Fibroids and Pregnancy: What does the evidence show us?

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Objectives

- Highlight the natural history of fibroids during pregnancy
- Discuss the evidence linking pregnancy and labor complications to myomas
- Review outcomes for intrapartum myomectomy

Natural History of Fibroids in Pregnancy:

**Prevalence**
- Depends on fibroid definition
- Prospective cohort study of 1313 women screened by 1st trimester endovaginal ultrasound (Hartmann KE)
  - 10% had 1 or more fibroids at least 0.5 cm in diameter
  - 4% had 1 or more fibroids at least 3 cm in diameter
- Retrospective cohort study of 15,104 women screened by 2nd trimester transabdominal ultrasound (Qidwai)
  - 2.7% had 1 or more fibroids

Change in size during pregnancy
- Strobelt
  - Prospective study of 134 women with fibroids
  - Location, size and number measured q 2 wks
  - 75% of fibroids < 5 cm no longer visualized in late pregnancy
- Lev-Toaff
  - Prospective study of 112 women with fibroids
  - Half of all fibroids did not change significantly in size during the pregnancy
Growth Pattern of Fibroids in Relation to Size

Natural History of Fibroids in Pregnancy

Potential Pregnancy Complications

1st Trimester Bleeding and Miscarriage Rates

Hartmann

- Prospective case control study of 1313 women
  - 131 women had 1 or more fibroids measuring ≥ 0.5 cm
- Fibroids associated with an increased risk of miscarriage (OR 2.29, 95% CI 1.34, 3.71)
- Risk of miscarriage was independent of fibroid size, volume and position with respect to the endometrial cavity
- Uterine fibroids, including small, intramural fibroids, were associated with increased risk of miscarriage

Hartmann KE et al, Abstract, SGI, 2004
**1st Trimester Bleeding and Miscarriage Rates**

Exacoustos
- Retrospective case control study of 492 women with fibroids and 12,216 control subjects
- Higher rates of 1st trimester bleeding in fibroid group
  - 17% vs 10% (p<.001)
- No difference in rates of miscarriage between groups
  - 7.7% vs. 6.8% (ns)

Exacoustos C, Obstet Gynecol, 1993;82:97-101

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Klatsky
- Retrospective case control study of 369 oocyte-donor IVF cycles
  - 94 fibroid cycles
    - Submucosal and cavity-distorting intramural fibroids excluded
    - Fibroid size ranged from 0.5-8 cm
  - 275 control cycles w/o fibroids
- No difference in rates of miscarriage between groups
  - 15% vs. 9% (OR 1.79, 95% CI 0.8-4.03)

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**Placental Abruption in Relation to Placenta Location**

* P < 0.001

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* P < 0.05
Preterm Premature Rupture of Membranes

Increased rates of PTL and PTD associated with:
- Koike: fibroid diameter > 3 cm
- Rosati: fibroid diameter > 6 cm
- Lev-Toaff: multiple fibroids
- Qidwai: but not associated with size or number

Multiple studies show no difference in rates of PTL and PTD between fibroid patients and controls
- Exacoustos, Davis, Vergani

Pelvic Pain

- Incidence
  - 10% of pregnant women with fibroids
- Onset
  - 2nd and 3rd trimesters
- Degenerative Fibroid Syndrome
  - Localized pain
  - Mild pyrexia
  - Mild leukocytosis
  - Heterogeneous echo pattern
- Treatment
  - If GA < 34 wks, ibuprofen 600 mg QID prn

Pregnancy complications associated with fibroids

<table>
<thead>
<tr>
<th>Likely</th>
<th>Unlikely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st trimester bleeding</td>
<td>Placenta previa</td>
</tr>
<tr>
<td>Miscarriage</td>
<td>Oligohydramnios</td>
</tr>
<tr>
<td>Placental abruption</td>
<td>Polyhydramnios</td>
</tr>
<tr>
<td>Pelvic pain</td>
<td>IUGR</td>
</tr>
<tr>
<td></td>
<td>Pre-eclampsia</td>
</tr>
</tbody>
</table>

Possibly

- PPROM
- PTL
Potential Labor and Delivery Complications

- Malpresentation
- Labor dystocia
- Operative vaginal delivery
- Cesarean delivery
- Chorioamnionitis / endomyometritis
- Post-partum hemorrhage

Potential Mechanisms for Labor and Delivery Abnormalities

- Restricted cavity limits fetal movement
- Mechanical obstruction prevents descent
- Less forceful uterine contractions

Obstetrical Outcomes

Qidwai

- Retrospective cohort study
- 500 women with fibroids detected on routine 2nd trimester ultrasounds, delivering at UCSF from 1994-2003
- 25,000 control subjects delivering at UCSF during same time period

Labor and Delivery Outcomes

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Fibroid Group (%)</th>
<th>Control Group (%)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cesarean Section</td>
<td>49.1</td>
<td>21.4</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Malpresentation</td>
<td>12.6</td>
<td>8.0</td>
<td>0.003</td>
</tr>
<tr>
<td>Operative Vaginal Delivery</td>
<td>20.6</td>
<td>16.4</td>
<td>NS</td>
</tr>
<tr>
<td>Severe PP Hemorrhage</td>
<td>8.3</td>
<td>2.9</td>
<td>&lt;0.001</td>
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<tr>
<td>Chorioamnionitis</td>
<td>9.8</td>
<td>10.7</td>
<td>NS</td>
</tr>
<tr>
<td>Endomyometritis</td>
<td>5.5</td>
<td>3.6</td>
<td>NS</td>
</tr>
</tbody>
</table>

Qidwai I, Obstet Gynecol 2006;107:376-82
Cesarean Delivery Outcomes

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Fibroids (%)</th>
<th>Controls (%)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cesarean Delivery - all patients</td>
<td>49.1</td>
<td>21.4</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Cesarean Delivery - laboring patients</td>
<td>24.8</td>
<td>12.3</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Nulliparous</td>
<td>31.0</td>
<td>16.2</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Multiparous</td>
<td>16.7</td>
<td>9.6</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

Cesarean Section Rates

Breech Rates

Labor and delivery complications associated with fibroids

**Yes**
- Malpresentation
- Cesarean Section
- Post-partum hemorrhage

**No**
- Operative vaginal delivery
- Chorioamnionitis
- Endomyometritis
Cesarean Myomectomy

- Associated with excessive hemorrhage
  - Exacoustos: 3 of 9 pts required puerperal hysterectomy
  - Ehigiegbia: 5 of 25 needed transfusions, no hysts

- Less morbidity with pedunculated fibroids
  - Hasan: No complications with 4 pedunculated fibroids, hemorrhage with 1 intramural fibroid

- Proceed with caution

Conclusions

- Impact of fibroids on reproductive function is still difficult to assess given the current published data

- 1st trimester bleeding, miscarriage, placental abruption, pelvic pain, malpresentation, C/S and post-partum hemorrhage are likely associated with fibroids

- Submucosal, especially retroplacental fibroids warrant close monitoring

- Exercise caution performing a myomectomy at the time of cesarean section