"DIFFICULT FETAL EXTRACTION AT CESAREAN DELIVERY: WHAT SHOULD YOU DO?"
ROBERT L. BARBIERI, MD (EDITORIAL; JANUARY 2012)

The OBG MANAGEMENT mailbox overflowed after publication of Dr. Robert L. Barbieri's January 2012 Editorial on difficult fetal extraction at cesarean delivery—and the letters we received offered a host of refinements to, and variations on, the push or reverse breech maneuvers he described. Here are some of the suggestions and solutions received from readers.

How I prevailed over a case of difficult fetal extraction

At 4 AM on February 6, I was on call at the hospital when the family medicine resident contacted me about a patient with preterm premature rupture of membranes who had gone into labor. The patient was at 32 weeks, 4 days gestation. The resident had performed a pelvic exam and felt a fetal hand!

I rushed over to check the patient and found her cervix completely dilated, with the fetus in the vertex position and a fetal hand on one side. I tried as hard as I could to push the hand back in, without success.

We rushed the patient to the operating room for a stat cesarean delivery. However, I simply could not get my hand deep enough into the pelvis to deliver the head. I had the nurse push the fetal head from below, but I still could not reach it after several attempts. This had never happened to me in 34 years of ObGyn practice!

Out of desperation, I instinctively made a "T" incision on the uterus, reached inside, and grabbed the baby's feet. Then, flexing the baby, I brought the feet down and delivered the baby as a breech. The infant's hand and head were jammed into the pelvis. The hand was swollen, and the wrist was bruised. I had never heard of this maneuver before and had never considered doing it.

When I related the incident to my colleagues, one of my partners mentioned that he had just read Dr. Barbieri's article, in which he described the very technique I had used! I was glad to know that there are other OBs who are using this approach—and that it isn't unthinkable!

Many years ago, I had a similar experience, in that the nurse could not move the fetal head from below. I placed my right hand under the drape, into the vagina, and pushed the fetal head up while my left hand pulled the baby's shoulders out of the pelvis. Sometimes it pays to double-glove when you anticipate difficulty getting the fetal head out of the pelvis. This maneuver—with both parts performed by the surgeon—has an advantage: You know how hard to push and pull because the operator is the same person.

Thanks to Dr. Barbieri for an excellent, timely article!

Caleb Liem, MD
Salinas, Calif

The many uses of nitroglycerine

The magic bullet in many cases of difficult fetal extraction is sublingual nitroglycerine spray. Most cases of impaction at cesarean delivery are caused by sustained uterine contraction or increased uterine tone. These situations can become easy deliveries in almost all cases when nitroglycerine is given. In our institution, all anesthetists carry nitroglycerine in the anesthesia cart, ready to go.

This approach is also useful when breech extraction of a second twin becomes difficult, and in cases involving podalic version of a second twin. It also is helpful in some cases of shoulder dystocia. In fact, this drug and its OB applications would be worth an entire article!

A common problem is not giving sufficient nitroglycerine quickly enough because of concern about maternal hypotension. I recommend giving 400 µg of sublingual spray every 30 to 60 seconds until the uterus relaxes or systolic blood pressure drops below 90 mm Hg.

Mark Jacobs, MD
Mill Valley, Calif

"Crawling" the forefingers along the fetal skull

The vaginal hand technique described in Dr. Barbieri's editorial was used frequently in the program in which I trained. In performing this technique, I have noticed that I often "crawl" my fingers into place below the fetal head by alternately flexing and extending my forefingers along the skull.

I began using a similar technique of elevating the fetus abdominally prior to the hysterotomy. I feel along the lower uterine segment, putting pressure on the uterus, to palpate the fetal skull. I then gently wedge my forefingers into the space between the pubic symphysis and the bladder reflection by "crawling" my forefingers to elevate the head slightly. If I cannot palpate the fetal head, I try to elevate the fetal shoulder in a similar fashion. I then place the bladder blade into position, which either elevates the fetus within the uterus or elevates the uterus within the pelvis. In either case, it makes delivery of the fetal head after hysterotomy much easier.

PHOTO: SHUTTERSTOCK

Be careful not to injure the bladder while crawling the fingers into position. (I have never experienced a bladder injury using this method.)

Michael Nix, MD
Austin, Tex

The importance of a straight wrist

My usual technique is to slip at least three fingers—index, middle, and fourth—below the head to break the suction and flex the head. I keep my wrist rigidly straight and lift the head without flexing my wrist. When my strength is inadequate to elevate the head, I ask the scrub tech or assistant to help by pulling my forearm toward the patient's head. I imagine that, by not bending my wrist, I am less likely to do damage to the lower segment.

Nancy Reynolds, MD
Fort Bragg, Calif

A two-handed approach to an impacted vertex

One technique to deliver a vertex deeply impacted in the pelvis is to gently slide the pelvic hand under the lower uterine segment as far as possible, eventually curling the fingertips over or against the molded head. Avoid the instinct to lift the wrist to gain leverage, because that is the action that can split the attenuated lower segment, cervix, and vagina, and even injure the bladder. Instead, place the free hand over the back of the wrist of the pelvic hand, and use both hands to apply slow, persistent pressure that is directed cephalad and against the sacral promontory. Eventually, there will be a sound of suction, and the vertex will deliver.

Through 30 years of practice, I have encountered a few small lower-segment tears but never an injury to fetus, bladder, or vagina.

Peter Geittmann, MD
Arlington Heights, Ill

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A left-handed technique can ease the vertex free

I'm a right-handed surgeon, and I stand on the patient's right side to perform cesarean delivery. I typically use my right hand to deliver the infant's head, but I shift gears when I encounter an impacted vertex. First, I request a stool so that I can stand about 8 inches higher, and I lean over the patient. I then place my right hand on the infant's anterior shoulder (and posterior shoulder, if available). With gentle but steady pressure in the cephalic direction, I push the infant up into the fundus. Slowly but surely the infant will move a couple of centimeters—just enough to slide my left hand between the pubic bone and vertex. I cup the vertex.

By using my left hand to grasp the vertex, I can easily reach deeper into the pelvis than is possible with my right hand. Once I have my left hand around the vertex, I grab my left wrist with my right hand and lift cephalad until the vertex is easily delivered anteriorly.

Another advantage of this technique is that I don't flex the left wrist. Overall, I find that this approach allows a successful delivery with minimal trauma to both infant and uterus.

Robert Anding, MD
Houston, Tex

Difficult fetal extraction requires patience

I'd like to offer three additional points concerning difficult cesarean delivery:

- **Patience is critical.** Pushing the head out of the pelvis sometimes takes 3 to 5 minutes. The uterus will contract when it is stretched acutely; you need to give it time to relax again before you can push the head high enough to facilitate the extraction. Once the hand is inserted into the lower uterine segment, a pause of 1 or 2 minutes will give the uterus time to relax. I tell the two people performing this maneuver that their hands should touch.
- **I tell the surgeon to "cut high up."** The lower uterine segment is often retracted superiorly, and if you do not adjust your site of incision, you end up making a high vaginal incision.
- **Beware Bandl's contraction ring!** In obstructed labors, this ring sometimes forms around the fetal neck. When it does, no amount of pulling will deliver the head. If it is recognized ahead of time, uterine relaxation with acute tocolysis will sometimes help; otherwise, an incision may be necessary.

Thomas J. Benedetti, MD, MHA
Seattle, Wash

Uterine relaxation is a must for difficult extraction

Because almost every maneuver to get the baby out will be so much easier with some uterine relaxation, I recommend giving the patient a couple of whiffs of halothane, or nitroglycerine, or another relaxing agent. It is much easier to do an extraction (any kind) when you are not fighting

a uterine contraction. This is true for breech extraction at vaginal delivery, as well as management of a second twin. A rock hard, contracting uterus exposes the fetus to trauma when these maneuvers are attempted. I learned this the hard way a million years ago as a first-year resident trying to extract a second twin vaginally without a relaxing agent. An epidural really is not going to relax the uterus.

Robert Frischer, MD
Wichita Falls, Tex

Give terbutaline and proceed slowly

I administer 0.25 mg of terbutaline just before beginning a cesarean delivery. I then stand on a step adjacent to the operating table. After making the uterine incision, I slowly introduce my right hand, following the fetal occiput, and slowly lift the occiput out of the pelvis.

I have used this technique for many years, and it has never failed to relieve impaction.

Bruce A. Darrow, MD
Poteau, Okla

Breech extraction might extend a transverse incision

I never tried to convert to a breech extraction in cases of fetal impaction, but I would think that doing so would tend to extend a transverse incision.

In my practice, my technique for managing difficult fetal extraction during cesarean delivery was to place the fingers of my right hand around the fetal neck, with two fingers on either side. I would then exert upward traction as I slipped the fingers of my left hand around the head. My left hand is small enough that I was never unable to perform this technique.

I performed about 2,000 cesarean deliveries in my career, and the average operating time was 20 to 25 minutes. I had occasional extensions of the incision but rarely an infection.

Norman Lindley, MD
Alamogordo, NM

A vote to abandon the "labor down" approach

In many cases of fetal impaction, I try to push the fetal head up prior to my incision (after adequate epidural anesthesia and when the patient is not contracting). I recommend that we take our time and avoid rushing or panicking when trying to deliver the fetal head. I also curve the uterine incision upward, away from the broad ligament.

I suggest that we abandon the practice of "laboring down." It seems that, whenever it is practiced, we are faced with these difficult fetal extractions.

Louis Kokkinakos, MD
Columbia, Md

A few caveats for the push technique

We have used the push technique for cases of difficult fetal extraction, with the following caveats:

- First, with full knowledge of the status of the membranes and cervical dilation, as well as fetal station and attitude and position of the vertex, we position the patient in a way that facilitates the actions of a third trained assistant
- We ensure that the deeply engaged vertex does not interfere with the Foley bladder drain
- We wait to act until the surgeon has a clear view of the lower segment, which is expected to be significantly thinned out if labor has been prolonged
- We utilize a cupped hand, as described by Dr. Barbieri, and avoid pushing straight up
- Before the primary surgeon performs a transverse hysterotomy, we utilize reverse asynclitism (going up rather than coming down as a normal cardinal movement of labor) as the fetal head is moved upward, and we have the primary surgeon "squeeze up the shoulder," which is usually presenting in the lower segment
- Once the surgeon makes the hysterotomy, he (or she) utilizes the pronating hand, depending on which side of the table he is standing, to reach in and extract the disengaged head.

I've found that these last two maneuvers reduce the risk of hyperextending the uterine incision and causing a tear.

For a number of years, we have performed these steps when managing all patients who have either:

- a body mass index (BMI) >50
- a neglected labor with a vertex at or below 0 station, with or without significant parietal disalignment (caput), no further progress of dilation despite an adequate labor pattern, and a Category II fetal heart-rate pattern.

We have had no uterine, bladder, maternal, or neonatal complications.

Federico G. Mariona, MD
Dearborn, Mich

›› Dr. Barbieri responds

Readers offer a wealth of valuable suggestions

I am deeply indebted to the obstetricians who took the time to share their excellent advice on how to deliver an impacted fetus. There is a wealth of clinical knowledge in the OBG MANAGEMENT community, and sharing it in this forum is sure to advance the quality of our obstetric care. I am proud to be a colleague of the readers of OBG MANAGEMENT.