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Clinical Conundrum:

In the setting of emergent C-section, which is preferred: vertical or pfannenstiel skin incision?

Background:

During my intern year in Emergency Medicine, I have been taught that vertical skin incision is preferred to pfannenstiel in the setting of emergent C-section. However, the nurse midwives with whom I've recently worked on Labor and Delivery told me that vertical incision in this setting is really only practiced in the state of Texas, and specifically at my hospital. I was told that pfannenstiel is, in fact, the preferred technique for emergent c-section across most of the United States and Europe. Which technique has better outcomes?

Findings:

1.) Vertical skin incision shortens median incision-to-delivery intervals (IDI) by 1 minute in primary and 2 minutes in repeat cesarean deliveries. However, total median operative time is longer after vertical skin incision by 3 minutes in primary and 4 minutes in repeat cesarean deliveries. What's more, neonates delivered through a vertical incision are more likely to have an umbilical artery pH of less than 7.0, to be intubated in the delivery room, or to be diagnosed with hypoxic ischemic encephalopathy.

2.) There is no differences in maternal injury. Postpartum endometritis is more common with vertical incisions, as is the need for post-partum transfusion. Wound infection, hematoma, and ileus rates are similar between groups.

3.) Factors associated with longer IDI included previous delivery by caesarean section, increased maternal body mass index (BMI), regional anesthesia, larger neonatal birth weight and technical problems including intraperitoneal adhesions, but did not include fetal malpresentation, multiple pregnancy, grade of surgeon or stage of labor. IDI had no impact on neonatal condition at birth.

Conclusions:

Vertical incisions significantly reduce IDI, but are associated with longer total operative time and similar morbidity and mortality as pfannenstiel incisions. The higher rate of neonatal complications with vertical incision can likely be attributed to physicians' higher pre-test probability for neonatal complication, leading to a decision to reduce IDI. In the setting of emergent C-section, there is no advantage for the mother or child to performing vertical abdominal incision vs. pfannenstiel. Physician preference, in consultation with the mother (if possible), should take precedence.

References / Further Reading

- 1.) Blair J. Wylie, MD, MPH, Sharon Gilbert, MS, MBA, Mark B. Landon, MD, Catherine Y. Spong, MD, Dwight J. Rouse, MD, Kenneth J. Leveno, MD, Michael W. Varner, MD, Steve N. Caritis, MD, Paul J. Meis, MD, Ronald J. Wapner, MD, Yoram Sorokin, MD, Menachem Miodovnik, MD, Mary J. O'Sullivan, MD, Baha M. Sibai, MD, and Oded Langer, MD, for the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) Maternal-Fetal Medicine Units Network (MFMU). Comparison of Transverse and Vertical Skin Incision for Emergency Cesarean Delivery. Obstet Gynecol. Author manuscript; available in PMC 2011 Dec 1.
- 2.) Pearson GA¹, MacKenzie IZ. Factors that influence the incision-delivery interval at caesarean section and the impact on the neonate: a prospective cohort study. Eur J Obstet Gynecol Reprod Biol. 2013 Jul;169(2):197-201. doi: 10.1016/j.ejogrb.2013.02.021. Epub 2013 Apr 15.