Incarcerated Umbilical Hernia With Small Bowel Obstruction in Pregnancy: How Pregnancy Altered the Clinical Pathway

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Key message: Pregnancy should add safeguards—not replace or delay the pathway required by the suspected pathology.

Case description

A G11P8 woman at 30 weeks' gestation, booking weight 110 kg and BMI 45 kg/m², had a five-year chronic umbilical hernia and no previous abdominal surgery. She presented to a rural hospital with three days of abdominal pain, vomiting, inability to tolerate oral intake and obstipation. She was distressed but physiologically stable. Examination demonstrated an irreducible, markedly tender hernia without skin changes. Without local imaging, the clinician suspected hernia incarceration with small bowel obstruction. This was discussed with an emergency physician at a regional hospital, who accepted transfer for further investigation and management. For reasons not documented, the patient transferred by private vehicle to the regional hospital without referral letter.

At the regional hospital, the patient reported presenting to the emergency department, where she was directed to maternity assessment without formal triage. No triage note was identified. Obstetric review documented a tender abdominal mass, with history concerning for bowel obstruction secondary to hernia. Observations and cardiotocography were reassuring, with no obstetric cause identified. With the patient in severe distress, it was considered more appropriate that patient workup be continued in the emergency department.

After transfer to the emergency department, the history remained consistent with the rural assessment, including severe pain, obstipation and vomiting progressing to bilious or feculent emesis. Initial abdominal-wall ultrasound was suspicious for strangulated hernia. To exclude alternative intra-abdominal pathology, targeted ultrasound of the right upper and right lower quadrants was obtained. This continued to demonstrate dilated small bowel consistent with obstruction, with no other pathology identified. MRI was then deliberated before CT was considered. Given persistent severe pain and vomiting, and the inability of ultrasound to reliably diagnose small bowel obstruction, CT was agreed and confirmed a high-grade mechanical obstruction with a transition point at the hernial neck.

Multidisciplinary review supported tertiary transfer because laparotomy might require fetal delivery and local neonatal support was unavailable below 32 weeks. Following an unsuccessful Gastrografin trial, laparotomy demonstrated viable bowel within a 7 × 10 cm defect. The obstruction was relieved and primary fascial closure achieved without fetal delivery. She was discharged after five days and delivered by Caesarean section for breech at 39+4 weeks.

Patient Experience

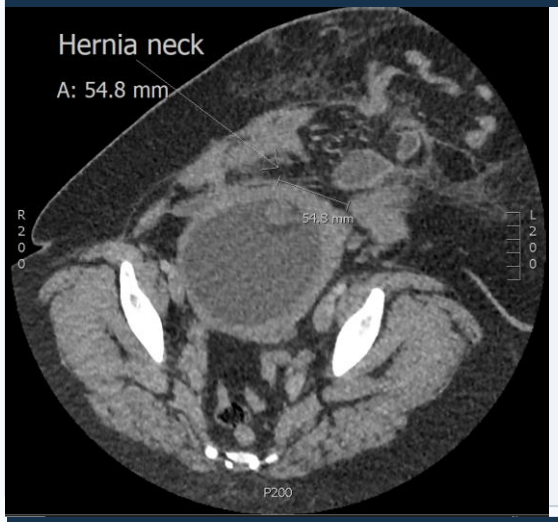
Presentation to definitive diagnosis: 12hrs 51mins
Presentation to surgery: 32hrs 43mins
Analgesic burden: 200 micrograms IV fentanyl + 7.5 mg SC morphine at regional centre; IV ketamine + morphine PCA after tertiary transfer.

Clinical pathway + patient experience

D1 10:30	Rural assessment: suspected incarcerated hernia ± SBO
12:35	Departed rural hospital
16:24	Maternity assessment
17:00	Obstetric review: likely obstruction; CTG reassuring
17:22	Transferred to ED; ongoing severe pain
18:55	USS suspicious for strangulated hernia
20:30	Targeted USS consistent with SBO
21:30	O&G + Surgery review; MRI considered, CT agreed
22:26	CT performed
23:21	Verbal CT report: high-grade mechanical SBO (12hrs 51mins)
D2 00:20	MDT transfer discussion
00:50	Tertiary referral made
01:18	Transfer accepted
03:02	Departed regional hospital
05:07	Tertiary assessment
08:20	Surgical review; Gastrografin trial
16:15	Surgery planned
19:13–22:45	Laparotomy + repair; no fetal delivery (32hrs 43mins)

Outcome: discharged hospital day 5; Caesarean for breech at 39+4 weeks

CT image placeholder



Caption: High-grade mechanical small bowel obstruction with transition point at the neck of a complex anterior abdominal-wall hernia.

Discussion

Although rare, small bowel obstruction in pregnancy carries substantial fetal risk, with fetal loss reported in 17% of cases [1]. In this case, the rural clinician identified an incarcerated hernia with probable obstruction from history and examination alone, without laboratory testing or imaging.Persistent clinical suspicion warranted progression to definitive imaging, with CT confirming rather than establishing the diagnosis [2–4].

Pregnancy influenced the patient's clinical destination and imaging pathway. Repeat ultrasound examinations were performed and an after-hours MRI was considered before CT. Urgent MRI has been recommended for diagnosing small bowel obstruction in pregnancy where it is promptly available [5]. However, ultrasound had not reliably established the diagnosis, the presentation remained time-sensitive, and the patient continued to experience severe pain and vomiting. In this context, proceeding to CT following appropriate fetal-risk counselling was reasonable; clinically indicated CT should not be withheld because of pregnancy [6].

It is reasonable to question whether a non-pregnant patient with the same history, examination findings and provisional diagnosis would have progressed more directly to emergency assessment, definitive imaging and surgical review. Pregnancy appropriately required fetal assessment, radiation counselling and consideration of operative and neonatal capability. These safeguards should occur alongside—not replace or delay—the pathway indicated by the suspected surgical pathology [2,3,7]. When local neonatal capability is insufficient, early multidisciplinary planning and in-utero transfer are appropriate [7].

Refs: 1 Webster et al. 2007; 2 Devarajan & Chandraharan 2011; 3 Angelini 2003; 4 Gao et al. 2023; 5 ACOG Guidelines for diagnostic imaging during pregnancy and lactation; 6 Danawar et al. 2020; Watson et al. 2020.