

Second Stage Management of Malposition

I. Identification of malposition during labor is an important aspect of preventing cesarean:

Although the mother's report of back pain or "back labor" is thought to be a reliable indicator of occiput posterior position, this is not supported by the literature.¹ When any woman experiences a prolonged second stage of labor, even in the absence of back pain, malposition must be considered.²

First, assess fetal lie/position/presentation with Leopold's and visual examination. Leopold's maneuvers are a four-step approach which, when performed by an experienced examiner, may assist in identification of the malpositioned fetus. In particular with the second maneuver, when fetal small parts are palpated more easily anteriorly than the more firm fetal back (which in OA position will be on either right or left maternal side) OP presentation can be suspected.^{3,4} The maternal abdomen that is scaphoid in the lower part may also indicate OP position, as the fetal back is more proximal to the mother's back and the small parts in the anterior abdomen result in the appearance of a "dip." Limitations of Leopold's maneuvers and abdominal examination to assess for possible malposition are provider experience and the maternal habitus.

Auscultation of the fetal heart with placement of the electronic fetal monitor transducer at either the extreme maternal lower left or right side rather than in the right or left lower quadrant may also indicate OP or OT position e.g. if placed on the extreme maternal right side, then fetus may be ROP or ROT.

When OP or OT is suspected, findings of the digital examination may reveal:

- For OP, the larger diamond [anterior] fontanelle in the right or left upper pelvic quadrants and/or the smaller triangle [posterior] fontanelle in the right or left lower pelvic quadrants. In OT presentation the sagittal suture is palpated horizontally. If the posterior fontanelle is on the mother's right, the position is either ROP or ROT, and if the posterior fontanelle is on the mother's left, then the fetus is LOP or LOT.
- Caput related to sub-optimal fit of the malpositioned fetus, which may obscure suture and fontanelle landmarks. Adding to the difficulty is that the OP fetus is not as well-flexed as the OA fetus. Sub-optimal flexion of the OP fetus may result in the anterior fontanelle being more easily identified than the posterior one and may result in an incorrect assessment that the fetus is in OA position instead of OP.^{5,6}

- A persistent anterior cervical lip suggesting that the narrower anterior sinuiput of the OP fetus is unable to keep the cervix retracted in the fore pelvis. Note: this finding may also be present when the fetal position is asynclitic.⁷
- Palpation of the helix of the fetal ear.⁸ As the examiner usually must insert much of the hand to find the ear, this examination is very uncomfortable for the mother who does not have regional anesthesia.

Intrapartum ultrasound is the most accurate approach to identify the malpositioned fetus. Although accuracy of digital examination is greater in second stage than in first stage of labor, studies in second stage have reported digital examination error rates of 26% to 39% compared to the "gold standard" of abdominal ultrasound.^{9,11} It is highly recommended to utilize ultrasound to confirm malposition if malposition is suspected.

II. When malposition is identified, strategies should consider the five Ps: "powers," "passenger," "passage" (pelvis and soft tissues), "position" (maternal), and "psyche"

Powers – By second stage, nursing and provider interventions must ensure that labor contractions and maternal efforts are adequate to facilitate the fetus' pelvic descent and cardinal movements (rotations).^{3,5}

Passenger – The prolongation of the second stage of labor associated with OP/OT positions is due to increased fetal diameters associated with the less well-flexed head. Cardinal movements associated with OP/OT are: a) the fetus rotates to the OA position at some point during labor and delivers readily by flexion and extension; b) if rotation to OA does not occur, the suboptimal flexion associated with OP position prolongs the descent until the vertex finally flexes anteriorly on the perineum after which fetal head extends to effect the birth; or c) if the OT fetus does not rotate to an OP or OA position there will be a deep transverse arrest and the fetus will not likely deliver vaginally without operative assistance.^{3,5}

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Passage – Maternal risk factors for malposition include primiparity and pelvic shape.

- Primiparity- The tauter, untested pelvic passage in women having their first vaginal birth may diminish the fetus' ability to rotate to the more favorable OA position. Compared to multigravidas, primiparas are not only more likely to have a malpositioned fetus at the onset of labor but are also less likely to achieve spontaneous vaginal delivery with persistent OP position.¹²
- Pelvis – The wider posterior aspects of the anthropoid (oval) and android (heart-shaped) pelvic types are more likely to hold the fetus in OP position.⁵ It is beneficial to ask the woman if her mother or if she has ever had a baby that was born “sunny side up” or “looking at the ceiling”. If so, this may add to your suspicion that she has an anthropoid or android pelvis that is more likely to hold the fetus in an OP position.

Position and Psyche – noted in “strategies” below.

III. Strategies:

- Prevent malposition by avoiding routine early amniotomy
 - Amniotomy prior to 5 cm eliminates the cushion of the fore waters which allow for fetal repositioning and results in more non-reassuring fetal heart rate patterns.¹³
- Promote rotation to the more favorable OA position through maternal /fetal positioning
 - When the mother is positioned in the lateral Sims position on the same side as the fetal back e.g. right Sims with ROP fetus, rotation to OA is theoretically more likely. Conversely, when the fetus is on its back with its head towards the mother's side (lateral) or towards the mother's back (posterior), the labor may be longer and more painful.¹⁴⁻¹⁷ If it is unclear whether the fetus is malpositioned during a prolonged second stage, maternal position changes every five to six contractions may facilitate rotation to OA.¹⁴
 - Hands and knees position during pregnancy cannot be recommended as an intervention to rotate the occiput posterior/occiput transverse fetus.¹⁸ However, it should be considered if the mother finds it comfortable as the use of hand/knees position in labor is associated with reduced backache.¹⁹
 - Utilize techniques to expand and change the shape of the pelvis e.g. pelvic press, lunges. Refer to Simkin P, Ancheta R “The labor progress toolkit: Part 1. Maternal positions and movements” for detailed instructions, figures, and indications.¹⁴

- Digital/manual rotation of the fetus from the OP position to the OA position decreases cesarean delivery and other complications associated with persistent OP position: severe perineal lacerations, hemorrhage, and chorioamnionitis.²⁰ Rotation attempts are advocated in early to mid-second stage of labor.^{6,21,22} Shaffer and colleagues reported that four attempted rotations were necessary to avert one cesarean and that women with unsuccessful rotations were at greater risk for cervical laceration.²⁰ Refer to Barth “Persistent occiput posterior” for an excellent resource with detailed instructions and figures.⁶ Alternatively, an accessible online quick guide to manual rotation exists in Table 3 of Cargill Y, MacKinnon C “SOGC: clinical practice guidelines.”²³

- Instrumental rotation is a safe alternative to manual rotation for appropriate candidates when performed by a skilled, experienced physician.^{5,8,24}

- Promote progress when malposition persists

- Epidural anesthesia and timing of epidural - It is not completely clear if epidural anesthesia predisposes to persistent malposition or if the prolonged labor/increased discomfort associated with the malpositioned fetus increases the need for regional anesthesia. While there is no evidence to suggest that regional anesthesia causes malposition, the preponderance of the evidence suggests that mothers with epidurals are up to four times as likely to have an OP fetus than women without epidurals.^{25,26} Evidence also suggests that delaying epidural placement to later in labor (> 5 cm dilatation or > 0 station)^{26,27} results in fewer persistent malpositions. The current recommendation for timing of regional anesthesia during labor does not require that women reach an arbitrary cervical dilation before placing an epidural. As such, since women with epidural anesthesia do not change their positions in response to their sensations of discomfort as do women without regional anesthesia, caregivers should change the patient's position at least every 20 minutes to maximize fetal accommodation to a more favorable position.⁷

- Psyche - Support measures for the mother who is fatigued and doubts her ability to birth vaginally are critical at this juncture. Family or professional support persons (doulas, montrices) are as important as medical personnel to stave off an unnecessary cesarean.²⁸ If the fetus demonstrates health, a sip of liquid with some glucose (juice, Gatorade) will give her a burst of energy to continue to run the “bell lap.”²⁹ Support persons should be apprised of the mother's progress so that they can continue to cheer her on.

–Pushing positions - For the persistently OP fetus, the doula, nurse, and provider should consider the most effective positions for pushing and the “drive angle” of the occiput relative to the maternal bony pelvis.⁷ Forward-leaning, non-dorsal pushing positions are recommended for persistent malposition. These include various squatting positions (e.g. with a squat bar or with support from the woman’s partner or doula), and forward-leaning positions while sitting (e.g. on the toilet), kneeling, or standing.⁷ For the OP fetus, when the most common modern-day pushing position is employed (the lithotomy position with “chin-to-chest”), the anterior sinciput is obstructed, gravity is not utilized, and significantly longer pushing times often result. If or when lithotomy position is used, exaggerated lithotomy (also known the back-lying squat, or the McRoberts Position used for shoulder dystocia), with the woman’s head flat on the bed, and buttocks slightly lifted, can expand the fore pelvis sufficiently that the anterior sinciput of the OP fetus can more easily swing under the symphysis pubis.^{14,30}

• “Tincture of time” is important when incremental descent is observed in second stage.³¹ Patience is of the essence when fetus and mother demonstrate resilience. Optimal evidence of progress (or lack thereof) is best ascertained when the same clinician monitors the fetal descent in second stage.^{3,24}

IV. References

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