

A Case Report of a Primary Intussusception in Pregnancy

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Abstract Intussusception is defined as invagination of one part of the bowel into another which leads to intestinal obstruction and compromise the mesenteric blood flow with resultant inflammation and the potential for ischemia [1,2]. This condition is very rare condition in pregnancy and very difficult to diagnose due to its rarity and because of the anatomical changes of pregnancy which leads to displacement of the bowel by the gravid uterus which hamper adequate abdominal assessment as well it's vague symptoms [3]. Usually the disease is common in pediatric age but rare in adults as 95% of cases occur in children and only 5% seen in adults [4]. Adult age intussusception is usually secondary to a lesion which is called a lead point which is present in 90% of adult intussusception and it is rare to find a primary type of intussusception (i.e. with no lead point) [4,5]. In this report we present a case of a 23 years old woman who presented at 26 weeks of her first pregnancy with vague upper abdominal pain with nausea and emesis which was thought to be either gastritis or cholecystitis. She was treated with intravenous (IV) fluid hydration and analgesics with no improvement. The patient's clinical condition deteriorated after 3 days and re assessment showed that the abdomen was distended with absent bowel sounds and generalized tenderness with her vomiting getting worse and associated with constipation. A plain abdominal x ray showed features suggestive of intestinal obstruction which failed to improve on conservative management and the patient was counseled about doing a CT (computed tomography) to confirm the diagnosis because the safer alternative which is the MRI (Magnetic resonance imaging) was not available in our hospital. After confirmation, the patient underwent a laparotomy and was found to have a jejunal intussusception with no lead point, bowel resection with end to end anastomosis was done and the patient had a good postoperative recovery. We recommend that a high index of suspicion is necessary by the obstetricians and surgeon when they deal with a pregnant woman with vague abdominal pain which fails to respond to usual conservative measures so they will not miss such a rare condition in pregnancy which can be associated with high risk of fetal and maternal morbidity and even mortality if the timely diagnosis and treatment was delayed [6,7,8].

Keywords: Intussusception, intestinal obstruction, MRI (Magnetic resonance imaging), CT Scan (Computerized Tomography Scanning), pregnancy

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1. Introduction

Intussusception is defined to happen when there is a telescoping of a proximal bowel wall into the lumen of the distal segment leading to obstruction and loss of the blood supply and possible bowel ischemia and if neglected it may lead to bowel gangrene [2].

It is usually a disease of pediatric age as more than 95% of cases of intussusception happens in children [7,8].

It is rare in adults as it accounts for only 5% of total intussusception and only 1% of all cases bowel obstructions in adults [8,9].

In pregnancy intussusception is extremely rare and it poses a unique diagnostic and therapeutic challenges.

It can be potentially life threatening to the mother and her baby and could be challenging to both surgeons and obstetricians.

It was reported to occur with an incidence of between 1:2500-1:3500 pregnancies [9,10,11,12].

Other studies showed that the incidence to vary between 1:1500 to 1:66431 deliveries [10,11,12,13].

It is found to be responsible for about 5% of intestinal obstruction during pregnancy while volvulus is responsible for about 24% of intestinal obstruction cases seen in pregnancy and the most common cause is intra-abdominal adhesion as it is responsible for 58% of cases [1].

Although intussusception is very rare in pregnancy; but it carries a significant maternal and perinatal mortality of 6% and 26% respectively [6,7].

The high incidence of potentially serious complications is due to its difficult detection and usually delayed diagnosis and treatment so if preoperative diagnosis is possible then this will be reflected on huge improvement of the maternal and fetal outcome [6,12,13,14].

The classical triad of intussusception in children of abdominal pain, sausage shaped abdominal mass and passage of red currant jelly stool is rarely seen in adults [14].

The clinical presentation in adults varies considerably.

The most common presenting symptoms in adult are abdominal pain, nausea and vomiting are seen in only

20% of patients and because of variability in clinical symptoms and imprecision of diagnostic imaging, most of times the diagnosis is made only during laparotomy [1,2,3].

The delay in diagnosis and treatment happens because of rarity of the disease and the anatomical changes in pregnancy (displacement of the bowel by the pregnant uterus) and the atypical symptoms of the intussusception (nausea, vomiting and abdominal pain) are quite common in normal pregnancy and they could be attributed to be due to a benign obstetrical and non-obstetrical conditions [5,16].

The most common time of presentation is the 3rd trimester of pregnancy.

In general the mean age of presentation in adults is between 51-54.4 years [15,16].

The male to female ratio is 1:1.3 [15].

The common physical findings are abdominal distension, decreased or absent bowel sounds and abdominal mass, although it would be difficult to palpate a mass at late pregnancy so the symptoms are generally of intestinal obstruction [16,17,18].

It is estimated that only 50% of patient can be diagnosed on clinical features alone due to non-specificity of the symptoms [14].

Intussusception is classified into 4 categories according to the site of the origin and they are

Enteric, ileo-colic, ileo- cecal and colonic [13,14,15,16,17].

In adults the exact mechanism of intussusception is unclear. However, any lesion in bowel wall or irritant within the lumen that alter normal peristaltic activity can initiate the problem [17,18].

In contrast to children intussusception, the adult form the lead point is found in up to 95% of cases, the lead point can be of many etiologies including carcinoma of colon, meckles diverticulum, sub-mucous lipoma, Put Jegar polyp, adhesions, leiomyoma, neuro fibroma, adenoma, hetero topic pancreatic tissue [16,17,18,19].

Malignant lesions (primary or metastatic) accounts for 30% of small intestine intussusception; and 66% of colonic intussusception [1,12,13,19].

Idiopathic intussusception is rare in adults as it is seen only in 5% of cases.

There have been few cases only reported in literature [1,3,4,7,10].

In adults the CT scanning is the modality of choice for diagnosing intussusception in non- pregnant patient as in pregnancy the MRI and ultrasound are the commonly used techniques because of their safety [13,24,25].

Plain X ray of the abdomen is useful modality as it can show features of intestinal obstruction.

Although the MRI is the best imaging for diagnosis in pregnancy but unfortunately it is not always available in all hospitals [13,24,25].

The ultrasound is usually operator dependent and in good hands is very useful for diagnosis [3,8].

If accessible in a timely manner MRI should be considered as a safer alternative in pregnancy [18,22,23].

If the CT scanning is necessary or more readily available than the safer technique of MRI for the diagnosis in question; then it should not be withheld from a pregnant patient especially if missing or delaying the diagnosis can pose a serious risk on the fetal and maternal life [18,22].

CT is known to have the best diagnostic performance in identifying gastrointestinal cause if acute abdominal pain [18,22,23,24,25].

The risk of abnormality to the fetus from a single CT scan through the abdomen or pelvis would expose the fetus to 25 mGY of ionizing radiation which has a negligible risk of fetal abnormality and the risk of malformations is significantly increased above control levels only at doses above 150mGy [18,22,23].

That is why the CT should not be with-held in pregnant patient if it is deemed clinically necessary to avoid significant delay in the diagnosis of a life threatening condition [18,22,23,24].

A thorough discussion with the mom about the risk and benefit of the test is necessary so she will be able to give an informed consent [14,15].

The management of intestinal intussusception in adults is almost always surgical and the type of surgery depends on the location of the lesion and the amount of bowel damage.

Initial reduction followed by a limited resection is the preferred treatment of small bowel intussusception [18,20,21].

Before surgery the patient would need to have aggressive IV fluid resuscitation to ensure adequate uterine blood flow and optimize fetal wellbeing, electrolyte and acid base balance is necessary, bowel decompression by a naso-gastric tube and prophylactic IV antibiotics.

Sometimes those measures could be adequate to improve the intussusception as there are few case reports of successful conservative management without surgery [6].

2. Case Presentation

Our patient is a 23 years old woman who presented at 26 weeks of her first pregnancy with upper abdominal pain, nausea and some vomiting.

Clinically her vital were stable.

Abdominal examination showed mild epigastric tenderness with no rebound.

Bowel sounds were present.

The uterus was soft with no tenderness and the size was appropriate for the gestational age.

Pelvic exam showed a closed cervix, the fetal wellbeing was confirmed by an ultrasound.

The patient's blood work was all within normal except mild increase in the creatinine which was most likely due to dehydration(she had complete blood count and normal liver function and kidney function test and urine analysis)

She was admitted as a possible case of gastritis or cholecystitis.

Started the management by IV fluid hydration, analgesics for pain control; and antiemetic.

About 3 days later we were called to assess the patient whose condition did not improve.

Clinically the patient looked sick and the abdomen was distended with generalized tenderness with reduced bowel sounds.

Her vomiting got worse and it was bilious in color.

The patient also stated that she did not pass gases or stool since the admission.

The surgical team consulted and they started conservative management by naso gastric tube for intestinal decompression IV fluid hydration and IV antibiotics bit after being on these measures she did not improve.

Although the most likely diagnosis was clearly a case of intestinal obstruction, the ultrasound failed to show any pathology.

Unfortunately our hospital is a level 2 hospital which has no MRI available and the patient was really sick and we needed to confirm the diagnosis as the surgeon was not convinced that she is in urgent need for surgery.

The patient was counseled about the risk and benefit of doing CT scan to confirm the diagnosis.

Informed consent was taken for the patient and the CT scanning was done and it showed a small bowel intussusceptions.

The patient was by now 26+ weeks of gestation and in our hospital of level 2 we have no NICU (Neonatal Intensive Care Unit) as the patient is at risk of going into pre-term labor so she was sent urgently to a tertiary center for urgent laparotomy.

The patient had the surgery done and it was found that there was a mid to distal jejunal intussusception.

Bowel resection of a segment of about 15 cm with end to end anastomosis was done.

The patient tolerated the procedure well.

There was no lead point found at time of surgery or at histopathology.

The post-operative period was uneventful except a wound infection which was managed conservatively.

She was discharged from the hospital two weeks after the surgery in good condition.

A fetal assessment was done for the well-being pregnancy and it was reassuring.

The pregnancy continued and she had a normal vaginal delivery at 39 weeks gestation of alive baby boy with no any complication.

3. Discussion

It is known to be a disease of children as 95% of cases happen in pediatric age group

Intussusception is very rare in adults at incidence of 2-3 per 1,000,000 per year (1-4) or 1:30,000 hospital admissions [15,16,17,18].

It accounts for 1% of bowel obstructions in adults [2,3,4] and is usually associated with underlying causes such as tumor or polyps or adhesions in about 90% -95% of patients and those are called a lead point [3,4,5].

Although it uncommon complication in pregnancy but it is a serious disorder with significant maternal and fetal morbidity and mortality [10,12,13] because of delay in diagnosis and treatment.

It is characterized by invagination of a segment of proximal bowel into the lumen of a distal portion [6,7,8].

In children it usually idiopathic, i.e. no lead point but in adults about 90% of cases there is a lead point which could be a tumor or adhesions or a diverticulum and the primary or idiopathic type is rare in adults and only few cases has been published while the majority of case reports were with an etiology[1,3,4,5,6].

There are 4 types of intussusception which are Enteric, ileo-colic, ileo- cecal and colonic.

The most common type is that of invagination of ileum into the cecum with a peak incidence in babies under 1 year of age [13-18].

In adults although the mechanism is not fully understood and it usually secondary to drag of a pedunculated tumor located in the intussusceptum, causing telescoping of the segment into the intussusceptiens.

The small bowel intussusception is more likely to have a benign lesion at the apex) which is the lead point) whereas the ileo-colic or colonic are more likely to be caused by a malignant ones [2].

The diagnosis of intussusception during pregnancy is often masked by the presence of pregnancy.

The symptoms and signs are no different than in non-pregnant state, however a high degree of suspicion is necessary to make the diagnosis [6,7,8].

The diagnosis in pregnancy is difficult because most of the symptoms of the condition are often encountered to the pregnancy itself adding to that the fear of using radiation which normally helps in the diagnosis [18,19,20].

The triad of abdominal pain, distension and vomiting are typical.

The insidious cases are very dangerous because of the delay in diagnosis and instituting definitive treatment [18,19,20,21].

The imaging modality of choice in diagnosing intussusception is the CT and MRI Their diagnostic yields are 52%-58% and 41-73% respectively [1,2,21,22,23].

The abdominal x ray usually shows features of obstruction.

The classical finding on CT is the Target Lesion formed by one part of the bowel telescoped into another [13,23,24,25].

It is well known that in the evaluation for acute process such as appendicitis or small bowel obstruction, the maternal benefit from early and accurate diagnosis may outweigh the theoretical fetal risk from using specific radiation technique like CT scan especially the radiation exposure is at dose lower than the exposure associated with fetal harm if the safer technique for diagnosis (MRI) is not available. And if this is the only available technique to confirm the diagnosis in question it should not be withheld in the pregnant patient to avoid significant delay in diagnosis of a life threatening condition such as intussusception); especially animal studies have reported no teratogenic or mutagenic effects from its us [1-5].

Despite this lack of known harm it is generally recommended that radiation to be used only in absolutely required to obtain additional diagnostic information that will affect the care of the fetus and/or the woman during the pregnancy [23,24,25].

A thorough discussion with the patient is necessary to be able to give her informed consent for the test in question.

Surgical resection is almost always needed to treat intussusception and the type of surgery depends on the origin of the disease and the presence of pathology [12,16].

Most adults with intussusception require surgery to clarify the etiology of the lead point and to relieve the obstruction and usually resection of the affected bowel is needed, although reduction can be attempted in small

bowel intussusception if the segment involved is viable and no malignancy is suspected [7,12,13,14,15,16].

Although the surgery is the treatment of choice there could be a small role of conservative management (with the use of IV fluid hydration, electrolyte balance and use Naso Gastric tube for bowel decompression and IV prophylactic antibiotics [6].

4. Conclusion

Although it is very rare in pregnancy, surgeons and obstetricians should be aware of its possibility in pregnant patients who present with signs and symptoms of bowel obstruction because it needs an urgent diagnosis and intervention to avoid serious impact on the patient and her fetus.

We should all remember that all nausea and vomiting in pregnancy is not all hyperemesis gravidarum [1,2,3,4].

Although it is well known that MRI is safe in pregnancy to confirm the diagnosis but it's in availability in all hospitals made us use the other less safe alternative for diagnosis which is the CT after a thorough counseling with the patient, hence prompt diagnosis and treatment can markedly reduce the fetal and maternal morbidity; and even mortality because the intussusception is considered to be one of the most dangerous forms of intestinal obstruction.

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