IMAGES FOR SURGEONS: Sigmoid Volvulus - Mischief From a Gravid Uterus

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A 39-year-old gravida 2 para 1 female at 32 weeks gestation presented with three days of abdominal pain, distension, nausea and diarrhoea. Her presentation was associated with tenesmus and anorexia. Her past history was significant for an elective laparoscopic left-sided pyeloplasty for congenital pelviureteric junction (PUJ) obstruction. On examination, the patient was afebrile and hemodynamically stable. The foetus was not distressed according to cardiotocography assessment. Her abdomen was distended and tympanic with generalised tenderness. Bowel sounds were high-pitched and tinkling. A digital rectal exam revealed an empty rectum with no masses or faeces. The patient was hypokalaemic and hyponatraemic at 3.1 mmol/L and 129 mmol/L respectively. Her white cell count was $20.3 \times 10^9/L$, of which $17.87 \times 10^9/L$ were neutrophils. Abdominal plain films were concerning for a large bowel obstruction, with marked distension of large bowel proximal to the descending colon and an absence of gas in the left lower quadrant (Figure 1). A nasogastric tube was placed with minimal effect on symptomology and a magnetic resonance imaging was performed. This demonstrated spiralling of the sigmoid colon at the transition point of the obstruction, concerning for a sigmoid volvulus (Figure 2 and 3). Initial attempt at decompression with rigid sigmoidoscopy failed. Colonoscopic decompression was performed, successfully reducing the volvulus. The entire length of colon had viable mucosa on endoscopic examination. A flatus tube was placed during the procedure and removed on the following day. Her condition improved, and she was discharged on the third day.

Sigmoid volvulus in pregnancy is a rare event with potentially serious complications for mother and foetus. It commonly occurs in the third trimester of pregnancy (1). The growing foetus causes displacement of the sigmoid colon and subsequent malrotation around its fixed mesocolon. The condition represents a diagnostic challenge due to the nonspecific clinical findings of nausea and abdominal pain that mimics features of pregnancy. A missed diagnosis is associated with maternal mortality rates of up to 50% and foetal mortality rates of up to 30% (2). The typical x-ray features of a sigmoid volvulus include the absence of

rectal gas and an inverted, U-shaped distended sigmoid. Another classical radiological sign is the “coffee bean sign”, which occurs when two closed and dilated loops of bowel press upon each other. These signs are not observed in pregnancy, due to the displacement of bowel loops by the gravid uterus. Computed tomography (CT) scans, which are commonly used to diagnose sigmoid volvulus in nonpregnant patients (4) would expose the foetus to high amounts of radiation, precluding its use in pregnancy and adding another layer of diagnostic complexity. Fortunately, our hospital had ready access to magnetic resonance imaging that was relied upon to confirm the diagnosis prior to intervention. MRI demonstrates superior ability to delineate tissue planes, which clarifies radiological signs that may not be present on radiography (5). Treatment options include endoscopic decompression, which must be performed urgently once the volvulus is identified to prevent bowel ischaemia. Laparotomy and bowel resection with or without caesarean section must be performed otherwise, which increases morbidity and mortality to the mother and foetus (6). In our case, we performed endoscopic decompression as our patient was without signs of bowel ischaemia. Furthermore, operative intervention in the immature pre-term foetus translates to significant maternal and foetal risk. In summary, sigmoid volvulus in a gravid patient is a rare condition which presents a diagnostic challenge, requiring both a high degree of suspicion and diagnostic modalities that are safe to the developing foetus. A favourable outcome was achieved in our case by colonoscopic decompression where in the setting of recurrence symptoms, definitive treatment can be planned after delivery. Should bowel ischaemia be clinically suspected or found, the patient requires care in a hospital with obstetrics support with or without a neonatal intensive care unit, depending on foetal age and distress. This case brings with it important clinical images that will be useful learning points for registrars and surgeons.

FIGURE LEGEND

Figure 1. Erect abdominal plain film demonstrating distended large bowel loops with the absence of gas in the rectum

Figure 2. Axial section magnetic resonance imaging demonstrating a sigmoid volvulus with the arrow pointing towards the transition point in the left iliac fossa, which resembles a radiological whirl sign

Figure 3. Coronal section magnetic resonance imaging demonstrating distension of the sigmoid colon displaced to the central and right side of the abdomen consistent with a sigmoid volvulus

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