Strategies to avoid prolonged labor and c-sections: helping to facilitate rotation of the OP/OT fetus in labor

Jean Maunder, RN, CNM, MS
Oregon Health and Science University

“When there is any malposition or malpresentation the woman will need emotional and physical support during a potentially long and difficult labour which will also tax the skills of the midwife [and especially the NURSE].”

Coates, T; MIDIRS Midwifery Digest, 2002 Jun(2): 152-4.

Incidence of OP position in labor

- 15-20% of fetuses enter labor in the OP position
- Most rotate intrapartally
- Incidence at delivery is approximately 5%
- Right OP is two to five times as prevalent as left OP.

Known or suspected factors encouraging OP position

- Android and anthropoid pelvic types
- Flat sacrum
- Anterior placenta
- Lax abdominal muscles, pendulous abdomen
- Shorter maternal stature

More OP risk determinants

- Nulliparity
- Maternal age > 35
- Obesity
- Previous OP delivery
- Gestational age >41 weeks
- Birthweight >4000 grams
- 21st century lifestyles
Determining OP position

- Digital palpation of fontanelles, sutures from below
- Asymmetrical dilatation, cervical edema, “persistent anterior lip”
- Caput development, obscured cranial landmarks
- Scaphoid curve to maternal low abdomen (in profile)
- FHT’s far lateral or very central
- Labor pattern, especially coupling, tripling
- Maternal symptoms including reported location of fetal movements, physical and emotional exhaustion, back pain, early urge to push

Factors encouraging OP position within our control

- 21st century lifestyles?
- Gestational age >41 wks?
- Birthweight >4000 grams?
- Early AROM
- Epidural anesthesia?

Epidurals and OP position

Most studies have observed that epidurals are more likely to be in place when the position at birth is OP than when it is OA.

- More painful and prolonged labors with OP make for more requests for epidural?
- Relaxation of pelvic musculature inhibits rotation from OP?

Changes in Fetal Position During Labor and Their Association With Epidural Analgesia


1,562 nullips at term in labor

U/S confirmations of fetal position

No difference in OP position at enrollment or 4-hrs later/at time of epidural placement

At delivery, 12.9% OP in the epidural group versus 3.2% in the group with no epidural, P=.002

Maternal risks related to OP fetal position

- More induction of labor
- More oxytocin augmentation
- Prolonged first and second stages of labor
- More epidural anesthesia use
- More chorioamnionitis
- More operative vaginal delivery
Maternal risks (continued)

- More failed operative vaginal delivery
- More cesarean section
- More 3rd and 4th degree perineal lacerations
- Higher EBL
- More postpartum infection

Neonatal risks related to OP fetal position

- More Category 2 FHR tracings
- More 5-minute Apgar scores <7
- More acidemic cord gases
- More meconium-stained amniotic fluid
- More birth trauma
- More NICU admissions
- Longer lengths of hospital stay

Ultrasound diagnosis of OP positions

- Significantly more accurate in numerous studies
- RNs, CNMs, RDMSs, MDs, DOs all able to perform
- Transducer transverse above symphysis, angled downward toward the pelvis
- Transducer covered by sterile glove transversely on vulva midway between perineum and clitoris

"Here's you looking at me, kid"

Digital rotation from occipito-posterior to occipito-anterior decreases the need for cesarean section.


- 61 fetuses in the OP position in second stage in 2003-2004
- 30 managed expectantly in a first group
- 31 managed with a trial of manual rotation thereafter

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<thead>
<tr>
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<th>Expectant group</th>
<th>Trial rotation group</th>
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<tbody>
<tr>
<td>Delivered OA</td>
<td>15%</td>
<td>93%</td>
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<tr>
<td></td>
<td>p=0.0001</td>
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<tr>
<td>SVD</td>
<td>27%</td>
<td>77%</td>
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<tr>
<td></td>
<td>p=0.0001</td>
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<tr>
<td>Vacuum</td>
<td>50%</td>
<td>23%</td>
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<tr>
<td></td>
<td>p=0.0001</td>
<td></td>
</tr>
<tr>
<td>C-section</td>
<td>23%</td>
<td>0%</td>
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<td></td>
<td>p=0.0001</td>
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“Study: Rotating malpositioned fetuses lowers C-section rate”

MD Consult, June 22, 2009

<table>
<thead>
<tr>
<th></th>
<th>Expectant group</th>
<th>Manual rotations</th>
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<tbody>
<tr>
<td>Vag delivery</td>
<td>59% (of 2,527)</td>
<td>91% (of 731)</td>
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<tr>
<td>Time to delivery</td>
<td>-30 minutes</td>
<td>-40 minutes</td>
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<tr>
<td>--Nullips</td>
<td></td>
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<tr>
<td>PPH rates</td>
<td>higher</td>
<td>lower</td>
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<tr>
<td>Chorio rates</td>
<td>higher</td>
<td>lower</td>
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<tr>
<td>3rd, 4th deg lac</td>
<td>higher</td>
<td>lower</td>
</tr>
<tr>
<td>Cx'l laceration</td>
<td>lower</td>
<td>higher</td>
</tr>
<tr>
<td>5-min Ap &lt;7</td>
<td>higher</td>
<td>lower</td>
</tr>
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Dr. Shaffer’s conclusions:

The odds of needing a c-section were 88% lower after a trial of fetal rotation than with expectant management.

One c-section could be averted for every four attempts to turn fetuses in the OP/OT position.

Expectant management of the 200,000 fetuses per year in OP/OT position at delivery would result in 80,000 c-sections, compared with 25,200 c-sections if fetal rotations were tried, he estimated.

The 54,800 c-sections averted would lower the overall U.S. c-section rate by 1.4%.

Dr. Shaffer’s take-home message:

Try to rotate fetuses in the OP/OT position, “and look at the cervix when you’re done.”

Risks related to rotational procedures

- Maternal
  - Increase in discomfort for the duration of the procedure only (if manual rotation)
  - Cervical lacerations
- Fetal
  - FHR changes with some rotations
  - Hypothetical neck injury with malrotation
  - Hypothetical cord prolapse or entrapment

Safety of rotations, as reported in the literature

- Society of Obstetricians and Gynaecologists of Canada
  - "Manual rotation may be used alone or in conjunction with instrumental birth with little or no increased risk to the pregnant woman or to the fetus."
- Advanced Life Support in Obstetrics (ALSO)
  - "Manual rotation becomes an attractive alternative during a long second stage of labor because it can be attempted during a vaginal examination. If successful, delivery can be expedited and if unsuccessful, no harm has been done."
- Brian L. Shaffer, MD, OHSU
  - Limited data overall suggest a reasonable safety record for attempts at manual rotation of fetuses in the OP/OT position.

Indications for manual rotation with OT and OP malposition

- Lack of progress in dilatation for at least one hour or nonengagement beyond 7 cm (LeRay)
- When rotation to OA is not happening spontaneously (SOGC)
- Prior to application of vacuum extractor (Hirsch, Vacca)
- Need for more expeditious delivery (UpToDate, LeRay, ALSO, Shaffer et al at UCSF)
- When minimal or slow descent is observed after a trial of pushing, so-called “prophylactic” (UpToDate, LeRay)

Contraindications to manual rotation

- Heavy vaginal bleeding
- Known, palpable, compound presenting part
- Cord prolapse
Factors favoring success with manual rotation

- Multiparity
- Age < 35 years old
- Complete cervical dilatation
- Prophylactic rotation versus failure to progress—early notification of care provider for rotation rather than initial laboring down
- Effective pain control

Digital versus manual rotations

- Digital rotation may be done with no more discomfort than a vaginal exam.
- Manual rotation is significantly more uncomfortable, widening the presenting part by the size of the examiner’s four fingers
- If digital rotation unsuccessful, manual rotation may be attempted.

Preparation for digital or manual rotations

- Empty the bladder
- Explain the procedure to the patient including sensations, auscultation of possible decel(s), risks/benefits/alternatives; obtain consent for manual rotation
- Know which way to rotate: always go the shortest distance. If direct OP, turn toward the fetal back. If uncertain, ultrasound is essential.
- If using assistant (ALSO, Frye, UCSF), clarify plan ahead of time.
- Be prepared for delivery with sudden descent!

Keeping the fetus OA

- Posturing the mother
- Holding vtx in position through next ctx(s)
- Encourage maternal bearing-down
- Maintain suprapubic or abdominal assists
- Utilize binders, esp with grandmultiparity
- Utilize sheet slings/rebozos

Is this a midwifery procedure?

- UCSF 25-year study
- LeRay et al in Paris
- ACNM Standards for the Practice of Midwifery
  STANDARD VIII
  MIDWIFERY PRACTICE MAY BE EXPANDED BEYOND THE ACNM CORE COMPETENCIES TO INCORPORATE NEW PROCEDURES THAT IMPROVE CARE FOR WOMEN AND THEIR FAMILIES.