Background

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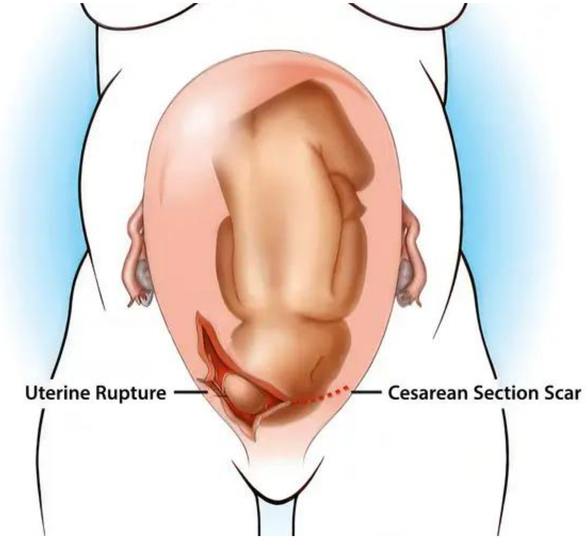
- ***Uterine rupture*** - Complete tear in all 3 layers of the uterus[1]
- Incidence: 1% for one prior C section, 3.9% with multiple prior C sections
- “Classic triad”: sudden onset of severe abdominal pain, FHR abnormalities, vaginal bleeding[2]
- Isolated breakthrough pain frequently attributed to inadequate neuraxial analgesia



https://www.webmd.com/baby/what-is-uterine-rupture

[1] Togioka, Brandon M., and Tiffany Tonismae. "Uterine Rupture." *StatPearls*, StatPearls Publishing, 2023

[2] Guiliano, M., et al. "Signs, Symptoms and Complications of Complete and Partial Uterine Ruptures during Pregnancy and Delivery." *European Journal of Obstetrics & Gynecology and Reproductive Biology*, vol. 179, Aug. 2014, pp. 130-34. *PubMed*

Timeline of Events

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Case 1: 36yo G2P1 at 39w5d

- AMA, GDM2, prior CS for arrest of descent

1830: painful contractions, FHR normal, no VB

2000: Epidural placed with adequate analgesia

0130, 0330, 0630: Epidural bolused for breakthrough pain

0700: Epidural replaced and bolused

0900: Pushing limited due to poor analgesia
0950: negative US
1020: decision for CS

1031: GA induced for CS
Operative report: *4cm anterior uterine wall rupture*

Case 2: 24yo G2P1 at 40w5d

- Mild asthma, prior CS for breech presentation

1700: painful contractions, brief category II FHR

0630: induction
0700: Epidural placed with adequate analgesia

1300, 1530, 1800: Epidural bolused for breakthrough pain

2100: Epidural replaced and bolused

0100: arrest of labor, decision for CS

0210: GA induced for CS
Operative report*: adequate space in uterine defect to deliver fetus without creating hysterotomy*

Teaching Points

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- Breakthrough pain despite previous epidural efficacy[1]:
  - Hemoperitoneum
  - Amniotic fluid in peritoneum
  - Extension of pain stimuli beyond standard labor epidural coverage
- Retrospective study reviewing 97,028 births[2]
  - Complete rupture: 82% exhibited FHR abnormalities; “classic triad” only in 9%
    - 13.6% infant mortality
  - Partial rupture: 48% asymptomatic
- Nested case control study of 802 TOLAC patients[3]
  - Established dose-response relationship between number of epidural boluses and uterine rupture risk (hazard ratio 6.7 for 3 doses)
- Increasing population of TOLAC → increased vigilance

Stage 1	Stage 2
Visceral pain	Somatic pain
Due to uterine contraction and cervical dilation	Due to vaginal and perineal stretching
Sympathetic fibers, T10 – L1	Pudendal nerve, S2 – S4

[1]Markou, G. A., J.-M. Muray, and C. Poncelet. "Risk Factors and Symptoms Associated with Maternal and Neonatal Complications in Women with Uterine Rupture. A 16 Years Multicentric Experience." European Journal of Obstetrics & Gynecology and Reproductive Biology, vol. 217, Oct. 2017, pp. 126-130.
[2] Guiliano, M., et al. "Signs, Symptoms and Complications of Complete and Partial Uterine Ruptures during Pregnancy and Delivery." *European Journal of Obstetrics & Gynecology and Reproductive Biology*, vol. 179, Aug. 2014, pp. 130-34.
[3] Cahill, Alison G., et al. "Frequent Epidural Dosing as a Marker for Impending Uterine Rupture in Patients Who Attempt Vaginal Birth After Cesarean Delivery." *American Journal of Obstetrics and Gynecology*, vol. 202, no. 4, Apr. 2010, pp. 355.e1-355.e5.