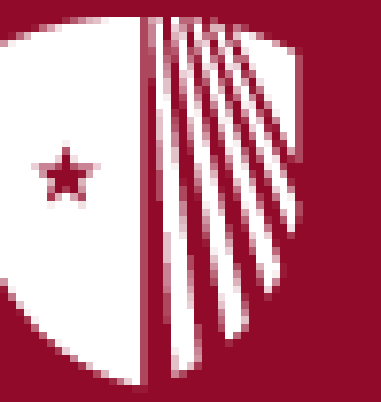




Intraoperative Management of Complete Placenta Previa with Placenta Accreta Complicated by Suspected Amniotic Fluid Embolism

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Background

Placenta previa is a complete or partial covering of the cervical os by placenta

- This condition is associated with placenta accreta spectrum, where there is abnormal placentation with varying degrees of invasion through the uterine wall
- Both conditions increase risk of postpartum hemorrhage and disseminated intravascular coagulation*

Incidence:

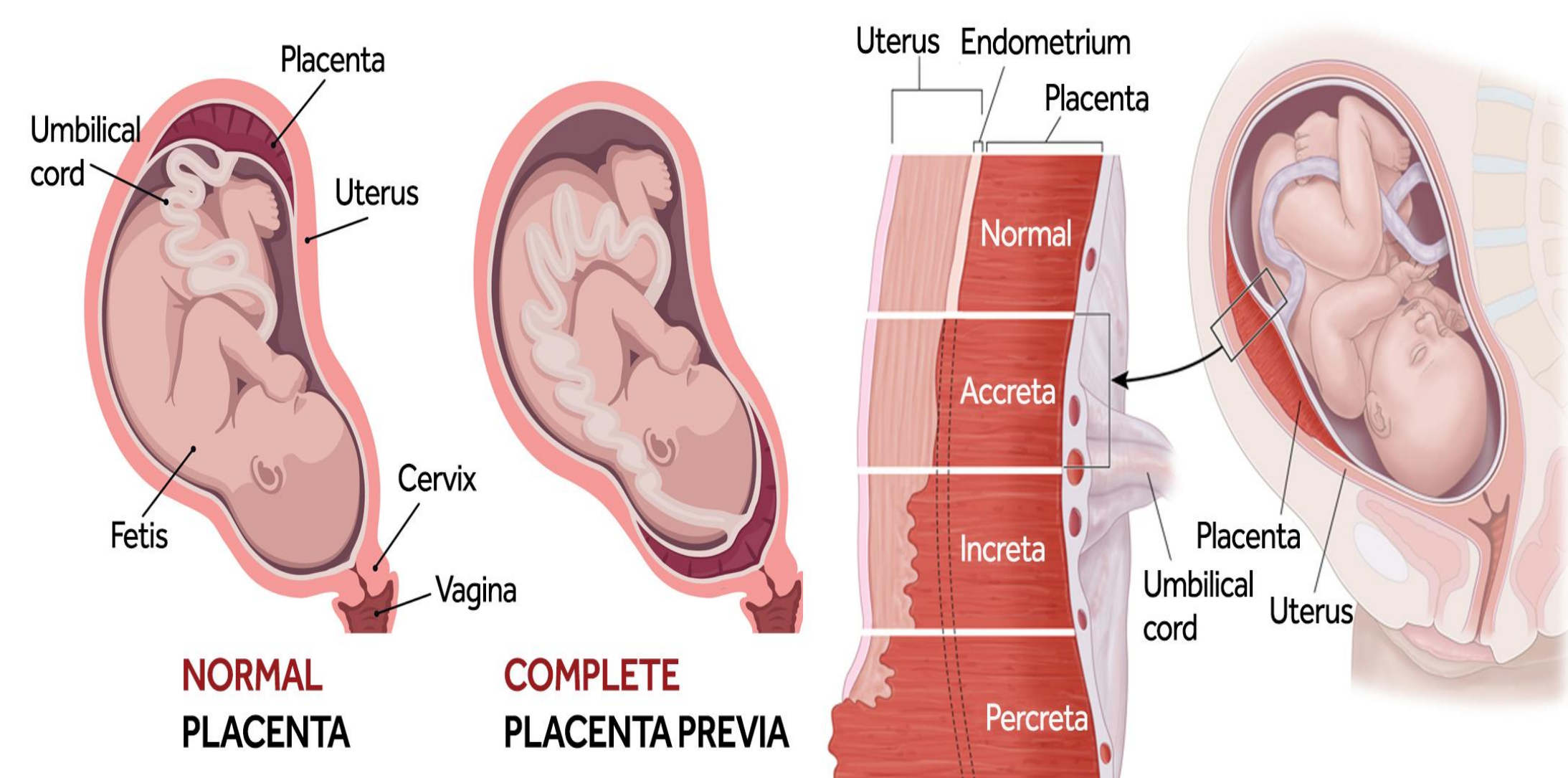
- Placenta previa - 0.3% to 2% of pregnancies in the third trimester
- Placenta accreta - 0.04% of deliveries

Risk Factors for Placenta Accreta:

- Prior cesarean section/multiparity
- Prior placenta previa/presence of placenta previa
- Advanced maternal age

Amniotic Fluid Embolism (AFE):

- Involves release of amniotic fluid into maternal circulation with subsequent hemodynamic instability and maternal coagulopathy
- Studies suggest disorders of abnormal placentation increase risk for AFE



Case Presentation

31-year-old G4P1021 with complete placenta previa and focal placenta accreta who presented for scheduled repeat cesarean section at 34 weeks and 3 days gestation in the main operating room following a multidisciplinary meeting and consultations with maternal fetal medicine, obstetric anesthesiology, gynecology oncology, urology and neonatology

Intravenous Access and Invasive Monitoring:

- Large bore intravenous access with 18 gauge angiocath, 16-gauge angiocath, 20-gauge left brachial arterial line

Blood Product Availability and Delivery:

- 6 units of Packed red blood cells, 6 units of Fresh frozen plasma, 2 units of Platelets, 1 unit of Cryoprecipitate
- Belmont rapid infuser assembled and in OR

Anesthetic Plan:

- Combined spinal and epidural, intrathecal medications of 1.6cc of hyperbaric bupivacaine with 10mcg of fentanyl, 0.15 mg of morphine, and 0.1 mg of epinephrine

Postpartum Hemorrhage:

- Transfusion of 2 units of packed red blood cells and 2 units of fresh frozen plasma utilizing Belmont rapid infuser
- Uterotonics
 - Oxytocin intravenous infusion
 - Methergine intramuscular injection
- Antifibrinolytic
 - Tranexamic acid intravenous infusion



Intraoperative Events

Rapid Hemodynamic Instability:

- Hypotension, tachycardia, diffuse urticarial rash, and transient episode of hypoxia concerning for continued hemorrhage vs urticarial transfusion reaction vs transient amniotic fluid embolism
- >500cc gush of blood passed via vagina following abdominal closure by obstetric surgical team

Immediate Interventions:

- 100% FiO2 from anesthesia machine via face mask with appropriate response
- Massive transfusion protocol activated and executed via Belmont
- Bakri balloon placed and subsequently ejected due to continued pressure from bleeding
- 100 mcg of epinephrine, 50 mg of diphenhydramine, 10 mg of dexamethasone, and 25 mg of famotidine administered for possible urticarial transfusion reaction
- 1mg of atropine, 8 mg of ondansetron and 50 mg of ketorolac administered for suspected transient amniotic fluid embolism (*A-OK protocol*)

Decision for Emergent Hysterectomy:

- Conversion to general endotracheal anesthesia for airway protection in setting of high transfusion requirements, suspected transfusion reaction and concern for transient AFE
- Hemodynamic stability achieved following hysterectomy
- Estimated blood loss of 4L
- Total transfusion requirements: 9 units of packed red blood cells, 9 units of fresh frozen plasma, 2 units of platelets, and 2 units of cryoprecipitate

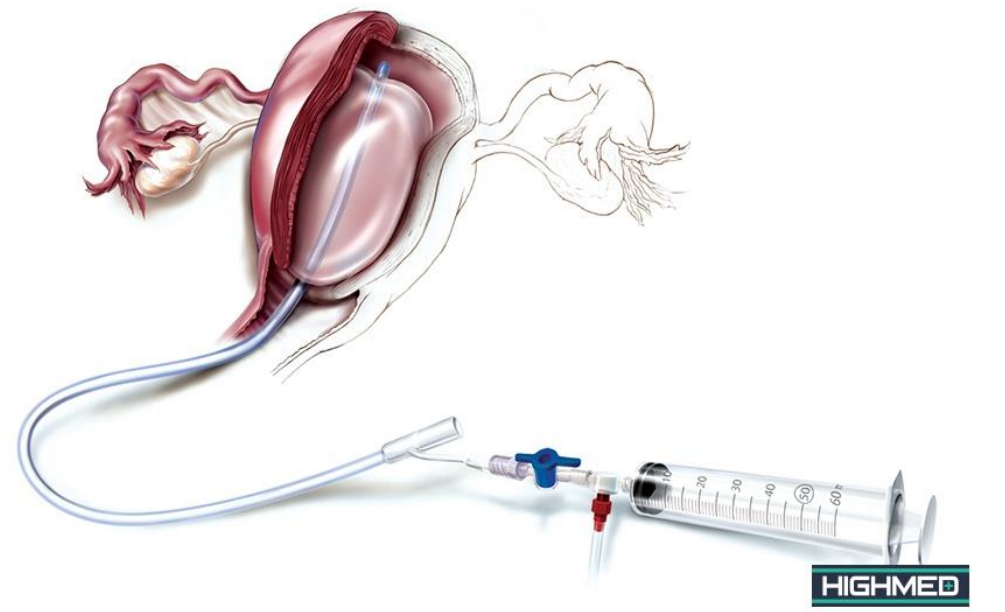
Postoperative Course:

- Continued monitoring in the post-anesthesia care unit
- Postoperative mechanical ventilation and extubation
- Allergy and immunology consultation

Anesthetic Planning

Pre-Operative:

- Multidisciplinary discussion and consultations
- Discussion about morbidity and mortality
- Discussion about future fertility
- Date of surgery (DOS) and location
- Maximizing hemoglobin

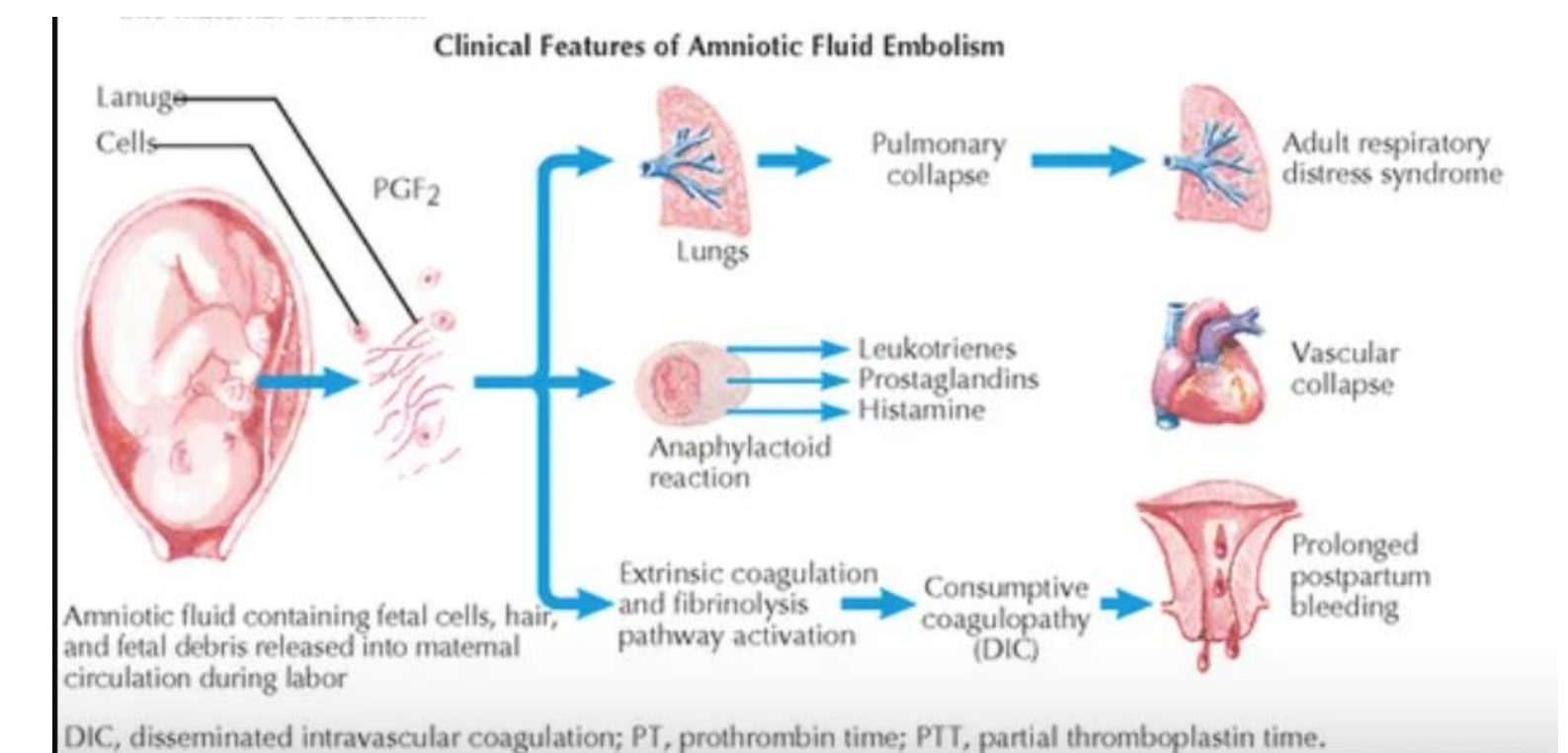


Intra-Operative:

- Discussion DOS about morbidity and mortality as well as fertility
- Confirm availability of back up consultants
- Confirm availability of blood products and point of care testing
- Anesthetic management – Combined spinal-epidural, large bore IV access, arterial line placement, possible conversion to general endotracheal anesthesia
- Resuscitation
- Management of complications

Post-Operative:

- Continued monitoring
- Possible intubation and mechanical ventilation
- Intensive care consultation



Conclusions

Placenta previa and placenta accreta spectrum are disorders of pregnancy with increased maternal/fetal morbidity and mortality. Rates of disorders of abnormal placentation have risen in parallel with rates of cesarean delivery. Studies have suggested these disorders to be associated with risk of amniotic fluid embolism. These disorders are associated with risk of hemorrhage, coagulopathy, and hemodynamic instability. Multidisciplinary care and proper planning is paramount to managing patient expectations and potential complications that may arise.

References

References available on request, correspondence to
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