Management of Placenta Accreta/Increta/Percreta

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I have no conflicts of interest to report.
Objectives

• Describe the epidemiology of placenta accreta
• Review management strategies for placenta accreta
• Discuss long-term outcomes for patients treated conservatively for placenta accreta
Abnormal Placental Attachment

• First described in 1937 by Irving and Hertig
  – Placenta accreta = “the abnormal adherence, either in whole or in part, of the afterbirth to the underlying uterine wall”

• Placenta accreta (75-78%): Abnormal attachment of the placental villi directly to the myometrium due to an absence of decidua basalis and an incomplete development of the fibrinoid layer
Abnormal Placental Attachment

• Placenta increta (17%): Placenta extends into the myometrium

• Placenta percreta (5-7%): Placenta penetrates the full thickness of the myometrium and uterine serosa with possible involvement of adjacent organs
Abnormal Placental Attachment
Epidemiology

• Incidence 1 in 533
• Risk factors
  – 95% of women have identifiable risk factors
  – Placenta previa
  – Prior cesarean delivery
  – Increasing parity
  – Increasing maternal age
  – Prior uterine surgery
## Risk of Placenta Accreta

<table>
<thead>
<tr>
<th>Number of Cesarean Deliveries</th>
<th>Placenta Accreta Risk (%)</th>
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<tbody>
<tr>
<td>0</td>
<td>3</td>
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<tr>
<td>1</td>
<td>11</td>
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<tr>
<td>2</td>
<td>40</td>
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<tr>
<td>3</td>
<td>61</td>
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<tr>
<td>≥ 4</td>
<td>67</td>
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Epidemiology

- Rising incidence of placenta accreta parallels rising cesarean section rate
- Estimated that by 2020 cesarean delivery rate in US may approach 56.2%, resulting annually in an additional:
  - 6236 placenta previas
  - 4504 placenta accretas
  - 130 maternal deaths
Mechanism

- Primary defect of trophoblast function
- Secondary basalis defect due to failure of normal decidualization
- Abnormal vascularization and tissue oxygenation of the scar area resulting in defective decidualization and excessive trophoblastic invasion
Ultrasound

• Best radiographic modality for diagnosis
  – Sensitivity 77-93%, specificity 71-97%, PPV 65-88%
• Loss of normal hypoechoic retroplacental-myometrial zone
• Thinning and disruption of uterine serosa-bladder interface
• Focal exophytic masses within the placenta
• Numerous intraplacental vascular lacunae
• Increased vascularity at the interface of uterus and bladder
Ultrasound Findings

PLACENTA ACCRETA
Ultrasound Findings

Figure 2. Color Doppler mapping of the hypervascular serosa–bladder interface.
MRI

- Further evaluation of placenta accreta identified on ultrasound
- Additional anatomic information regarding extent of placental infiltration and involvement of surrounding organs
- Sensitivity $> 80$
- Most useful with posterior placenta
Maternal Complications

- ICU admission
- Thromboembolism
- Pyelonephritis
- Pneumonia
- Wound infection
- Need for additional surgery to treat infection or control bleeding
- Operative injury/Fistula formation
- Death – mortality 7%
Antenatal Management

• All patients with risk factors should be assessed with ultrasound

• Consider hospitalization until delivery for patients with heavy or recurrent vaginal bleeding

• Scheduled delivery at 34 wks after a course of antenatal steroids

• Patient counseling
Intraoperative Management

- Experienced multidisciplinary team
  - Obstetrics
  - Gynecologic Oncology
  - Urology
  - Vascular Surgery
  - Interventional Radiology
  - Anesthesia
  - Critical Care
  - Transfusion Medicine
Intraoperative Management

- Eller AG, et al. (2011)
- Retrospective cohort study of all cases of placenta acreta in Utah, 1996-2008.
- Compared maternal morbidity for cases managed by a multidisciplinary care team (79) in two tertiary referral centers vs cases managed at 26 other hospitals (62) – total 141 cases
Intraoperative Management

- Women managed by a multidisciplinary care team were less likely to:
  - Require large volume transfusion (> 4 units PRBCs)
    - 43% vs 61%, p = 0.031
  - Reoperation within 7 days of delivery for bleeding
    - 3% vs 36%, p < 0.001
  - Composite early morbidity (prolonged maternal admission to ICU, large volume blood transfusion, coagulopathy, ureteral injury, early reoperation)
    - 47% vs 74%, p = 0.26
Intraoperative Management

• Prophylactic hypogastric artery balloon catheters?
  – Not universally effective at preventing hemorrhage
    • Failure rate 17-24%
  – Complications
  – Menstruation 62%, subsequent pregnancy 15%

• If prompt access to interventional radiology is available, use on an as needed basis
Intraoperative Management

• If bladder invasion is suspected, cystoscopy for direct assessment
  – Consider ureteral stenting
• Uterine incision located to avoid the placenta
• If placenta does not separate spontaneously, leave it in place and close or leave it in place, close and perform a hysterectomy
  – Avoid immediate massive hemorrhage
• Hysterectomy?
Intraoperative Management

• Kayem G, et al. (2005) compared conservative vs extirpative management, 1993 to 2002
  – 1997-2002 placenta in situ

• 33 cases (13 MROP, 20 PLI)

• MROP associated with increased need for hysterectomy: 11 (84.6%) to 3 (15%), p <0.001
Intraoperative Management

• Reduction in transfusion: 3230 ml +/- 2170 ml vs 1560 ml +/- 1646 ml, p<0.01
• Reduction in incidence of DIC: 5 (38.5%) vs 1 (5%), p = 0.02
• More infectious morbidity: no sepsis vs 6 cases of endometritis, 3 with sepsis
Intraoperative Management

• Long-term f/u was available on 7 patients
• 2 women in conservative management group subsequently with successful pregnancies
  – 1 had a normal pregnancy and 1 had 2 additional pregnancies, both complicated by placenta accreta
Intraoperative Management

• Yapp YY, et al. (2008)
• Retrospective case-control study comparing clinical outcomes of patients with placenta accreta undergoing cesarean hysterectomy following manual removal of the placenta vs leaving placenta *in situ*
• 21 Patients (MROP = 8 vs PLI = 13)
Intraoperative Management

• MROP was associated with:
  – Increased blood loss: 7546 ml (2,000 ml-15,920 ml) vs 3500 ml (1,000 ml-7,000 ml), p = 0.087
  – Increased need for blood transfusion: 12.6 units vs 4.9 units, p = 0.038
  – There was also increased need for transfusion of platelets and FFP

• Duration of surgery, duration of ICU stay, length of stay, infection rate not different
Outcomes of Conservative Management

• Sentilhes, et al. (2010)

• Retrospective multicenter study of conservative management of placenta accreta

• Tertiary care hospitals in France, 1993-2007

• 167 patients
  – Successful in 131 (78.4%)
  – Unsuccessful in 36
    • 18 (10.8%) primary hysterectomy
    • 18 (10.8%) delayed hysterectomy
Outcomes of Conservative Management

• Primary postpartum hemorrhage 86 (51.5%)
  – 15 (17.4%) controlled with uterotonics
  – 57 (66.2%) uterine artery embolization
  – 18 (20.9%) hysterectomy

• Severe maternal morbidity 10 (0.6%)
  – Sepsis 6 (all had delayed hysterectomy)
  – Vesicouterine fistula 1
  – Bladder injury during primary hysterectomy 1
  – Thromboembolism 3
  – Death from complications of MTX 1
Outcomes of Conservative Management

• Spontaneous placental resolution in 87/116 (75%)
  – Median time to resolution 13.5 wks (range 4-60 wks)
Outcomes of Conservative Management

- Sentilhes, et al. (2010)
- Evaluated fertility and pregnancy outcomes after conservative management
- Retrospective multicenter study, 1993-2007
- 96 (73.3%) had long-term f/u data
  - 8 women with synechiae and amenorrhea
  - 27 desired more children
    - 24 women had 34 pregnancies
Outcomes of Conservative Management

• Pregnancy outcomes
  – 21 deliveries in 3rd trimester
    • All healthy infants delivered ≥ 34 wks
    • Placenta accreta recurred in 6 (28.6%)
    • Post-partum hemorrhage 4 (19%)
  – 1 ectopic
  – 2 Eab
  – 10 miscarriages
Methotrexate

• Methotrexate does not appear to speed up placental involution
  – Trophoblast is not dividing
  – Matsumura, et al. (2000) found no effect of methotrexate on beta-HCG concentration or uterine vascular flow

• Delayed hysterectomy rates are similar whether or not methotrexate is used
  – 5/22 (22.7%) with methotrexate vs 4/26 (15.3%) without methotrexate
Follow-Up

- Prophylactic uterotonics
- Prophylactic antibiotics
- Beta-HCG levels weekly
  - Case reports of persistent placental tissue with absent beta-HCG level
- Serial ultrasonography
Conclusions

• The incidence of placenta accreta is increasing with the increasing ceserean section rate

• Women with risk factors for placenta accreta should undergo ultrasound for antenatal diagnosis

• Women with an antenatal diagnosis of placenta accreta should be managed at a tertiary care center by a multidisciplinary team
Conclusions

• Conservative management with placenta left in situ results in less blood loss and need for transfusion at the time of surgery, but may be associated with an increased risk of post-op infection

• Successful pregnancies are possible after conservative management of placenta accreta, but are associated with a high rate of recurrence