

## Case Report

# Meckel's diverticulum presenting with ileocolic intussusception in second trimester pregnancy : A rare presentation

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### Abstract:

Acute abdomen during the later gestation offers diagnostic dilemma for clinicians. In this case report, we present a case of 20-year-old primigravida who suffered an acute onset upper abdominal pain associated with multiple episodes of vomiting and loose stools. Ultrasound gave a strong hint of intussusception. Due to the persistently worsening symptomatology, she was surgically explored and found to have a long segment ileocolic intussusception with Meckel's diverticulum as the lead point. Surgical correction and diverticulectomy was performed and the patient discharged satisfactorily. Such a presentation can be challenging in an antenatal period due to non-specific and overlapping symptomatology further confounded by surgeon's hesitancy, obstetrical risk, pregnancy related differentials and risk of radiation exposure with use of CT. However, strong clinical suspicion can aid in such cases thus reducing the risk of maternal and fetal mortality.

### Keywords:

Meckel's, intussusception, pregnancy

## Introduction:

One of the commonest congenital anomalies of the human gastrointestinal tract is the Meckel's diverticulum which is a true diverticulum seen along the anti-mesenteric border of the distal 45-60 cm of ileum in about 2% of the population.<sup>1</sup> It is a consequence of incomplete obliteration of the omphalomesenteric duct or the vitelline duct (usually complete by 5th to 7th week) which connects the yolk sac to the primitive gut.

Only about 1.7 to 6.4% of the people with Meckel's diverticulum become symptomatic during their lifetime.<sup>2,3</sup> Clinically, the patient presents with acute abdomen arising out of one of the various complications ensuing the Meckel's diverticulum, such as diverticulitis, perforation, intestinal obstruction consequent to volvulus or ileo-colic intussusception amongst others. The ailment offers a diagnostic dilemma to the clinician masquerading various acute pathologies like appendicitis,

cholecystitis, ureteric colic or even pancreatitis. Rarely, though definitely, the diverticulum may act as a 'lead-point', leading to an ileocolic intussusception which may present with recurrent colicky pain, nausea, vomiting or as one of its dangerous sequelae of bowel obstruction and gangrene.

Non-obstetric acute abdomen in itself is a rare entity in pregnancy occurring in less than 1% of the pregnancies.<sup>4,5</sup> Intussusception as a cause of acute abdomen is a rare but a potentially life-threatening surgical emergency. The non-specific symptoms make the diagnosis challenging whilst the delay carries the risk of significant increase in morbidity and mortality. Only a handful of case reports have been published citing Meckel's diverticulum causing an ileo-colic intussusception and thus leading to acute abdomen in pregnancy.<sup>6,7</sup> We report one such unusual case of this intriguing condition complicating pregnancy in a primigravida with 26 weeks of gestation.

### Case Report:

Our patient was a 20-year-old primigravida with previously uneventful 26 weeks of gestation. She presented with acute onset, severe colicky pain in the right upper abdomen since the preceding evening associated with four to five episodes of loose watery stools, one of which contained blood. She had a couple of episodes of bilious vomiting with no associated hematemesis. Her previous medical history had been unremarkable and the pregnancy was progressing normally. On clinical examination, the female looked restless and had tachycardia with low grade fever. She was normotensive with mild dehydration. Abdomen was gravid corresponding to the age of gestation. She had localized upper abdominal tenderness, more in the epigastrium and the right hypochondrium with no rebound. In between her colicky pains, a vague, firm mass not moving with respiration and separate from liver could be palpated in the right hypochondrium. Bowel sounds were sluggish. Fetal heart sounds and movements were appreciable. Vaginal examination revealed a long, posterior and closed cervix. Rectal examination revealed blood tinged mucus on the inspecting finger.

The laboratory values revealed neutrophilic leukocytosis (17,800/mm<sup>3</sup> with 88% polymorphs) with fairly normal other biochemical parameters and electrolytes. With a provisional clinical diagnosis of acute enteritis or cholecystitis in mind, the patient was started on conservative therapy of IV fluids, empirical antibiotics and proton pump inhibitors (PPIs) along side gut rest in the emergency surgery wing. However, she continued to worsen clinically and thus an ultrasound abdomen was performed. It revealed a large cystic lesion in the right hypochondrium with thick-walled bowel within it showing a positive 'target sign' strongly suggestive of intussusception. However, due to displacement of the bowel loops by the gravid uterus, the exact involved segment or the underlying pathology could not be clarified. The ultrasound for fetal well-being was perfectly normal and appropriate for gestation.

In view of the deteriorating clinical condition, the patient was counselled to the need for surgical exploration and underwent emergency laparotomy. Prior to the same, an obstetric consultation was taken about the risks involved and the necessary adjunct measures to ensure minimal harm to the uterus and thus the fetus. A supraumbilical incision was made to

fashion the laparotomy. Per-operatively, gravid uterus was visualized normally, reaching upto the umbilicus. A long segment ileo-colic intussusception was found with the terminal ileum, appendix and mesoappendix being the intussusceptum and the caecum and ascending colon being the intussuscepiens (Figure-1). On milking out the former from the latter, a narrow-based Meckel's diverticulum was found to be the 'lead point' with no obvious evidence of diverticulitis



**Figure – 1 :** The ileo-colic intussusception being milked out

(Figure-2). The intussusceptum bowel was edematous but viable. The appendix showed no signs of gangrene. The Meckel's diverticulum was divided at its base using a 55-mm linear transecting gastrointestinal stapler. The patient was discharged in a healthy state on fourth day and has been having an uneventful gestation ever since.



**Figure – 2 :** (a) Meckel's diverticulum as the 'lead-point' (b) post-diverticulectomy specimen

### Discussion:

Acute abdomen in pregnancy, albeit rare, is a surgeon's nightmare as displaced gut loops make a confirming diagnosis difficult. Intussusception, defined as invagination of a segment of intestine (intussusceptum) into the adjoining intestinal lumen (intussuscepiens), is a rare entity seen commonly in children below five years of age.<sup>2</sup> Yet rarely, it may present in the adults commonly as a result of an extramural bowel wall pathology in the

intussusceptum such as a diverticulum or a neoplasm which act as a 'lead-point' for the invagination.<sup>8,9</sup> Consequently, if left untreated, the intussusceptum undergoes obstruction or gangrene which may be potentially fatal. Meckel's diverticulum, first published in literature by the German Anatomist Johann Friedrich Meckel, the Younger, is an out pouching in the distal ileum and an abnormal remnant of the embryonic vitello-intestinal duct which usually obliterates by 7th week of gestation. The diverticulum is said to follow the 'rule of 2s', seen in 2% population, symptomatic in 2%, seen commonly about 2 feet proximal to ileocaecal valve, has 2 types of heterotopic tissue – gastric and pancreatic with 2 common complications – bleeding and obstruction. Rare yet documented complication of Meckel's diverticulum in adults is ileo-colic intussusception.<sup>3</sup>

Intussusception is a rare occurrence in pregnancy. However, if misdiagnosed or left untreated the condition may lead to bowel gangrene and sepsis causing fatality. Making a diagnosis of intestinal intussusception during pregnancy is problematic as the common symptoms of intussusception such as anorexia, nausea, vomiting and abdominal pain are frequently encountered in later weeks of pregnancy as well. Moreover, the backdrop of pregnancy brings forth a plethora of its related obstetric pathologies such as chorio-amnionitis, placental abruption and pre-term labor (amongst others) as potential common differential diagnosis which may mis-lead the clinician from the actual cause. The features of guarding may be even more difficult to elicit owing to the stretched abdominal wall. Furthermore, pregnancy precludes many a clinician from utilizing advanced diagnostic tools like Computed tomographic (CT) scans owing to the potential teratogenic effects of the ionizing radiation exposure during the same. The same reason averted us from the use of a CT scan in our case despite the availability though surgeons occasionally employ a quick pass CT scan in some centres to minimize this radiation risk. Such a scan exposes the fetus to about 25-30 mGy of radiation. This value has to be suitably weighed against the potential benefit it might offer in identifying a surgical pathology in the mother.<sup>10</sup> Ultrasound offers an excellent and non-invasive alternative with higher sensitivity rates more commonly observed in paediatric age group.<sup>11</sup>

The classic ultrasound finding of multiple concentric rings of sonolucency (target sign) surrounded by a coarse central echogenic focus was seen in our patient, thus aiding a provisional diagnosis prior to the surgical intervention. However, the displaced bowel loops in pregnancy poses a greater challenge to the sonologist to conclusively arrive at such findings thus adding to the inherent operator variability of the ultrasound. Other non-invasive modality may be the use of Magnetic Resonance Imaging (MRI), though the same is costly, less frequently available in an emergency scenario and requires more time and training to effectively be read and comprehended.

Once diagnosed, surgical intervention is almost always necessary in the adult intussusception. Spontaneous recovery and the use of less invasive options like the use of air, barium or saline enemas have been shown to be more successful in paediatric age-groups where the intussusception is usually sans a lead-point.<sup>12</sup> As in our case, if the lead point is found to be Meckel's diverticulum, a diverticulectomy or a resection-anastomosis (in a broad based diverticulum) may be carried out as seemed appropriate during the surgery.

### Conclusion:

Patients in pregnancy rarely present with acute abdomen and still a rarer cause is a bowel intussusception. Latter may present non-specific symptoms which may mimic other commoner abdominal pathologies or obstetric conditions. The combination of these makes the diagnosis of intussusception in such cases a difficult challenge. Thus, we emphasize that a high degree of clinical suspicion must be maintained to allow for early surgical intervention and thus prevent morbidity and mortality to the mother and the fetus as well.

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