OBG MANAGEMENT

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VACUUM-ASSISTED DELIVERY

Improving patient outcomes and protecting yourself against litigation

VACUUM-ASSISTED DELIVERY

Practical techniques to improve patient outcomes

■ by Aldo Vacca, MD

Ob/Gyns in general prefer vacuum-assisted delivery (VAD) over forceps-assisted delivery, although increased usage has also been associated with more frequent reports of adverse outcomes.[1,2] Attention to the details of technique can help prevent problems and ensure the best patient outcomes.

This supplement to *OBG MANAGEMENT* serves as a companion to *Preserving the Option of Vacuum Extraction*, an article appearing in the February 2004 issue.

THE FLEXION POINT: A CRITICAL LANDMARK FOR VAD

The fetal head is in complete flexion when the mentovertical diameter points in the direction of descent *(Figure 1)*. During deliveries in which the fetal head is normally molded, the mentovertical diameter emerges on the sagittal suture approximately 3 cm anterior to the posterior fontanelle.[4] This flexion point is a critical landmark for VAD; when the center of the extraction cup has been placed over the flexion point and axis traction is applied, conditions are optimal for delivery *(Figure 2)*.

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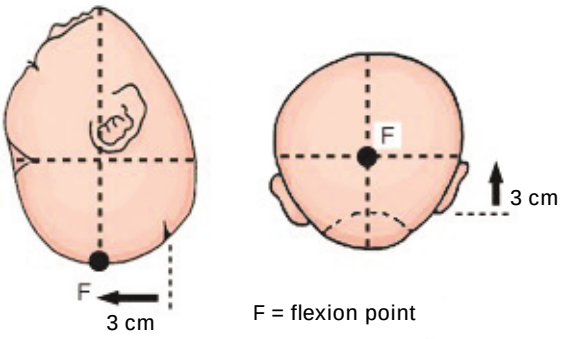
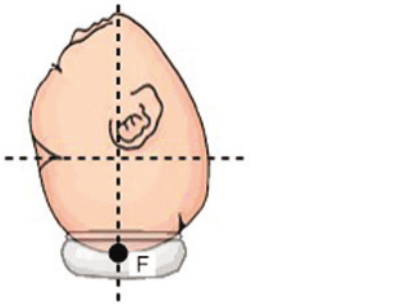
FIGURE 1
Fetal head and direction of descent



During normal delivery conditions, the mentovertical diameter emerges on the sagittal suture approximately 3 cm in front of the posterior fontanelle.

FIGURE 2
Optimum placement for delivery



The center of the extraction cup has been placed over the flexion point, and axis traction is applied.

Regardless of the head's position, the clinician must be able to find the flexion point and correctly position the cup.

When the center of the cup is placed over the flexion point, conditions are optimal for delivery

Guidelines for patient selection and determination of VAD risk are described in the *Sidebar* (p S4) and in *Tables 1* and *2*.

Locating the flexion point

A practical approach to locating the flexion point is as follows:[5]

- Use the middle finger to identify the posterior fontanelle, then move the finger forward along the sagittal suture approximately 3 cm to the flexion point *(Figure 3)*.
- With the finger on the flexion point and palmar surface in a superior direction, note where the back of the finger makes contact with the fourchette.
- Keeping in mind that in an adult, the distance from the tip of the middle finger to the proximal interphalangeal joint is 5 to 6 cm, calculate the distance from the flexion point to the posterior fourchette of the perineum.

This information is used to determine how far the center of the cup must be inserted. To facilitate insertion, the suction tubes of some extractor cups have distance markers to indicate how far the cup has been inserted *(Figure 4)*.

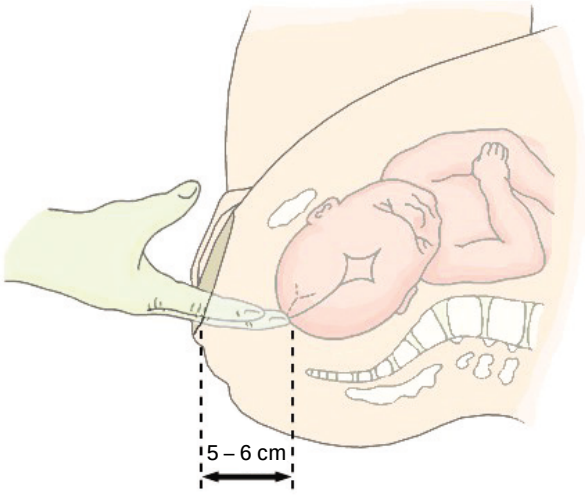
Cup selection and position

Anterior devices. The pull devices attached to soft (silicone or plastic) and rigid (plastic or metal) *anterior* extractor cups are semirigid, limiting maneuverability within the birth canal and presenting a handicap whenever the flexion point is not readily accessible.[5] Anterior cups are best used for deliveries in which the station is low or outlet and the fetal position is occipitoanterior (OA), rotated less than 45˚ *(Table 3)*.

Posterior devices. Maneuverability of rigid *posterior* cups is not restricted; the suction tube on these devices is in the same plane as the cup body. Posterior cups can be used for deliveries in the occipitoposterior (OP) and occipital transverse (OT) positions and for deliveries in the oblique OA position when the fetal scalp is not visible.

FIGURE 3

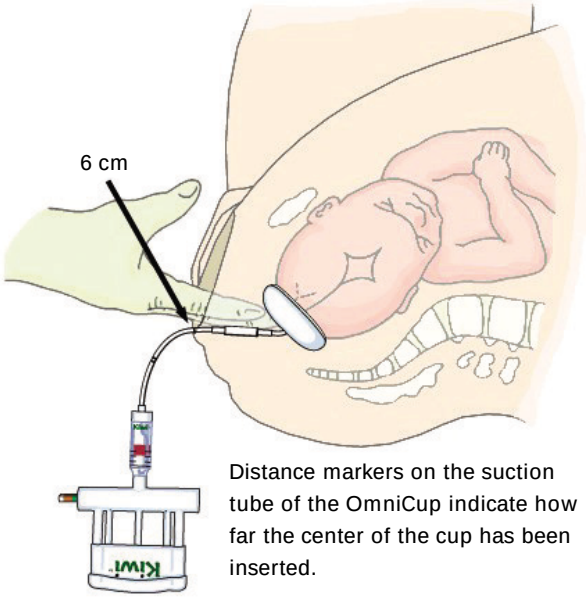
Locating the flexion point



Locating the flexion point and calculating the distance from the posterior fourchette using the examining finger.

FIGURE 4

Inserting the cup



Distance markers on the suction tube of the OmniCup indicate how far the center of the cup has been inserted.

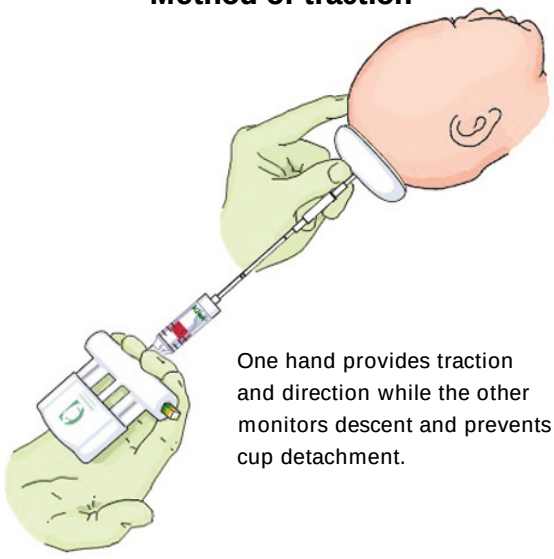
Confirming cup position

The extractor cup is correctly positioned over the flexion point when palpation indicates that the anterior fontanelle is at least 3 cm from the edge of the cup, and the sagittal suture is under the cup midline. Nonvisual digital confirmation of correct positioning is made possible because all commonly used cups have maximum diameters of 6 to 7 cm and the fetal sagittal suture is 9 to 10 cm long.[5] Therefore, in cups with a 6-cm diameter and with 9 cm as the distance between anterior and posterior fontanelles in the normal infant, the distance from the anterior fontanelle to the cup edge is approximately 3 cm.

A correctly positioned cup is called a flexing median application (*Figures 2* and *4*). Other applications promote extension and asynclitism of the fetal head and either increase or fail to decrease the diameters of the presenting part. In a deflexing application, the cup has been placed closer to the anterior fontanelle; in a paramedian application, the extraction cup has been placed more than 1 cm to either side of the midline.

FIGURE 5

Method of traction



One hand provides traction and direction while the other monitors descent and prevents cup detachment.

PERFORMING THE PROCEDURE

Inducing a vacuum

When correct positioning of the extractor cup has been confirmed, a vacuum of 500 to 600 mm Hg is induced in 1 step.[6] When the station is low or

Appropriate patient selection: Critical to success

Indications for VAD vary with each case. Station of the fetal head is commonly used to predict degree of risk (low versus high) in operative vaginal delivery.[3] Similarly, the risk associated with VAD can be predicted based on whether the scalp is visible at the introitus *(Table 1)*. Other variables that may influence VAD outcome are listed in *Table 2*; the presence of 3 or more of these indicates a high-risk VAD. VAD should also be avoided in cases with:

- Cephalopelvic disproportion; brow, face, or breech presentation; gestation <34 weeks; or high fetal head station (above ischial spines).
- Inconclusive fetal position where scalp is not visible at introitus.
- Delivery of severely compromised fetus as a rescue procedure. Such an infant may be depressed at birth, and the VAD operator may be blamed.
- Maternal exhaustion—do not increase traction force to compensate for reduced expulsive power.
- Excessive fetal head molding; traction force increases the risk of intracranial injury in such cases.
- Incomplete cervical dilation. Beware of the anterior lip of the cervix; do not attempt VAD before the cervix is completely dilated.

TABLE 1

Predicting risk associated with VAD

Low-risk VAD

Fetal caput visible and station low or outlet

- Arrest of descent in second stage of labor
- Nonreassuring fetal status
- Maternal exhaustion but satisfactory uterine contractions and some expulsive effort
- Selective shortening of second stage
- Delivery of "floating" head at cesarean section

High-risk VAD*

Fetal caput not visible and station low or mid

- Arrest of descent in second stage of labor
- Nonreassuring fetal status
- Maternal exhaustion, epidural analgesia, and diminished expulsive effort
- OA >45°, OP/OT fetal positions

* Contraindicated except for "qualified grade" operators (see Physician Training, page 6)

VAD = vacuum-assisted delivery, OA = occipitoanterior, OP = occipitoposterior, OT = occipital transverse

outlet, a finger should be swept around the periphery of the cup to ensure that no maternal tissue has been trapped between the cup and scalp. Other safety tips for performing successful VAD are listed in *Table 4*.

Establishing traction

Gentle traction with the cup extractor is begun as soon as a contraction starts and the mother pushes. Between contractions, the vacuum may be either maintained or decreased, depending on operator preference.[3] There is no evidence that maintaining the vacuum is harmful or that decreasing it is beneficial.[7]

Traction is meant to be an adjunct to the mother's expulsive efforts, not the primary force to overcome resistance to descent. Traction should be performed with both hands working in unison. One hand provides traction and direction while the other monitors progress and prevents cup detachment *(Figure 5)*. The crossbar of the pull device should be held in the fingertips to limit traction force.

Traction should be maintained smoothly for the duration of the contraction and for as long as the mother is pushing. As soon as the contraction passes or the mother stops pushing, traction should cease. It should not be continued to prevent retraction of the head, because the lowest station reached at the end of 1 contraction is regained quickly at the beginning of the next.

Some sign of progress should be evident with each pull: descent of the presenting part, flexion of the head or correction of asynclitism, and autorotation from OP and OT positions. If no progress is observed after 2 pulls, stop traction and complete delivery by cesarean section if the scalp is not visible at the outlet.

Cup detachment ("pop-off")

Correct cup application and traction directed

TABLE 2

Factors that increase risk associated with VAD*

- Nonreassuring fetal status
- Prolonged second stage of labor
- Caput not visible at introitus
- OP/OT positions (including OA >45°)
- Significant molding (2+)
- Epidural analgesia
- Weak, infrequent contractions
- Diminished expulsive effort
- Estimated large fetal size
- Small maternal stature

*3 or more = high-risk VAD (ie, relative contraindications)

VAD = vacuum-assisted delivery, OA = occipitoanterior, OP = occipitoposterior, OT = occipital transverse

TABLE 3

Classification and use of vacuum extractor cups

Indicated for outlet and low OA <45° extractions

Soft cups (silicone or plastic)

- Kiwi ProCup and Tender Touch cups
- Standard Mityvac and Soft Touch cups
- Silc, Gentle Vac, and Secure cups
- Silastic, Reusable, and Vac-U-Nate cups

Rigid "anterior" cups (plastic or metal)

- Kiwi OmniCup
- M-Style Mityvac cup
- Flex cup
- Malmstrom, Bird, and O'Neil anterior cups

Indicated for low OA >45°, OP, OT extractions

Rigid "posterior" cups (plastic or metal)

- Kiwi OmniCup
- M-Select Mityvac cup
- Bird and O'Neil posterior cups

OA = occipitoanterior, OP = occipitoposterior, OT = occipital transverse

along the axis of the pelvis will prevent most "pop-offs." Sudden cup detachment is not a built-in safety feature of VAD devices. Most cup detachments occur at the outlet because of:

- Incorrect traction technique, pulling too hard or in an upward direction, or when maternal expulsive powers are weak
- Paramedian or deflexing applications
- Large caput succedaneum (for soft vacuum cups)
- Maternal tissue or scalp electrode trapped under the cup
- Inadequate vacuum or faulty equipment

Scalp abrasion (most often caused by sudden "pop-off") or underlying blood vessel damage may result if "pop-off" occurs during strong traction. Complete detachment may be avoided by applying counterpressure with the thumb of the non-pulling hand during traction and by timing pulls with contractions and the mother's pushes.[5] If the cup detaches twice and the fetal head has not yet descended to the outlet, stop the VAD and complete the delivery by cesarean section.

Duration of VAD

Completion of delivery in 3 pulls has been viewed as a criterion for a safe VAD. After 3 pulls, the risk of scalp injury increases with the amount

Scalp abrasion or blood vessel damage may result if a "pop-off" occurs during strong traction

of traction exerted. However, a review of the number of acceptable pulls for a "normal" VAD is warranted by several recent changes in obstetrical practice: (1) increasing use of epidural analgesia, (2) extending the "normal" duration of the second stage of labor, and (3) decreasing use of episiotomy to facilitate delivery across the perineum. The first 2 may interfere with the maternal expulsive effort (especially if the mother is exhausted), and the third, that is, an intact perineum, provides greater resistance to delivery. The greatest amount of traction force during VAD occurs during delivery of the head across the pelvic floor and perineum.[8]

For these reasons, I now divide VAD into 2 phases—the descent and perineal phases. In nulliparous women who have had epidural anal-

TABLE 4

Safety tips for successful VAD

- Aim for flexing median cup applications, regardless of head position.
- Initiate oxytocin infusion if contractions are weak or infrequent.
- Do not increase traction force to compensate for decreased maternal expulsive effort.
- Apply traction only during contraction and when the mother is pushing.
- Expect some progress with each pull. If significant descent has not occurred in 3 pulls, stop the procedure and deliver by cesarean section.
- When extraction is initiated before fetal caput is visible, expect the head to descend to the introitus within 3 pulls. Allow 3 additional pulls to complete delivery of the head over the perineum.
- Do not regard cup detachment as a safety feature of the VAD device. If the cup pops off twice and the head has not yet descended to the outlet, stop the procedure. Complete delivery by cesarean section.
- The majority of VADs should be completed within 15 minutes. Unless delivery is imminent, do not continue with VAD for longer than 20 minutes.

VAD = vacuum-assisted delivery

gesia, 3 pulls during each phase are acceptable, provided that some progress is observed with each pull.

Arbitrary VAD time limits ranging from 15 to 45 minutes have been suggested as protection against the effects of prolonged or excessive traction.[9,10] Extensive observational data have demonstrated that, with efficient uterine contractions and good maternal expulsive effort, most VADs can be completed within 15 minutes and almost all within 20 minutes. Therefore, unless delivery is imminent, the procedure should not be continued longer than 20 minutes.

Rotational VAD

The restrictions imposed on rotational forceps deliveries[11,12] also have been applied to rotational VAD, even though head rotation during rotational VAD occurs automatically as a passive event similar to the internal rotation that is an integral part of normal labor. Autorotation of the malpositioned head occurs in about 90% of cases, provided the cup is positioned correctly and traction is directed along the axis of the pelvis.[5,9,13,14] In other words, the method of rotational VAD is identical to the standard technique. On no account should the clinician attempt to rotate the head by physically manipulating the cup.

INFANT CARE AFTER VAD

Immediately after VAD, the infant's head should be carefully examined and then reexamined at regular intervals to exclude bleeding into the scalp. If a warming bonnet has been placed on the baby's head, neonatal attendants should remove it periodically to inspect the scalp. Results of the inspection, including accuracy of cup placement in relation to the flexion point, should be recorded for educational and auditing purposes. If the scalp was injured, arrangements for appropriate follow-up should be made.

On the day after the delivery, the clinician should examine the baby in the mother's presence, answer her questions, and allay any concerns.

PHYSICIAN TRAINING FOR VAD

The graduated program that follows is a guide for resident training in VAD. The numbers and types of VADs may vary with the trainee's progress. Each trainee monitors his/her progress with a detailed log of all VADs performed.

Level C (Beginner grade)

- Trainee has experience in managing normal labor and its common problems.
- Trainee receives instruction in at least 5 low-risk VADs (scalp visible at introitus, OA position) under supervision of qualified trainer.

Level B (Trainee grade)

- Trainee has achieved level C competency.
- Trainee receives instruction in at least 5

moderate-risk VADs (scalp not visible at the introitus, OP/OT positions) under supervision of qualified trainer.

Level A (Qualified grade)

- Trainee has achieved level B competency.
- Trainee may undertake all types of clinically appropriate VADs at discretion of qualified trainer.

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THE PHYSICS OF VACUUM EXTRACTION

Proper use of compression and traction for better patient outcomes

by R. Gail Billings, PhD

Natural childbirth is marked by forces of compression: the uterus contracts, the cervix dilates, the pressure around the fetus increases on all surfaces except those at the cervical outlet, and forces resulting from the pressure differential expel the fetus. Fetal tissues are well suited to withstand this stress, but not well adapted to withstand the traction or tensile forces that are applied with forceps or vacuum extraction. In addition, the materials in the feto-maternal system are varied in the properties that constitute strength and endurance making analytical prediction of the "failure points" very difficult. Therefore, proper vaginal vacuum-assisted delivery (VAD) seeks to correct a malpositioned fetal head; assistance from normal forces delivers the baby. Any traction must be of minimal force and duration.

Vacuum as a means of applying traction

Vacuum is the differential pressure between local atmospheric pressure and the pressure inside the extractor cup. The differential pressure is expressed as a positive number—the more complete the vacuum, the higher the number. Typically, a vacuum of about 600 mm Hg is applied between the fetal scalp and the extraction cup. With an internal cup diameter

Proper VAD seeks to correct a malpositioned fetal head; normal forces deliver the baby

of 5 cm, this degree of vacuum should allow a maximum traction force of 16 kg (35 lb) before the cup separates.

In practice, however, maximum traction force is about 11 kg (24 lb) because the force is not applied precisely perpendicular to the pull device's attachment point, and the seal on the cup's rim is not uniform or perfect. The equation

Force = Vacuum x Area, shows that cups with larger diameters allow more traction force.

Amount of traction force required

A 5-cm cup with 600-mm Hg vacuum provides more than enough traction force (16 kg) to properly orient the head and deliver the fetus.

A 5-cm cup with 600 mm Hg of vacuum provides 16 kg (35 lb) of attachment force

More than 14 kg (30 lb) is usually not required for VAD, even in the presence of leakage. The volume of space within a cup and the leakage rate determine how long the cup stays attached. Thus, if leaks do not occur, large-volume mechanical pumps and systems are not necessary to create forces sufficient to assist in vacuum delivery.

Direction of traction forces

Traction forces applied through the vacuum extractor are usually oblique, rather than perpendicular, to the plane of pull-device attachment. When an oblique force is applied to the cup to reposition the fetal head, the force at the pull device's attachment point can be resolved into perpendicular and lateral components.

Importance of reducing lateral torsion. The torsion-induced lateral component is minimal when the pull-device attachment is close to the fetal head; it increases as the distance between pull-device attachment and cup increases. Thus in occipitoposterior (OP) and occipital transverse (OT) positions, a cup with a low profile in which the force is attached closest to the base of the cup will reduce the lateral component.

Stemmed cups do not minimize this effect; moreover, their design prohibits proper placement. In the absence of friction, a lateral force only causes the cup to slide. In practice, scalp tissue is forced into the cup to form an artificial caput or chignon, which provides a wedge that prevents sliding. Oblique traction also results in lower net delivery force.

Simultaneous torsion and oblique traction should be held to a minimum to prevent sudden detachment of the extractor cup, a potential hazard to the baby. Some extractors have cup and traction-link attachments designed to minimize this effect. The soft cups with stems protruding from the back of the cup lack low profiles and do not minimize simultaneous torsion and oblique traction, especially during OP or OT deliveries. Such soft-cup devices should be used only for direct occipitoanterior deliveries in which the fetus is at the outlet when the cup is placed.

Effects of vacuum cup on fetal scalp

When the vacuum cup is pulled, its rim compresses fetal scalp tissues underneath it and arterial blood flow is blocked. When the extractor cup is not being pulled, blood and fluid are driven into the circular tissue bed under the cup. The differential pressure driving the liquid beneath the cup is the sum of mean arterial pressure and vacuum (subatmospheric pressure)—typically about 600 mm Hg or 5 times the normal differential pressure across any vascular bed. If the vacuum persists and the cup is not pulled, tissues underneath the cup engorge; when the vacuum is broken and circulation resumes, this chignon formation usually resolves spontaneously without sequelae within 24 to 48 hours.

Chignon formation is often most pronounced with vacuum extractors that have a hard plastic or metal cup with a rounded ridge on its rim. Soft, pliable cups tend to spread out over the fetal head during vacuum application, leaving behind no defined borders This edema should not be confused with hematoma formation and will resolve spontaneously.

ESTABLISHING A PROTOCOL

The first step for reducing potential for litigation

by Victor L. Vines, MD

It has been argued that, as a profession, we obstetricians focus on the worst possible outcome and undertake intensely interventional (albeit potentially ineffective) methods to prevent that outcome. Many view this as the only legally safe course of action.[1] As a result, respected obstetric researchers and educators[2] have predicted that vacuum devices and forceps may disappear from our practices and that all future deliveries will be either easy spontaneous vaginal deliveries or easy cesarean sections. Fortunately, obstetricians can undertake strategies to maintain professional protection and provide best patient outcomes.

SELECTING THE MOST APPROPRIATE MODE OF DELIVERY

Decisions concerning mode of delivery are complex. Most important is deciding whether a safe vacuum-assisted delivery (VAD) can be performed based on assessment of the fetal position and size relative to the maternal pelvis. Beyond the clinical assessment, effective decision-making for VAD can be made using basic principles.

Guidelines for vacuum extraction

Obstetricians face challenges in VAD: Existing guidelines are generally considered Level B/C data, derived from observational studies or published as opinions by experts in the field of VAD.[3–7] No profession-wide consensus dictates the amount/ duration of traction, the amount/duration of maximum vacuum, the number of pulls required to effect delivery, the total time of applied vacuum, or the acceptable number of involuntary releases ("pop-offs").[8,9]

Collecting accurate diagnostic data regarding mode of delivery and fetal complications has been difficult.[10,11] For example, until August 2003, no specific ICD-9-CM code identified subgaleal hemorrhage or hematoma, a complication more frequently associated with VAD than other modes of delivery and associated with significant fetal morbidity and mortality if it remains undiagnosed. That hindrance to data collection was remedied when the National Center for Health Statistics[12] adopted a new code (767.11) specific for subgaleal hemorrhage.

Will vacuum and forceps delivery disappear from our practices because of liability concerns?

The physician-patient relationship: The basis for informed consent

A physician-patient relationship may take several forms.[13] The most effective models (the deliberative and interpretive) establish a fully engaged relationship between physician and patient/family and form the essence of informed consent. Patient concerns are discussed during the prenatal course or early in labor. The physician addresses or allays patient fears through information, and incorporates patient preferences into delivery decisions. For instance, the patient may fear application of instruments to her baby's head, or she may fear an abdominal incision. Communication about concerns also helps to manage liability risk.[14]

Ethical principles and decision-making for mode of delivery

Well-defined ethical principles[15] also guide delivery decisions:

Patient autonomy. Generally, the patient has the right to refuse unwanted treatment, whether cesarean section or VAD.

VAD and litigation Did the physician provide appropriate standard of care?

A recent suit filed against an obstetrician, her group practice, and the maternity specialty hospital illustrates key points. An infant delivered by vacuum-assisted delivery (VAD) sustained a subgaleal hematoma and brain injury with resulting cerebral palsy. Importantly, the patient labored approximately 24 hours before VAD was performed.

Expert testimony for the plaintiffs. A neuroradiologist testified that the source of injury was hypoxia, experienced during labor; other experts identified VAD as the source of brain damage.

Allegations maintained that the vacuum was applied at too high a station, the fetal head was rotated during delivery, and delivery details were inaccurately documented. Cavalier use of the device and lack of understanding of its correct use were suggested. Failure to recognize fetal heart rate (FHR) abnormalities throughout the labor was alleged, as was failure to perform a timely cesarean section, which would have avoided the need for VAD.

Arguments for the defense. The defense held that the nurse and physician notes were accurate, the vacuum was used for a total of 5 minutes and 2 pulls, and neither the FHR nor the blood gas determination after delivery indicated fetal distress or hypoxia. It was noted that the rate of cerebral palsy has not changed over the past 30 years, despite the use of electronic fetal monitoring and an enormous increase in the rate of cesarean sections. It was argued that the injuries were of unknown causes and could not have been predicted.

The verdict. After an 8-day trial, the jury deliberated for 2 hours before returning a verdict for the defense.

Discussion. This case illustrates issues arising with VAD-related litigation. Questions were raised regarding the FHR tracing for several hours early in the course of the mother's prostaglandin induction and whether injury happened early in labor. The infant could possibly have sustained the same injury had he been delivered earlier by cesarean section, or the injury may have been avoided. Based on the tracings, it was not possible to reasonably predict that such an outcome was pending and could have been avoided.

The physician's performance appears to have been within the standard of care; her medical judgment and use of the device were not negligent. However, sparse documentation of her decision-making (clinical judgment) and details of the delivery gave the plaintiffs' attorney opportunity to cast doubt on the quality of her care and behavior. They argued that her documentation and her use of the device were not in keeping with the care that a prudent obstetrician would provide in this or a similar circumstance.

A comprehensive delivery note for VAD is necessary to provide written evidence of the clinician's judgment and of the details of the procedure. This instrument is featured in *Operative Vaginal Delivery*, in the accompanying article presented in *OBG Management*, February 2004. These details are also important for quality assurance/performance improvement activities by the obstetrical department.

—Source: www.verdictsearch.com. November 10, 2003.

Beneficence. If VAD is selected, the procedure should provide good outcomes for mother and newborn, sparing the infrequent complications and longer recovery associated with abdominal delivery.

Nonmaleficence. An unskilled obstetrician should not attempt operative vaginal delivery without an experienced partner. The obstetrician should also consider whether VAD or cesarean section would be more or less harmful to the mother and infant.

Justice. The cost/benefit to patients, hospital, payer, and society in general should be assessed. Costs to all parties increase with cesarean section compared with vaginal delivery.[16,17] Additionally, obstetricians must consider the magnitude of cost if all of their operative vaginal deliveries were converted to cesarean sections.

Veracity. Obstetricians should honestly assess their skills and limitations and provide honest documentation regarding the delivery performed, regardless of outcome.

The evidence: Performing VAD safely

Despite insufficiencies in the literature, the experience of respected clinicians provide much guidance for clinicians in terms of safe and effective use of VAD, as reflected in this publication's article by Aldo Vacca, MD, and *Preserving the Option of Vacuum Extraction*, appearing within this issue of *OBG MANAGEMENT*. Forthcoming research should elucidate the potential relationships among vacuum, traction, and subsequent fetal injury and avoid these injuries where possible.

Physician integrity, competence, and capability

In the United States, VAD is used 2 to 3 times more often than forceps for operative delivery;[18] many physicians prefer to use VAD because it has less potential for maternal trauma and is easier to use than forceps. Still, VAD requires specific skills and techniques. Many physicians are not trained to use vacuum devices as residents; others may have received limited training. These physicians should seek the assistance of a mentor or obtain training before offering this mode of delivery to patients.

AVOIDING LITIGATION CLAIMS IN YOUR PRACTICE

Inappropriate use of VAD/forceps leading to fetal trauma and/or preventable shoulder dystocia[7] is the fifth most common source of liability claims from obstetric care. Most VAD-associated malpractice litigation derives from questions concerning:

- Use of adequate and informed medical judgment in assessing appropriate use of VAD.
- Limitations of VAD and the need for alternative plans in case of VAD failure.
- Decisions on when to terminate instrumental delivery and avoid prolonged repeated or excessive traction attempts without progress.
- Physician assessment of fetal head position in relationship to the pelvic outlet and attempts to advance.[19]

In the United States, VAD is used 2 to 3 times more often than forceps for operative delivery

RECOMMENDATIONS TO PROMOTE SAFE USE OF VAD

Obstetrics Department

Review credentialing to ensure that privileges granted for performance of VAD are supported by residency or other postgraduate training.

Develop an organized mentoring program to allow physicians new to VAD to add this skill to their delivery choices.

Provide continuing medical education about VAD.

Develop a departmental policy regarding operative vaginal delivery if one does not already exist. Incorporate review of operative vaginal delivery outcomes in the departmental quality assurance/performance improvement process, and inform coding personnel that a new code (767.11) specific for subgaleal hemorrhage is available.

Standardize documentation of operative vaginal deliveries.

Obstetricians

Use the correct instrument for the clinical circumstance, taking into account your experience and the presentation of the fetal head.

Ensure that there is an appropriate indication for operative assisted delivery. Discuss the indication with your patient and obtain her permission prior to proceeding with VAD.

Avoid operative vaginal delivery if you suspect the fetal size to exceed the capacity of the maternal pelvis.

Most vacuum deliveries associated with poor fetal outcomes arise from abnormalities of the labor process

Have personnel and an operating room available immediately in the event of a failed attempt at VAD.

Be prepared to deal with shoulder dystocia.

Follow generally accepted guidelines for use of the device (typically printed by manufacturers on the product packaging).

Document the indications and processes completely, preferably on a standardized form such as the template accompanying the roundtable discussion on VAD in this issue of *OBG MANAGEMENT*.

If you are experienced with VAD, offer to mentor physicians who desire to learn or expand their experience with it.

Conclusion

Correctly performed, VAD can and should continue, and practitioners and hospitals may remain confident that obstetric experts will remain available to prudent physicians who continue to perform VAD. Most vacuum deliveries associated with a poor fetal outcome do not result from negligence on the part of the obstetrician or the hospital nursing personnel, but rather arise from abnormalities of the labor process.[11] Negligence, which may be defined as the failure to provide ordinary care (care that would be provided by a prudent nurse or physician in the same or similar circumstance), may not be present in cases such as the one presented, but everyone would like to avoid the uncertainty of a lawsuit and the prospect of years of anxiety and worry.

Using vacuum devices prudently—that is, for appropriate reasons and with the appropriate skill—and then documenting the procedure properly will bolster the ability of the obstetrics specialty to defend the use of operative vaginal delivery techniques and preserve them as viable tools for future use.

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