Society for Maternal-Fetal Medicine
High-risk pregnancy experts

SMFM Checklist for Unexpected Morbidly Adherent Placenta

Intended for use when morbidly adherent placenta is first encountered at the time of labor onset or delivery, and was not diagnosed antenatally.

Diagnosis *Before* Delivery (e.g. bleeding prior to delivery):

If located at facility without accreta experience:

- ☐ Assess stability (vital signs, extent of blood loss, fetal monitoring status)
- ☐ Assess and prepare surgical help, equipment, & transfusion capability (see contact numbers below)
- ☐ Consider transport to facility with accreta experience if patient is stable
- ☐ Contact possible accepting facility

Diagnosis at Laparotomy:

If located at facility without accreta experience and if transport may be option:

- ☐ Assess stability (vital signs, extent of blood loss, hemodynamics, fetal status)
- ☐ Assess placental location visually and by intra-operative ultrasound
- ☐ Assess and prepare resources (surgical help, equipment, & transfusion capability; see contact numbers below)
- ☐ Assess transport capabilities (includes contact to possible accepting facility)
- ☐ Consider delaying uterine incision until resources available at facility (if maternal and fetal status permits), *or*
- ☐ Consider no uterine incision, close abdomen, & prepare for transport to referral center (if fetal and maternal status permits), *or*
- ☐ Consider delivery of fetus by fundal incision (or incision that avoids placenta if mapping is possible), closure of uterus and abdomen, & transport if stable and appropriate
- ☐ If transporting, photograph intraoperative findings for receiving facility

If proceeding to cesarean hysterectomy

The above is intended to serve as a guideline and not intended to be a standard of care. Care should be based on the judgment of the physician based on the individual patient's condition.

- ☐ Inform patient and family of change in diagnosis and plan; obtain appropriate consent
- ☐ Anesthesia notified; consider general anesthesia
- ☐ Acceptable intravenous access in place (2 large bore IVs)
- ☐ Blood Bank notified and products requested (consider postpartum hemorrhage bundle and/or massive transfusion protocol)
- ☐ Neonatology/Pediatrics notified
- ☐ Requested equipment available in or near operating room (consider:
  - Hysterectomy surgical equipment kit
  - Cystoscopy
  - Ureteral stents
  - Red cell salvage (with perfusionist)
  - Stirrups for dorsal lithotomy
- ☐ Other relevant subspecialties notified and available (consider:
  - Maternal-Fetal Medicine
  - Gynecologic Oncology
  - Interventional Radiology
  - Urology
  - Vascular Surgery
  - Trauma/General Surgery
  - Colorectal Surgery
- ☐ Contact appropriate Intensive/Critical Care Unit
- ☐ Consider contacting pastoral/spiritual care
- ☐ If still bleeding after hysterectomy, consider abdominal packing for stabilization & transport

Emergency Contact Numbers (fill in as appropriate)

- Main OR Booking:
- Chief of Obstetrics:
- Medical Director Labor and Delivery:
- Maternal-Fetal Medicine 'on call':
- Gyn Oncology 'on call':
- Interventional Radiology 'on call:'
- Trauma or General Surgery 'on call':
- Colorectal Surgery 'on call':
- Vascular Surgery 'on call':
- Urology 'on call':
- Pediatrics/Neonatal 'on call:'
- Blood Bank or Transfusion Specialist:
- Intensive/Critical Care Unit:
- Perfusionists (Cell Saver):
- Pastoral/Spiritual Care:

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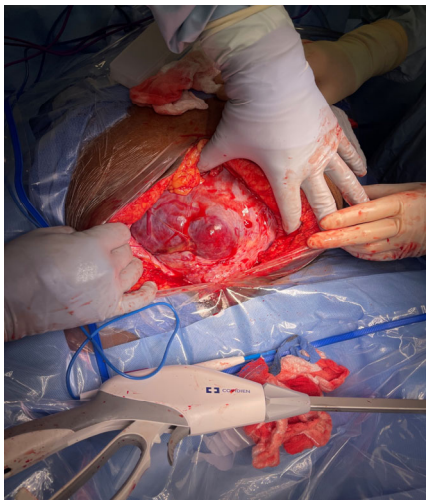

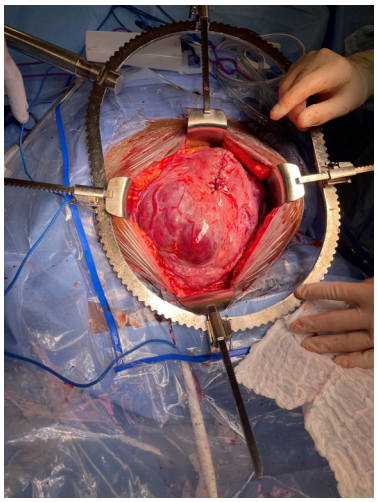

Consider these stopping points if your team/facility are not fully prepared to complete the hysterectomy.

Prior to delivery if maternal and fetal status allow.

After fetal delivery above the placenta and closure of the uterus.

A "peek and shriek" is ok.

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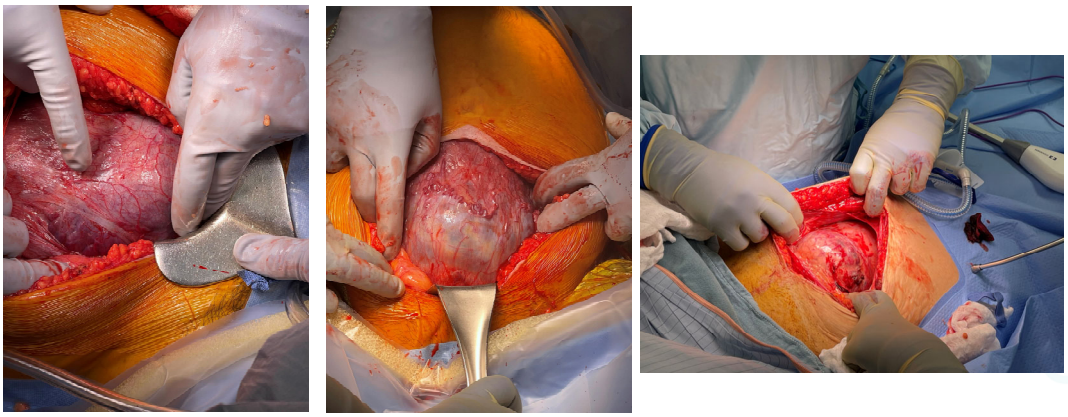
EXAMPLES OF NEOVASCULARITY AND BULGE AT LAPAROTOMY



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CALL FOR HELP

Consider simulation drills to improve communication in advance

- Know who you may have for assistance in your facility.
- Other OB/GYN, Gyn-Onc, MFM, Urology, General/Trauma surgery
- Additional anesthesia staff
- Interventional radiology.
- Additional Nursing and OR staff.
- Additional instruments (Hysterectomy tray, self-retaining retractors, sutures)
- Blood bank
- ICU bed may be needed.

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SURGICAL PEARLS

- Don't disrupt the placenta if clearly PASD
- Delivery above the placenta if possible.
- Close the uterus quickly (I use running, locked 1-Loop PDS)
- Put ring or similar clamps on edges to control bleeding if delay.
- If placenta disrupted and bleeding, deliver and determine site/size of invasion.
- Large hemostatic compression sutures (1-chromic or other) can oversew the bleeding vascular bed from the inside of the uterus (Focal/small).
- Sequential devascularization of the uterus (Ascending uterine, utero-ovarian)
- Bakri balloon may be considered if small focal in additional to compression sutures.
- Aortic compression can temporarily reduce flow to allow for visualization/vascular control.

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Don't delay hysterectomy if conservative measures not working.

- If Pfannenstiel incision was used, consider conversion to Maylard.
- Much of the hemorrhage comes at the time of dissection of the bladder. If placenta *insitu*, consider securing uterine arteries prior to dissection of the bladder.
- Open parametrial spaces to assess for lateral extension and identify ureters.
- Often the problem isn't direct invasion of the placenta itself, but bulky lower uterine segment from previa and bleeding from the thin wall neovascularity.
- If access to uterine arteries is obscured, consider taking these at the level of the ureter.
- Vessel sealing electrosurgical devices may help limit bleeding, but use what you are comfortable with.
- Vaginally placed instrument can help identify posterior fornix. Often easier than anterior entry.

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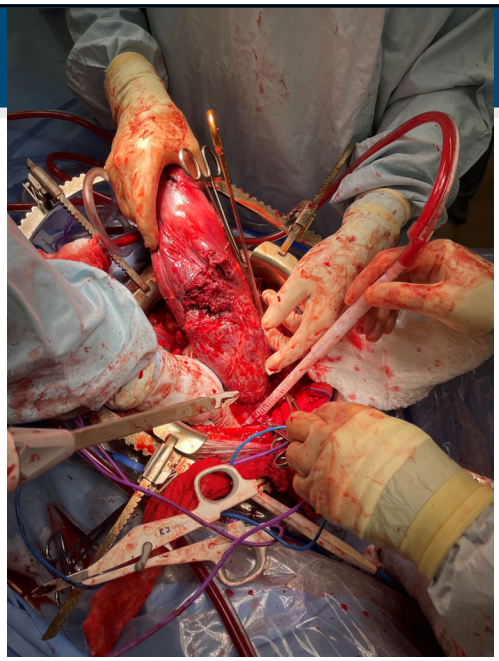

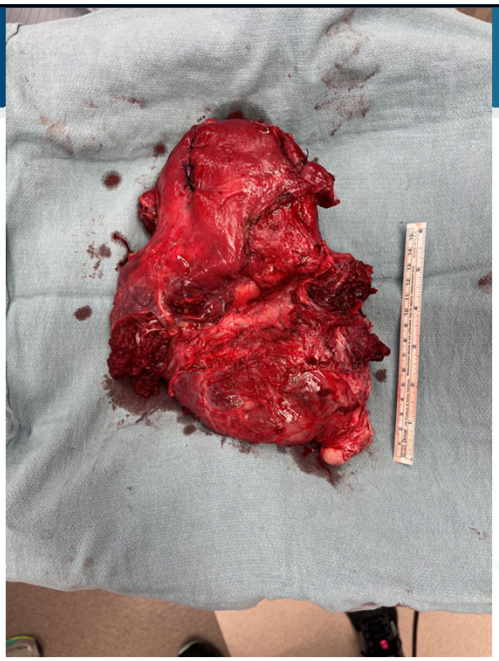

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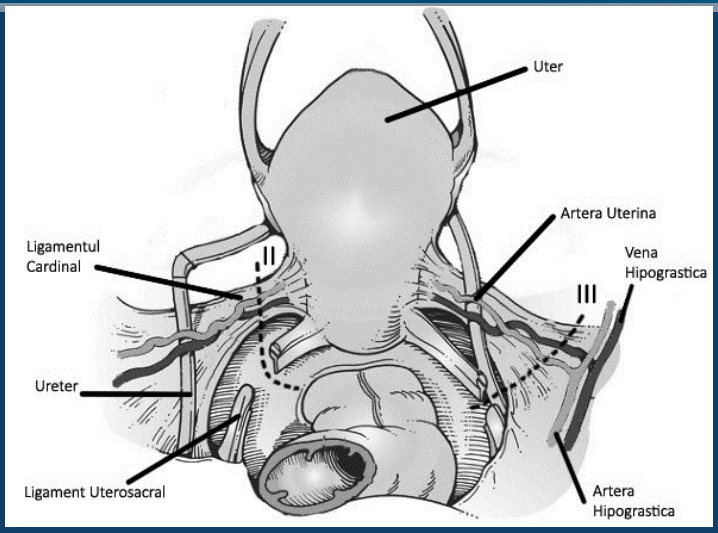
KNOW THE ANATOMY



PASD may make the approach to a type 1 hysterectomy impractical.

If invasion or neovascularity make skeletonizing vessels difficult, a modified radical hysterectomy may be prudent.

Anterior hypogastric artery ligation may be needed in rare cases.

Marin F, Plesca M, Bordea CI, Moga MA, Blidaru A. Types of radical hysterectomies : From Thoma Ionescu and Wertheim to present day. Journal of Medicine and Life. 2014 Jun;7(2):172-176. PMID: 25408722; PMCID: PMC4197497

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MANAGE BLOOD PRODUCT TRANSFUSION

- Communicate with Anesthesia.
- Activate MTP early
- Consider TXA if available.
- Cell salvage if available.
- Transfuse empirically as labs may not reflect ongoing loss.
- Volume expansion.
- *Remember to repeat and/or expand antibiotics.

TABLE 2
Characteristics of Blood Products, Anticipated Effects, and Complications

Blood Product	Laboratory Values Prompting Transfusion	Volume	Anticipated Effect	Complications
Packed red blood cells	Hct <18 Hct <30 in unstable patient or active bleeding	300 mL	Increase Hct 3% per unit	Human error Hemolytic reaction Infection TRALI
Platelets	Platelet count <50,000 Microvascular bleeding Massive transfusion: 1:1 with RBC	50 mL	Increase platelet count 7,500/mm^3 /U	Human error Hemolytic reaction Infection TRALI
Fresh frozen plasma	INR >2 X normal aPTT >1.5 X normal Massive transfusion: 1:1 with RBC	250 mL	Increase fibrinogen 10–15 mg/dL/U	Human error Hemolytic reaction Infection TRALI
Cryoprecipitate	Fibrinogen <100 mg/dL	40 mL	Increase fibrinogen 10–15 mg/dL/U	Human error Hemolytic reaction Infection TRALI

Abbreviations: *aPTT*, activated partial thromboplastin time; *Hct*, hematocrit; *INR*, international normalized ratio; *RBC*, red blood cells; *TRALI*, transfusion related acute lung injury; *U*, units.

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Placenta accreta spectrum. Obstetric Care Consensus No. 7. American College of Obstetricians and Gynecologists. Obstet Gynecol 2018;132:e259–75.

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POST OP

- Post operatively may need ICU to observe.
- If bladder injury or concern for delayed bleeding, consider surgical drain placement.
- Manage similarly to other major surgical cases.
- Debrief with team:
  - What can you learn from the case to make care safer.
  - Assess for second victim trauma. These cases are often very intense.

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PSYCHOLOGICAL CONCERNS

- PAS, and especially undiagnosed PAS, has a significant impact on the patient and partner/family
- Massive hemorrhage, transfusion, ICU care, and unexpected hysterectomy and loss of fertility is traumatic.
- Communication with the family during and after the case is important.
- Reviewing with the patient repeated at different time intervals is necessary.
- Involve mental health support early and encourage outpatient follow up.
- Risk of postpartum depression and PTSD is increased.
- Support groups, locally or online are available.

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CONCLUSIONS

- Early identification and referral are recommended if possible
- Consider closing and transfer, if possible, for unexpected PASD.
- Once placental is disrupted, must proceed until control of hemorrhage is obtained.
- In lower volume/acuity centers simulations can familiarize the team with necessary steps to improve outcomes.
- Communicate and call for help early.
- Debrief with team.
- Remember psychological impact.

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