conclusion:** Trauma surgeons should be aware of the possibility of intussusception in any patient that presents with obstructive symptoms after blunt trauma. Early diagnosis is the key to avoiding bowel ischemia and resection.

Keywords: Intussusception, Blunt trauma, Bowel obstruction, Jejunojejunal intussusception

How to cite this article

Lewis CR, Danner OK, Wilson KL, Matthews LR. Incidentally diagnosed intussusception spontaneously resolved in an adult patient after blunt trauma: A rare case report. International Journal of Case Reports and Images 2013;5(1):36–40.

doi:10.5348/ijcri-2014-01-435-CR-8

Catherine R Lewis¹, Omar K Danner², Kenneth L Wilson³,
L Ray Matthews⁴

Affiliations: ¹MD, PhD, General Surgery Resident, Department of Surgery, Morehouse School of Medicine, Atlanta, GA, USA; ²MD, FACS, Assistant Professor, Department of Surgery, Morehouse School of Medicine, Atlanta, GA, USA; ³MD, FACS, Director of Trauma, Associate Program Director, Department of Surgery, Morehouse School of Medicine, Atlanta, GA, USA; ⁴MD, FACS, Director of Critical Care, Department of Surgery, Morehouse School of Medicine, Atlanta, GA, USA.

Corresponding Author: L. Ray Matthews, MD, FACS, Department of Surgery, 720 Westview Drive SW, Atlanta, Georgia, United States 30310; Ph: 404-616-2391; Fax: 404-616-1417; Email: lematthews@msm.edu

Received: 24 September 2012

Accepted: 11 December 2012

Published: 21 October 2013

INTRODUCTION

Although intussusception is a rare cause of mechanical bowel obstruction in adults, traumatic intussusception is exceedingly rare. In adults, intussusception contributes less than 1–5% of bowel obstructions. The first report

of the diagnosis of intussusceptions was over three centuries ago (1674) by Barbette in Amsterdam [1]. However, the first surgical treatment for this condition in the literature was not until almost 100 years later in 1871 by Sir Jonathan Hutchinson, who operated on a child with intussusceptions [1]. Risk factors include age, sex, abnormal peristalsis and pre-existing abdominal pathology. Although it is fairly uncommon in adults, it is usually associated with a preexisting abdominal pathology [2–4, 5]. The earliest report in the American literature was in 1831, at that time the correct surgical operation was unknown [6].

Several cases of intussusception following blunt abdominal trauma in adults have been reported in literature [2–5, 7–9]. The condition is not usually immediately life-threatening. However, intussusception can lead to bowel necrosis, secondary to compromised arterial blood supply. This complication can result in perforation and ultimately sepsis [10]. Although it is most often diagnosed in infancy and early childhood, it can occur in adults with or without an identifiable cause. We report an episode of jejunojejunal intussusception following blunt trauma in a healthy adult female.

Intussusception associated with blunt trauma may occur more frequently than previously thought. Trauma surgeons should be aware of the possibility of intussusception in any patient that presents with obstructive symptoms after blunt trauma [5, 8, 11]. Early diagnosis is a key to avoiding bowel ischemia and resection. However, conservative management may be warranted based on patient presentation and overall clinical examination.

CASE REPORT

A 48-year-old female, previously healthy, was admitted to the hospital after falling down a flight of approximately 20 stairs. Her primary survey was normal. Her physical examination was notable for left thigh tenderness with minimal swelling, but was otherwise unremarkable, including a negative focused abdominal sonogram for trauma (FAST). All laboratory examination were within normal limits. She had no associated co-morbidities. The patient developed epigastric pain, nausea, and vomiting approximately seven hours after initial evaluation, which prompted immediate reevaluation. An emergent computed tomography (CT) scan of the abdomen and pelvis with oral and intravenous contrast was obtained and revealed two segments of non-obstructing jejunojejunal intussusceptions, measuring 2.5 cm and 3.8 cm (Figure 1A–B and Figure 2). The patient was treated conservatively with bowel rest, nasogastric decompression and intravenous fluids, resulting in spontaneous resolution of her symptoms within 24 hours. Repeat abdominal CT scan the following day subsequently demonstrated that the intussusceptions had completely resolved along with her abdominal symptoms (Figure 3).

She was diagnosed with an isolated left femur fracture that required an intramedullary nailing procedure. The patient was discharged home, after three days, in good condition without any complications. Her follow-up clinic visit was unremarkable.

Figure 1: (A) There is a 2.5-cm long segment of small bowel intussusception in a proximal loop of jejunum located within the epigastric area (white arrow). (B) An additional segment of small bowel intussusception is present within a more distal loop of jejunum located within the left lower quadrant with length of intussusception measuring 3.8 cm (white arrow). No associated mass or lead point was identified. There is no evidence of bowel obstruction. Oral contrast passes into the cecum.

Figure 2: Interval resolution of previously described bowel intussusception, which was likely transient in nature. No evidence of bowel obstruction.

DISCUSSION

Intussusception is defined as telescoping of a proximal loop of bowel (intussusceptum) into a distal bowel segment (intussusciens) [3, 8]. In general, intussusception in adults occurs rather infrequently, and

is most likely associated with other abdominal pathology such as tumors, chronic inflammation, adhesions, and Meckel's diverticulum [2–3, 7–8]. It has also been associated with protracted diarrhea of HIV/AIDS, celiac sprue and bowel wall hematomas [3]. Occurring in less than 5% of the causes of small bowel obstruction in adults, intussusception is a leading cause of obstruction in children. The typical symptoms in children include abdominal pain, red currant jelly or bloody stools, and an abdominal mass [3, 9, 11]. Most cases are idiopathic in children and occur in the small bowel, near the ileocecal valve [3, 11]. Bloody stools, a palpable mass and abdominal pain occur less frequently in adults, rendering their presentation atypical. Adults may only experience symptoms of a partial obstruction with associated nausea and vomiting, which may delay the diagnosis of intussusception [8–10].

Several theories have been proposed for the mechanism of intussusception, however, an absolute mechanism is unknown. It is known that bowel stimulation causes an area of constriction above the stimulus and an area of relaxation below the stimulus [9]. Any alteration of this normal pattern may lead to an invagination. Many authors agree that abnormal peristalsis due to spasms of segmental bowel is likely the main cause. Adrenergic stimulation of sympathetic nerve fibers leads to spasm of the sphincters and spasm of the surrounding bowel loops [9–10]. This abnormal motility may also be caused by a mechanical obstruction, such as tumors, adhesions and Meckel's diverticulum [3, 8]. Normal bowel becomes trapped in an adjacent segment of relaxed bowel. As this occurs, the mesentery becomes trapped between these two segments of bowel, resulting in stretching, increased intra-abdominal pressure, vascular compromise, and eventual ischemic necrosis [10]. While difficult to ascertain, intussusception caused by blunt trauma is thought to be caused by abnormal peristalsis or localized spasm, a sudden deceleration injury, bowel wall edema, and/or bowel wall hematomas [2, 4]. The sustained edema and/or hematoma after blunt abdominal trauma serves as a lead point similar to the pathologic lead points usually described.

Intussusception following blunt trauma may be difficult to diagnose. Patients without any obvious abdominal injuries may not lead the trauma physicians to further investigate. The CT scan remains the modality of choice for the diagnosis of intussusception [4]. It may show a 'target lesion' with proximal loops of dilated bowel [3, 8, 10]. These lesions may occur at any level in the alimentary tract and may be in multiple locations [11]. The CT scan is important for determining the presence of associated abdominal pathology, such as enlarged lymph nodes or diverticulum. However, many times the specific cause of the intussusception is only identified after resection, as it is hidden in the intussuscepted mass [8]. The classic appearance of an intussusceptum on a barium enema is a 'coil-spring appearance', indicating crowded haustra in the intussusciptens. Ultrasonography demonstrates the target, doughnut, and pseudokidney

sign on transverse and longitudinal views, respectively. However, the use of ultrasound is unreliable in the setting of obstructive symptoms in which air in the bowel can lead to difficulties in image interpretation [10]. Plain radiographs in adults usually demonstrate a nonspecific bowel obstruction [3, 9].

Many surgeons believe that all causes of intussusception warrant an immediate laparotomy, given the high association with malignancy or other associated pathology [3, 8, 11]. Resection is not always required. When there is no other associated abdominal pathology identified during laparotomy, it is believed that manual reduction without resection is adequate, just as in children [2–3]. In the late 1950s, some surgeons recommended manual reduction of all adult intussusceptions prior to definitive treatment. Weilbaecher et al. proposed resection without attempting manual reduction whenever possible [9]. Even earlier surgeons advocated abdominal laparotomy without delay [6].

Intussusceptions that occur after blunt trauma are usually incidental findings or attributed to abnormal peristalsis due to direct abdominal trauma. In unstable trauma patients, laparotomy is warranted given the necessity to rule out other causes of abdominal injury as possible causes of hemodynamic instability. However, we propose that post-traumatic intussusception be treated on a case-by-case basis. This patient presented after falling down a flight of approximately 20 stairs, without any indications of abdominal trauma on primary or secondary survey. Prior to surgery for her femur fracture, the patient experienced nausea and vomiting, associated with abdominal pain. This prompted further investigation via a repeat abdominal and pelvic CT scan. The CT scan showed two segments of radiographically diagnosed non-obstructing jejunojejunal intussusceptions. This is interesting in that intussusceptions that resolve spontaneously tend to have no identifiable lead point [1]. Due to a paucity of abdominal symptoms, the patient was treated conservatively with hydration, nasogastric decompression and bowel rest with a repeat CT scan in 24 hours. Repeat CT scan demonstrated resolution of the intussusceptions (Figure 3). In the absence of solid organ injury, free fluid or free air, the standard of care should be conservative, with serial abdominal examinations and repeat CT scan if warranted [7]. Attempts at intestinal decompression via nasogastric tube insertion should also be immediately undertaken. Surgical intervention should proceed as soon as possible if changes in clinical exam deem it necessary. If conservative therapy fails after 48 hours, the intussusception should be corrected surgically, unless the patient develops signs of peritonitis, which mandate emergent surgical intervention. If necessary, any segment of necrotic intestine should be resected at the time of laparotomy. Nevertheless, some cases of intussusception may be transient and improve on their own, as occurred in this patient. If no underlying medical condition or pathology is identified, no further treatment or work-up is warranted.

CONCLUSION

Intussusception associated with blunt trauma may occur more frequently than previously thought. Trauma surgeons should be aware of the possibility of intussusception in any patient that presents with obstructive symptoms after blunt trauma [5, 8, 11]. Early diagnosis is a key to avoiding bowel ischemia and resection. However, conservative management may be warranted based on patient presentation and overall clinical examination.

Acknowledgements

We would like to acknowledge the support staff of the Department of Surgery for their editing and critical review.

Author Contributions

Catherine R Lewis – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Omar K Danner – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Kenneth L Wilson – Acquisition of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

L Ray Matthews – Acquisition of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

Copyright

© Catherine R Lewis et al. 2014; This article is distributed under the terms of Creative Commons attribution 3.0 License which permits unrestricted use, distribution and reproduction in any means provided the original authors and original publisher are properly credited. (Please see www.ijcasereportsandimages.com/copyright-policy.php for more information.)

REFERENCES

1. Marinis A, Yiallourou A, Samanides L, et al. Intussusception of the bowel in adults: a review. *World J Gastroenterol* 2009 Jan 28;15(4):407–11.
2. Stockinger ZT, McSwain N Jr. Intussusception caused by abdominal trauma: case report and review of 91 cases reported in the literature. *J Trauma* 2005;58(1):187–8.
3. Ferrera PC, Kispert P. Intussusception after blunt abdominal trauma. *Am J Emerg Med* 1998;16(7):671–3.
4. Brooks A, Bebington BD, Lucas S, Oettle GJ. Intussusception caused by blunt abdominal trauma. *J Trauma* 1999;47(1):156–7.
5. Bashir MO, Lynch G. Post traumatic intussusception in an adult. *Ir J Med Sci* 1993;162(1):20.
6. Wilson OH. Intussusception in 1831. *J Tn State Med Assoc* 1949;42(2):53.
7. Karam J, Khreiss M, Musallam KM, Alaeddine MH, Al-Kutoubi A, Abi Saad GS. Small bowel intussusception following blunt abdominal trauma in an adult patient. *Emerg Med J* 2009;26(10):752–3.
8. Benjelloun el B, Ousadden A, Ibnmajdoub K, Mazaz K, Taleb KA. Small bowel intussusception with the Meckel's diverticulum after blunt abdominal trauma: a case report. *World J Emerg Surg* 2009;4:18.
9. Weilbaeher D, Bolin JA, Hearn D, Ogden W 2nd. Intussusception in adults. Review of 160 cases. *Am J Surg* 1971;121(5):531–5.
10. Begos DG, Sandor A, Modlin IM. The diagnosis and management of adult intussusception. *Am J Surg* 1997;173(2):88–94.
11. Miller EM. Acute intussusception. *Ann Surg* 1933;98(4):706–12.

Access full text article on
other devices

Access PDF of article on
other devices

Edorium Journals: An introduction

Edorium Journals Team

About Edorium Journals

Edorium Journals is a publisher of high-quality, open access, international scholarly journals covering subjects in basic sciences and clinical specialties and subspecialties.

Invitation for article submission

We sincerely invite you to submit your valuable research for publication to Edorium Journals.

But why should you publish with Edorium Journals?

In less than 10 words - we give you what no one does.

Vision of being the best

We have the vision of making our journals the best and the most authoritative journals in their respective specialties. We are working towards this goal every day of every week of every month of every year.

Exceptional services

We care for you, your work and your time. Our efficient, personalized and courteous services are a testimony to this.

Editorial Review

All manuscripts submitted to Edorium Journals undergo pre-processing review, first editorial review, peer review, second editorial review and finally third editorial review.

Peer Review

All manuscripts submitted to Edorium Journals undergo anonymous, double-blind, external peer review.

Early View version

Early View version of your manuscript will be published in the journal within 72 hours of final acceptance.

Manuscript status

From submission to publication of your article you will get regular updates (minimum six times) about status of your manuscripts directly in your email.

Our Commitment

Six weeks

You will get first decision on your manuscript within six weeks (42 days) of submission. If we fail to honor this by even one day, we will publish your manuscript free of charge.

Four weeks

After we receive page proofs, your manuscript will be published in the journal within four weeks (31 days). If we fail to honor this by even one day, we will publish your manuscript free of charge and refund you the full article publication charges you paid for your manuscript.

Mentored Review Articles (MRA)

Our academic program "Mentored Review Article" (MRA) gives you a unique opportunity to publish papers under mentorship of international faculty. These articles are published free of charges.

Most Favored Author program

Join this program and publish any number of articles free of charge for one to five years.

Favored Author program

One email is all it takes to become our favored author. You will not only get fee waivers but also get information and insights about scholarly publishing.

Institutional Membership program

Join our Institutional Memberships program and help scholars from your institute make their research accessible to all and save thousands of dollars in fees make their research accessible to all.

Our presence

We have some of the best designed publication formats. Our websites are very user friendly and enable you to do your work very easily with no hassle.

Something more...

We request you to have a look at our website to know more about us and our services.

We welcome you to interact with us, share with us, join us and of course publish with us.

Edorium Journals: On Web

Browse Journals

CONNECT WITH US