Rebozo Technique for Fetal Malposition in Labor
Susanna R. Cohen, CNM, MSN, DNP; Celeste R. Thomas, CNM, MSN

Fetal occiput posterior position is associated with increased maternal and fetal morbidities. Currently, clinicians have limited evidence-based techniques or tools to remedy fetal occiput posterior position. The traditional Mexican rebozo technique of pelvic massage, sifting, or jiggling offers a potentially valuable tool to help correct fetal malposition. This article reviews the adaptation of 3 rebozo techniques that can be used in labor to encourage optimum fetal positioning; outlines hospital considerations for safety; fetal heart rate monitoring, and universal precautions; and reviews the implementation plan to introduce and sustain use of the rebozo in a large academic medical center.


Keywords: fetal malposition, intrapartum care, first stage of labor, occiput posterior position, rebozo, traditional birth attendants

CLINICAL CASE
A 24-year-old woman, gravida 1 at 40 3/7 weeks' gestation, presents to the labor and delivery unit at a tertiary care center after prodromal labor at home. Her prenatal course is uncomplicated. She states that painful contractions began 2 days ago and continued to be irregular until this morning. She identifies that the most intense pain is located in her lower back. She is exhausted and considering epidural analgesia. She reports no vaginal bleeding or loss of fluid. Her contractions are every 3 to 6 minutes, lasting 45 to 60 seconds, and are moderate to palpation with coupling. Her cervix is 7-cm dilated and 100% effaced, with the fetus at –1 station. The fetal position is right occiput posterior by Leopold’s maneuvers and cervical examination. The fetal heart rate (FHR) is category 1. The woman meets the criteria for intermittent auscultation. The midwife offers the rebozo technique to the woman, who verbally accepts. The rebozo is performed with the woman in a hands-and-knees position leaning on a birth ball. The midwife employs the technique between 3 uterine contractions, stopping to apply counterpressure on the woman’s back and hips during a contraction. Fetal heart rate by Doppler after the rebozo is reassuring. The woman requests hydrotherapy. The constant pressure and pain in her back has lessened, and she feels relief between uterine contractions. Two hours later, she begins to spontaneously bear down in the tub. The midwife finds the woman’s cervix to be 10-cm dilated, with the fetus at +1 station. She has a 90-minute second stage and an uncomplicated spontaneous vaginal birth, with the newborn in left occiput anterior position.

INTRODUCTION
Fetal occiput posterior (OP) position continues to be the most common fetal malposition in labor and a challenge for midwives and other intrapartum care providers. Incidence of OP position in the first stage of labor ranges from 15% to 40%.1,2 The incidence of persistent OP position at birth ranges from 5% to 8% in women without epidural analgesia to 13% in primigravida women with epidural analgesia.1 Occiput posterior position in labor is associated with a number of poor maternal and newborn outcomes, including chorioamnionitis, endometritis, severe perineal lacerations, postpartum hemorrhage, cesarean birth, posttraumatic stress disorder, low Apgar score, neonatal acidemia, admission to the neonatal intensive care unit (NICU), and neonatal hypoxic-ischemic encephalopathy.1,3,5 Occiput posterior positioning is also strongly associated with more painful and prolonged labors.6

Intrapartal and antepartum interventions that encourage the rotation of a fetus out of the OP position have been the focus of much research. Studies randomizing women to certain postures in labor, specifically hands and knees, to encourage fetal rotation from persistent OP to the more favorable occiput anterior position have failed to show significant improvement.2,7 Likewise, studies examining antepartum exercises to prevent OP have failed to demonstrate significant fetal realignment.6 One systematic review reveals that women in labor who are able to adopt upright positions and experience freedom of movement in the first stage of labor have shorter labors, fewer cesarean births, less use of epidural analgesia, and fewer NICU admissions.8 However, this evidence has not examined OP fetuses specifically.8 To date, only one intrapartal intervention has been shown effective: manual rotation of the fetus.9,10 This intervention is most effective at advanced or complete cervical dilatation, may be very painful to the woman, and requires provider skill and confidence—factors that have led to a general reluctance to perform this procedure. It is not used by most practitioners.11 Ultimately, the intrapartum care provider has limited tools for OP prevention and correction.11

A traditional practice from central and southern Mexico is the use of the rebozo (a woven shawl) to massage or shift the woman, thereby encouraging fetal rotation and optimum positioning. This article focuses on the use of the rebozo as an intervention for a woman with a malpositioned fetus and represents adaptations of the traditional practice that were made as the result of the contextual elements of providing care at a busy hospital labor and delivery unit.
TRADITION OF USE

A search for alternative methods for addressing the challenge of fetal malposition in labor revealed the use of complementary therapies, including antepartum yoga practice, which encourages maternal positioning and stretching; Reiki, which involves encouraging fetal movement through energy work; and chiropractic procedures, principally the Webster Technique for modification of intrauterine constraint. However, apart from these literature reviews and descriptive accounts, there has been no rigorous evaluation of these techniques, and their usefulness for intrapartum care providers is limited because they require additional in-depth training and practice.

The authors of this article were trained in the use of the rebozo and curious about the state of evidence regarding its use. A search of PubMed, CINAHL, and online search engines revealed no mention of the technique in modern scientific journals. The rebozo has a long history of use throughout Mexico, with regional differences in color, material, and pattern, as well as in the way it is used. The rebozo can be worn for coverage or comfort, carrying infants, or transporting goods. There are several Web sites and monographs that describe the use of the rebozo by traditional Mexican midwives to accommodate the fetus in the maternal pelvis and correct fetal malposition. This practice is often referred to as an acomodada (accommodate) or a manteada (body rocking).

According to the World Health Organization (WHO) in their document General Guidelines for Methodologies on Research and Evaluation of Traditional Medicine, traditional medicine “is the sum total of the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures.” The use of the rebozo to encourage optimal fetal positioning, although not yet studied in scientific trials, has a long tradition. The WHO clearly states that the lack of scientific studies on traditional practices “should not become obstacles to the(ir) application and development.” The WHO suggests that, “where little or no literature exists, the oral tradition and the source of this tradition need to be clearly stated.”

Understanding the cultural and historical context of the rebozo and giving credit to those who have long practiced this tradition is paramount. Importantly, this traditional practice lives on and has traveled across borders as a result of the work of 3 revered midwives—Angelina Martinez Miranda; Naoli Vinaver, CPM; and Doña Irene Sotelo—who have presented the technique in workshops around the world and who were conferred with in the writing of this article. Martínez Miranda has also passed along her knowledge of midwifery to her third-born son, Esteban García Martínez, who also continues to practice and teach its use for fetal malposition on a global stage (electronic communication, August 2014). According to Vinaver, “The world in its long history of humanity has been marked by the fact that the good cultural traditions that have proven useful and even life-saving have been known to travel from north to south, east to west, and many times they have even been re-imported, improved, modified in ways, which in turn expand the original tradition in its own right.” We are part of a global community and believe the rebozo is an important tool for all intrapartum care providers.

REBOZO TECHNIQUES

This article describes 3 rebozo techniques that we have used in our clinical setting for fetal malposition in labor. This is not an all-inclusive list of the use of the rebozo in labor. There are other techniques used for maternal comfort. It is important to note that the rebozo is not intended to manually turn a fetus, as in a manual rotation of the fetal head. The authors hypothesize that the rebozo technique relaxes the pelvic musculature and ligaments, allowing the fetus to more freely complete the cardinal movements of birth unimpeded. Therefore, the rebozo can be used without fear of causing a fetus to turn from an optimal position to a malposition.

In our clinical practice, the authors use the rebozo as part of a set of interventions for a woman with a malpositioned fetus. The use of the rebozo is not intended to be ongoing throughout labor. The authors perform it for 5 to 10 minutes, pausing during contractions, one or 2 times during labor for clinical indications of labor dystocia related to fetal position.

Contraindications

As with any intervention, there are maternal and fetal contraindications to the use of the rebozo. The authors stipulate the following contraindications based on current knowledge of physiology and pathophysiology: concerning FHR, tachysystole, patient discomfort, breech presentation with rupture of membranes (risk of cord prolapse), placental abruption, abnormal vaginal bleeding, or other contraindications to a vaginal birth. These were confirmed by Angelina Miranda Martínez, who points to abnormal placentaion (eg, placenta previa) and vaginal bleeding as absolute contraindications (electronic communication, August 2014).

GETTING STARTED

The provider first explains the origins, indications, and process of the rebozo to the woman and her family and obtains verbal consent. Based on the woman’s comfort, analgesia, and FHR-monitoring needs, the provider chooses the technique. The timing of the rebozo and the FHR before and after the rebozo is then documented in the electronic medical record. We start with greeting the fetus by repeating a Leopold’s maneuver and then gently massaging the abdomen to alert the fetus to the beginning of the procedure (1 minute). At this time, we encourage the woman to begin to focus on relaxing her abdominal muscles. Tables 1, 2, and 3 describe in detail 3 rebozo techniques.

IMPLEMENTATION IN THE HOSPITAL SETTING

Using the TeamSTEPPS (the Agency for Healthcare Research and Quality’s teamwork system for health care professionals) process for implementation, which is based on the John Kotter model of organizational change, we introduced the use of the rebozo into the hospital.

Assessment: Set the Stage

Our midwifery faculty practice works in a traditional labor and delivery unit at an academic medical center. Significant
Table 1. Lying-on-the-Back Rebozo Technique

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<th>Setup</th>
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<tr>
<td>Open the rebozo completely.</td>
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<tr>
<td>If using a hospital sheet, open the sheet and fold it in fourths on the long edge.</td>
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<tr>
<td>If the woman is able to stand, place the rebozo/sheet on the bed first; then have the woman lie on it so that it covers her lower back and buttocks (see Figure 1).</td>
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<tr>
<td>If the woman is unable to get out of bed secondary to epidural analgesia, place the rebozo/sheet in position with a helper and have her roll onto it.</td>
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<tr>
<td>At all points, check with the woman to make sure she is not experiencing pain or discomfort.</td>
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<td>Place your hands on the maternal abdomen, confirm fetal position through Leopold’s maneuver, and greet the fetus.</td>
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**Maneuver 1: Quick Tug**

1 person: Position yourself on one side of the bed, facing the woman at the level of her abdomen. Reach over the maternal abdomen and grasp one end of the rebozo; hold the rebozo close to the maternal abdomen, and pull up and toward the fetus quickly 2 times. Then repeat this on the other side, grasping the end of the rebozo closest to you and lifting up and toward the fetus quickly 2 times. Repeat this maneuver for a total of 3-4 times on each side.

2 people: Stand on either side of the woman. One person reaches over the maternal abdomen and grasps one end of the rebozo, holds the rebozo close to the maternal abdomen, and pulls up and toward the fetus quickly 2 times. Then the other person repeats this motion from the other side. Take turns doing this maneuver until you have repeated it 3-4 times on each side. Once completed, place your hands on the maternal abdomen, resting them on the fetus to allow the fetus to settle.

**Maneuver 2: Rocking**

1 person: Stand over the woman, straddling her upper thighs. Bring both ends of the rebozo up to the level of your hips, with the ends of equal length on either side. Start by gently pulling up and in on one side, then releasing and pulling up and in on the other side. This should be a rhythmic motion in which the woman sways from side to side, feeling the support of the rebozo on her lower back and buttocks (see Figure 1 and Supporting Information: Appendix S1).

2 people: Stand on either side of the woman. Have each person grasp the end of the rebozo closest to him/her. One person starts with a gentle pull of the rebozo up and in toward the woman. The next person does the same from the other side in coordination (call-and-response) so that the woman sways from side to side (see Figure 2 and Supporting Information: Appendix S2).

**Maneuver 3: Knee Bounce**

Have the woman bend her knees and rest her feet on the bed. Place your palms on her knees and push quickly straight back, then release: the effect is a bouncing of your hands on the woman’s knees. It is thought that this maneuver unlocks the fetus from the pelvis, allowing for greater movement.

**Conclusion**

Once you have completed all 3 maneuvers, greet the fetus once more by placing your hands on the maternal abdomen. Finally, depending on the woman’s comfort and the position of the fetal back, you may consider having the woman up and moving, or she may assume the exaggerated Sim’s position or right lateral position, as described by Simkin and Ancheta.24

Effort has been made over the years to optimize relationships with nurses, physicians, and staff on the unit. We have regular meetings to discuss interprofessional team functioning and participate in obstetric emergency simulation and team training. The unit culture is one of trust and respect, and any new intervention must be introduced in a way that supports the team. The first step was to address the potential hospital safety concerns, namely the use of a traditional rebozo, fetal monitoring, provider and nurse physical safety, and patient-informed consent. Although the traditional rebozo cloth itself is ideal because of its strength, grip, and stretch, it could not realistically be cleaned between patients. We decided that using a sheet that could be laundered would better meet unit standards. If a woman brought her own rebozo, however, we would use it. Fetal heart rate monitoring also needed to be addressed. For the woman receiving intermittent FHR monitoring, the rebozo may be used between auscultations, with documentation of the FHR before and after. If a woman is receiving continuous electronic fetal monitoring (EFM), the technique varies depending on whether EFM can be temporarily discontinued. If at all possible, the fetal monitor should be removed because the sifting motion, especially in the hands-and-knees position, may interrupt the transducer signal and reflect the rate of the jiggle instead of the FHR. If the woman’s condition dictates continuous EFM and the monitor cannot be removed, then the lying-on-the-back position is preferable because the rebozo does not come into contact with the transducer. We anticipated that nurses and providers would be concerned about rebozo techniques done with the provider standing...
Table 2. Hands-and-Knees Rebozo Technique

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<tr>
<td>Open the rebozo completely. If using a hospital sheet, open the sheet and fold it in fourths on the long edge.</td>
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<tr>
<td>Assist the woman to a hands-and-knees position, with knees at a right angle to hips and wide enough to allow ample room for her abdomen to hang.</td>
</tr>
<tr>
<td>Have the woman lean on a birth ball, pillows, or a chair; this allows her to relax her arms and upper body.</td>
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<tr>
<td>Place the middle of the rebozo/sheet under her lower abdomen, making sure to also capture her hip bones. The rebozo/sheet should form a sling (see Figure 3 and Supporting Information: Appendix S3).</td>
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<tr>
<td>At all points, check with the woman to make sure she is not experiencing pain or discomfort.</td>
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**Rebozo**

Start out slowly at first, alternating pulling up and back with right and left hands to create a gentle and rapid rhythmic motion in the woman’s pelvis (see Supporting Information: Appendix S4). 

Stop the maneuver during a contraction, and place firm counterpressure on the woman’s sacrum during the contraction (see Figure 4 and Supporting Information: Appendix S4). 

Begin again after the contraction.

**Conclusion**

Depending on the woman’s comfort and the position of the fetal back, you may consider having the woman up and moving, or suggest that she assume the exaggerated Sim’s position or right lateral position, as described by Simkin and Ancheta.23

This maneuver can also be done with the woman standing at the side of the bed and leaning over the bed for support (see Supporting Information: Appendix S5).

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Table 3. Child’s Pose Rebozo Technique

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<td>Open the rebozo completely. If using a hospital sheet, open the sheet and fold it in fourths on the long edge.</td>
</tr>
<tr>
<td>Assist the woman on her knees at a right angle, leaning forward onto her forearms or a pillow. Knees should be hips-width apart directly under her hips, similar to the child’s pose in yoga.</td>
</tr>
<tr>
<td>Drape the rebozo over the woman’s buttocks, then grasp the rebozo tightly on each side of the hips while sitting behind her (see Figure 5).</td>
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</table>

**Rebozo**

Sift the hips rapidly with short movements, side to side or forward and back (see Supporting Information: Appendix S6). 

Stop the maneuver during a contraction, and place firm counterpressure on the woman’s sacrum during the contraction. Resume after the contraction.

**Conclusion**

Depending on maternal comfort and the position of the fetal back, you may consider having the woman up and moving, or suggest that she assume the exaggerated Sims position or right lateral position, as described by Simkin and Ancheta.24

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on the bed. Therefore, all providers were trained in multiple rebozo techniques, with options for doing them on the floor or with a partner so that those who felt uncomfortable getting on the bed would not be limited in their ability to offer the technique. In addition, we included information on proper body mechanics for the back and wrists (see Table 4). Finally, we planned for obtaining verbal consent from the woman and documenting this consent in the chart.

Planning, Training, and Implementation: Decide What to Do to Make It Happen

Our provider training began in 2008, with a 2-hour session for midwives. The 2 faculty members who had learned the technique from Angelina Miranda Martínez and Naoli Vinaver acted as facilitators. Each technique was reviewed, demonstrated, and then practiced in small groups. Attention was given to provider body mechanics, and guidelines for implementation in the hospital were discussed. New practice partners who have joined since the initial training receive one-on-one instruction.

Transparency in implementation was important. Each midwife committed to reaching out to nurses or physicians and inviting them into the room, with the woman’s permission, to observe and assist. We had many who accepted and still others who expressed curiosity. Over time, nurses and physicians began to request that the midwife perform the
Keep wrists in alignment, avoiding flexion or extension. Hold the ends of the rebozo sheet as if milking a cow. Bend your knees. Keep your back straight. Do not bend at the waist because this may strain your lower back. Use your body weight, when appropriate, to lift the rebozo up and back (especially when employing the hands-and-knees technique). If your arms become tired, take a rest!

| Figure 1. The Rebozo Technique by One Provider, with the Woman Lying on Her Back in a Hospital Bed |
| Figure 2. The Rebozo Technique by 2 Providers, with the Woman Lying on Her Back in a Hospital Bed |

**Table 4. Body Mechanics When Using the Rebozo Technique**

- Keep wrists in alignment, avoiding flexion or extension. Hold the ends of the rebozo sheet as if milking a cow.
- Bend your knees.
- Keep your back straight. Do not bend at the waist because this may strain your lower back.
- Use your body weight, when appropriate, to lift the rebozo up and back (especially when employing the hands-and-knees technique).
- If your arms become tired, take a rest!

**Sustainment: Make It Stick**

Ultimately, transparency with all team partners, effective clinical outcomes, and patient demand have contributed to the sustainability of the use of the rebozo in our institution. In addition to mentoring nurses, other key players also receive training in the use of the rebozo: students in the midwifery program and members of the hospital volunteer doula program. The term rebozo is regularly documented in the electronic medical record, and it is often the nurses who suggest using the rebozo to a physician when they have a case of fetal malposition. During the writing of this article, the authors were alerted to another case, which highlights the current state of practice in our institution. The attending obstetrician and chief resident consulted with the midwife about a 39-year-old woman, gravida 7 para 6006, at 39 6/7 weeks’ gestation, undergoing induction of labor for gestational hypertension. The fetus was asynclitic, and after 12 hours of artificial rupture of membranes, oxytocin (Pitocin), and repositioning, the providers were going to recommend a cesarean for a failed induction of labor. The midwife recommended the rebozo, and the lying-on-the-back technique was performed for 5 minutes. The woman gave birth 27 minutes later. The chief resident reflected, “I am a believer. I am positive it was the rebozo, nothing else had worked up to that point” (Abby Watson, MD, personal oral communication, December 2014). The attending physician in a note to the midwife wrote: “Thank you for your input on resolving asynclitism … you saved this grandmultip from a cesarean delivery” (Mark Dassel, MD, electronic written communication, December 2014). Future work will focus on data collection and evaluation of effectiveness and outcomes.
CONCLUSION

Adaptation of the use of the rebozo technique is an appropriate intrapartum intervention, which has a long history of use and belongs in the tool box of any care provider working with a woman in labor with a malpositioned fetus. Slight adaptations to accommodate the contextual necessities of the hospital setting are easily implemented with creativity and clear interprofessional communication. Additional research is needed to continue the exploration of the traditional use of this practice and compare its efficacy to other interventions for fetal malposition in labor.

AUTHORS

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CONFLICT OF INTEREST

The authors have no conflicts of interest to disclose.

ACKNOWLEDGMENTS

The authors acknowledge Angelina Miranda Martinez, Esteban Garcia Martinez, and Naoli Vinaver for their wisdom and generosity with their traditions and mentorship; the midwives, nurses, medical residents, and attending physicians of the University of Utah for collaborating on this journey; and the women we serve for inspiring us to look for creative solutions.
SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article at the publisher’s Web site:

Appendix S1: Video of one provider performing the rebozo technique with the woman lying on her back

Appendix S2: Video of 2 providers performing the rebozo technique with the woman lying on her back

Appendix S3: Video of the provider demonstrating correct placement of the rebozo technique for a woman in the hands-and-knees position

Appendix S4: Video of one provider performing the rebozo technique with the woman in the hands-and-knees position

Appendix S5: Video of one provider performing the rebozo technique with the woman in the standing position

Appendix S6: Video of one provider performing the rebozo technique with the woman in child’s pose

REFERENCES