

Episiotomy: Techniques and Indications

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In current obstetric practice episiotomy is generally taken to refer to an incision of the perineum and vagina to facilitate vaginal delivery. While the most precise definition of this incision is perineotomy, episiotomy is the generally employed terminology and thus is used in this article. The evolutionary background and historical perspective of this procedure have been reviewed extensively by Thacker and Banta¹ and are not reviewed here. This article reviews the techniques of the various types of episiotomies as well as their indications and contraindications. It also addresses the relative risks and benefits of episiotomy.

Techniques

The only types of episiotomy with any place in current obstetric practice are the midline and mediolateral procedures. Other techniques such as the lateral episiotomy are mentioned only for historical completeness and have no place in current (1986) practice.

Midline Episiotomy

Midline episiotomies are performed along the median raphe of the perineum and ex-

tend from the introitus down to, but not including, the fibers of the rectal sphincter capsule (Fig. 1). The incision divides the insertions of the superficial perineal muscles and avoids muscle fibers as well as major blood vessels. It should also involve 3–4 cm of the vaginal mucosa above the hymenal ring. This minimizes the risk of vaginal laceration.

Midline episiotomy is most often performed with blunt surgical scissors but can also be performed with a scalpel. Care must be taken in the latter case to avoid fetal injury. Caution must be observed in both techniques that the rectum is not entered inadvertently.

Despite controversy over the optimum timing of midline episiotomy,^{2,3} most authors and practitioners believe that the incision should be deferred until the presenting part has begun to distend the perineum. If it is performed too early, excess blood loss will probably occur. If performed too late, any protective benefit for the maternal perineum or fetal presenting part may be reduced. The recommendations of Buxton and Muran would seem appropriate for uncomplicated cases, namely, if an episiotomy is indicated it should be timed so that the fetus will be delivered within the next three to four contractions.⁴

Repair of midline episiotomy should

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EPISIOTOMY

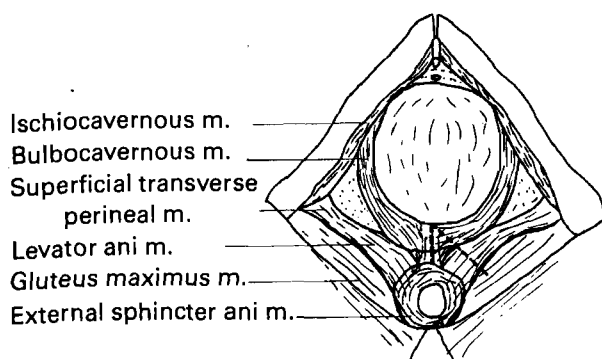


FIG. 1. Location of midline and mediolateral episiotomy (dotted lines). Episiotomy is best performed when 3–4 cm of the presenting part are visible on the perineum.

generally be deferred until the placenta has been expressed, the cervix and vagina carefully inspected, and any lacerations repaired. Although midline episiotomies may bleed briskly before delivery as a result of venous congestion, this congestion is noticeably decreased after delivery of the fetus, and most midline episiotomies bleed sufficiently little in the immediate puerperium that the aforementioned inspections (and potential repairs) can be safely carried out. These latter maneuvers not only are more difficult if the episiotomy has already been repaired but also may result in partial disruption of the repair.

Midline episiotomy repair requires the same prerequisites as any surgical procedure: adequate exposure, good lighting, adequate anesthesia, helpful assistants, and appropriate sutures and instruments.

Before the episiotomy is repaired, a thorough search must be made for lacerations, and these must be repaired, as discussed subsequently.

Although a number of techniques have been described for repair of midline episiotomy, all are predicated on meticulous hemostasis and careful anatomic reapproximation. Most authorities recommend initial repair of the vaginal mucosa with a running, locking suture, usually of 3-0 chromic catgut or a synthetic absorbable

material such as polyglactin or polyglycolic acid. The use of such sutures on atraumatic needles is helpful to minimize tissue trauma. Begin the repair just *above* the apex of the vaginal mucosal incision in order to incorporate any retracted blood vessels. Subsequent sutures should be placed perpendicular to the incision line to ensure anatomic reapproximation. The sutures should be placed tightly enough to ensure hemostasis, but not so tightly as to occlude capillary perfusion. The cut margins of the hymenal ring are reapproximated, and the suture is tied. If the knot is placed at or inside the hymenal ring, postpartum dyspareunia can be minimized.

Some obstetricians prefer to continue with the same uninterrupted suture to close the space beneath the vaginal mucosa. However, we prefer to use separate interrupted sutures for this purpose (reapproximation of the perineal body). We believe that a repair in this fashion will result in optimum anatomic reapproximation and subsequent perineal support with minimum likelihood of hematoma or wound breakdown.

Historically, many authorities also recommend placement of a "crown stitch" to specifically reapproximate the edges of bulbocavernosus muscle.

Reapproximation of the perineal skin edges is most frequently obtained by use of a subcuticular stitch, usually beginning inferiorly and proceeding upward toward the fourchette. With such a technique, postpartum discomfort or dyspareunia can be minimized by avoiding suture knots at the fourchette. This can be accomplished by carrying the subcuticular stitch just inside the hymenal ring, or by passing it out to one side of the perineum where tissue tension will hold it in place. Some obstetricians employ alternative techniques for perineal skin reapproximation, including simple interrupted sutures of absorbable material or the placement of Allis clamps for 5–10 minutes postpartum.

When the repair is completed, a gentle

rectal examination should be performed to ascertain that no sutures were inadvertently placed through the rectal mucosa. Such sutures could serve as a nidus of infection or fistula formation.

A sponge and needle count should also be routinely performed at the conclusion of the repair. Besides being embarrassing, a sponge retained in the vagina may be the nidus for an infection. Likewise, a needle retained or broken off in the episiotomy repair mandates exploration of the wound.

Mediolateral Episiotomy

In certain situations a mediolateral episiotomy may be preferred. This may be performed on either the right or left side of the perineum (Fig. 1), the final decision usually being made by the handedness of the operator. Right-handed surgeons usually perform the procedure on the patient's right side, thus allowing sutures to be directed laterally with the right hand away from the rectum. There is no evidence to suggest that patients do better with mediolateral episiotomies to the right versus to the left. While some older references discuss the potential use of bilateral mediolateral episiotomies when difficult vaginal delivery is anticipated, current wisdom would suggest that abdominal delivery would generally be more prudent in such cases.

As with midline episiotomy, the mediolateral episiotomy may be performed with either surgical scissors or a scalpel, is best performed when the presenting part has begun to distend the perineum, and is begun in the midline of the posterior fourchette. This latter caution is important with this procedure, because incision of the Bartholin's duct may predispose to subsequent cyst formation or decreased lubrication. From the midline the incision is continued at approximately a 45-degree angle through the bulbocavernous and superficial transverse perineal muscle bodies in the lateral perineum. If necessary, the

incision may also be continued into the levator ani muscle. By waiting until the perineum has been moderately distended and then proceeding at a 45-degree angle, the operator can avoid the rectal sphincter and mucosa without extending too far laterally. The vaginal mucosa should also be incised in the midline for 3–4 cm above the hymenal ring to minimize vaginal extension/laceration with delivery. Douglas and Stromme⁵ advise that mediolateral episiotomy be performed as a two-step procedure with the initial incision extending in the midline through the thin tissues of the fourchette and vaginal mucosa and the subsequent incision extending in the mediolateral direction. They point out that this procedure allows for optimum anatomic reapproximation, which is a matter of considerable importance in this procedure.

Many of the techniques and procedures for repair of an uncomplicated mediolateral episiotomy are similar to those used in midline episiotomy repair. However, because of the increased vascularity of the lateral perineal tissue, it is often prudent to begin the repair before placental expulsion and cervicovaginal inspection have been completed. However, careful inspection of the base of the wound must always be done to ensure that no inadvertent entry into the rectum has occurred. This will require initial repair before the following procedure is begun. The vaginal mucosa is reapproximated by using a running, locking suture and again being careful to begin above the apex. If the vaginal mucosal incision extends off the midline, care must also be taken to ensure that the incision is closed with anatomic accuracy. This will allow the hymenal ring to be reapproximated accurately. The deep tissues are now reapproximated beginning at the base of the incision and using interrupted sutures. We prefer figure-of-eight sutures with 2-0 or 3-0 absorbable suture material. Continuous attention must be directed to careful anatomic reapproximation because there will appear to be more tissue laterally

than medially. As with midline episiotomy, continuous attention must be directed to hemostasis and obliteration of dead space with a minimum of tissue destruction and injury. The perineal skin margins may be closed by any of the techniques described above for midline episiotomy, with the subcuticular stitch again most commonly described. At the conclusion of a mediolateral episiotomy, a careful rectal examination is mandatory, since the inadvertent placement of a suture into the rectum is somewhat more likely. A careful sponge and needle count should also be performed.

Complications

Lacerations

Although prevention of maternal laceration is one of the stated purposes and benefits of episiotomy, such tears occur even when an episiotomy is performed, with figures quoted in the range of 9.5–13%.^{6,7} The most commonly discussed laceration is the extension of the perineal incision through the rectal sphincter, although the vaginal mucosal incision may also extend. Many factors are associated with an increased risk of laceration. These include inappropriately timed or inadequate incision, midforceps delivery, uncontrolled delivery, fetopelvic disproportion, shoulder dystocia, fetal anomalies or malposition or malpresentation, and previous reproductive tract injury.

Perineal extensions of midline episiotomies frequently involve the rectal sphincter or mucosa. This is widely referred to as a third-degree extension or laceration and was at one time a greatly feared complication.⁸ Current attitudes and experience suggest that third-degree extensions, while not desirable, are infrequently associated with serious complications such as fecal incontinence or rectovaginal fistula when properly identified and repaired.⁶ In fact, in some services intentional rectal extensions of midline epi-

siotomies are performed when more room is required.

Perhaps the most important factor in repair of a third-degree laceration is its initial identification. The margins of the rectal sphincter capsule should be identified and grasped with Allis clamps. The extent of rectal mucosal involvement (if any) should be identified and repaired with interrupted sutures of 4-0 absorbable suture material. These should be placed about 0.5 cm apart and should imbricate the mucosal margins inward. We believe that the suture material should not traverse the rectal mucosa. The rectovaginal fascia should then be reapproximated over the mucosal repair with a second layer of interrupted sutures. The importance of attention to anatomic reapproximation and hemostasis as well as the use of interrupted sutures cannot be overemphasized for successful repair. The next step involves reapproximation of the sphincter capsule with interrupted sutures of 2-0 or 3-0 absorbable suture material. While some authors recommend figure-of-eight sutures, we avoid this for fear of unnecessary tissue damage and suboptimal anatomic reapproximation. When these procedures have been completed, the remainder of the episiotomy repair can be completed as described before.

Perineal lacerations can also occur with mediolateral episiotomies, extending into the rectum or perirectally. The so-called hockey-stick third-degree extensions occasionally encountered with mediolateral episiotomy are repaired by using the same principles outlined above. The perirectal extensions are often extensive and difficult to repair. Careful initial evaluation of the extent of the injury is important to allow appropriate repair. Adequate exposure, attention to hemostasis, and use of interrupted sutures all contribute to successful repair and subsequent function.

Either type of episiotomy can also extend cephalically, even involving the forni-

ces superiorly as well as the bladder anteriorly, the rectum posteriorly, and the pelvic diaphragm posterolaterally. Successful repair of these vaginal extensions can challenge the most experienced surgeon. Attention to the aforementioned techniques is mandatory. We have found that tagging the apex of such lacerations can be particularly helpful for subsequent repair.

Excess Blood Loss

Thacker and Banta¹ estimate that 10% of women who receive an episiotomy will lose at least 300 cc more blood than if they did not receive the procedure. Such claims have not been investigated in the current literature, but it does not seem necessary to obtain blood-banking services for all women undergoing this procedure. Nonetheless, severe hemorrhage is possible with episiotomy. Should this be encountered, immediate intravenous access should be obtained and blood sent for type and cross-match. Excessive postpartum bleeding should raise the question of incomplete episiotomy repair (among other questions), and such patients must be examined promptly. Likewise, excessive perineal pain should raise the possibility of a perineal, vulvar, vaginal, or ischiorectal hematoma.

Infection

As with any surgical procedure, infection is a potential complication of episiotomy. Because episiotomy is performed through a colonized surface (the perineum and vagina), one might expect infection rates to be higher than the reported 0.5–3.0%.¹ Even these figures are far from clear, since none of them represent prospective randomized studies. While prophylactic antibiotics have been shown to be of unquestionable value in premenopausal women undergoing certain vaginal procedures, their value in episiotomy has yet to be established.

A rare but extremely serious and sometimes fatal infectious complication of

episiotomy is necrotizing fasciitis.⁹ This is more common in women with underlying microvascular disease and characteristically has its onset in the time following usual hospital discharge.

Postoperative Management

Daily attention should be directed to the patient's episiotomy discomfort. It should be improving daily, and reports to the contrary demand further evaluation. The area should be kept clean and dry with special attention following micturition or defecation. We have found use of a squeeze bottle with warm water helpful. While historical teaching has recommended heat lamps and warm sitz baths for reduction of perineal discomfort, this concept has been recently challenged by Droegemueller.¹⁰ In an as yet unpublished prospective randomized evaluation of this question, we have found that cold sitz baths provide longer-lasting and more complete pain relief than warm sitz baths.¹¹ We have found that allowing patients to add ice chips to a lukewarm sitz bath is well accepted.

Many patients receiving episiotomies require oral analgesics for several days afterward. While the relative merits of the traditional aspirin-codeine combination versus a nonsteroidal antiinflammatory drug may be debated, the most important aspect under consideration should be the daily subjective improvement of the patient.

Indications and Contraindications

In addition to being common practice, several standard obstetric reference textbooks assume that episiotomy should be performed frequently in order to prevent maternal perineal lacerations, fetal intracranial injury, prolonged second stage of labor, and subsequent symptomatic pelvic relaxation.^{5,12-14}

There would seem to be no question that episiotomy can shorten the second stage of

labor.¹⁵ As a result, most conditions for which an abbreviated second stage of labor would be desirable could be considered potential indications for episiotomy. Included in these indications would be significant cardiac disease, prolonged second stage of labor, fetal distress in the second stage of labor, premature infants, or infants in breech presentation when vaginal delivery is anticipated.

The prevention of maternal perineal lacerations as an indication for episiotomy is well established in clinical practice. However, the association is far from a proven cause-and-effect relationship. There seems to be a higher incidence of perineal lacerations in primigravidas than in multigravidas,^{8,16,17} leading some others to suggest that the procedure be performed in all primigravidas. Fortunately, the majority of current opinion suggests that episiotomy be performed in primigravidas only if a laceration is considered likely.

Forceps delivery is generally considered an indication for episiotomy.¹² In most cases it would seem prudent to defer the episiotomy incision until the forceps are in place and traction is initiated.

In the majority of the situations listed above, a midline episiotomy can be considered. However, a mediolateral episiotomy should be considered in situations in which the fetus is relatively large or in a malposition or in the breech presentation. It should also be considered if the perineal body is small, a midforceps delivery is necessary, or a rectal tear would be particularly hazardous. Examples of the latter conditions might include inflammatory bowel disease or a previous rectal laceration.

A few conditions may be contraindications to episiotomy. These include selected cases of inflammatory bowel disease, lymphogranuloma venereum, or severe perineal scarring or malformation. While some authors suggest that coagulation disor-

ders such as idiopathic thrombocytopenic purpura may be contraindications to episiotomy, we believe that vaginal delivery (when safe for the fetus) is preferable to vaginal laceration or cesarean section. Perhaps yet another relative contraindication to episiotomy is a patient's absolute refusal to consent to the procedure.

Risks

Any discussion of episiotomy risks must include the immediate postoperative complications of laceration, excess blood loss, and infection. Because these have been discussed previously, they will not be reviewed at this point.

A factor that must be acknowledged following episiotomy is incisional pain. The obstetric literature abounds with studies addressing a wide variety of therapeutic regimens for relief of postepisiotomy pain. In fact, many papers assume that postoperative pain is an inevitable concomitant of episiotomy.¹⁸⁻²⁰ Such assumptions are given some credibility by data suggesting that women who have episiotomies are more likely to have persistent pain than are women who have lacerations.^{21,22}

In general, most patients with postepisiotomy pain gradually recover over the ensuing several months. However, Reading and associates report postepisiotomy pain persisting for at least 3 months in 14% of women,²⁰ suggesting that the problem may be common if we look for it. Although most papers suggest that persistent pain is more common with mediolateral episiotomies, this is not confirmed in all cases.²³

Postepisiotomy pain that is catamenial in nature may represent endometriosis. Although uncommon, this has been reported.^{24,25}

Another aspect of episiotomy pain that should not be underestimated is its psychosexual impact. Although this is most fre-

quently manifested as dyspareunia on a mechanical basis,^{18,26} it may have other nonmechanical influences on subsequent sexual function.²⁷ The best randomized prospective data to date²⁸ supports the conclusion that successful resumption of intercourse occurs earlier in patients in whom episiotomy is used sparingly.

Benefits

The relative benefits of episiotomy in shortening the second stage of labor and in preventing maternal lacerations have been discussed.

The association between increased perinatal morbidity and mortality and progressive prolongation of the second stage of labor has been known for many years.²⁹⁻³¹ Likewise, some evidence exists to suggest that episiotomy shortens the second stage of labor.¹⁵ What is not clear is the ability of episiotomy to prevent fetal intrapartum injury. There are still no controlled prospective randomized studies of sufficient size and duration to evaluate this question. Furthermore, recent evidence suggests that most cases of mental retardation and cerebral palsy have their etiology in events that occur well before labor and delivery.^{32,33}

As with prevention of fetal intracranial injury, there is little data to support the widely held opinion that episiotomy prevents symptomatic pelvic relaxation. Several studies that are now over half a century old are frequently quoted as proof that episiotomy prevents pelvic relaxation.^{34,35} As reviewed by Thacker and Banta,¹ however, both have serious design errors including lack of standard criteria, of randomization, and of a nonblinded evaluation process. A recent small study using the technique of perineometry found no evidence that episiotomy decreases the incidence of pelvic relaxation.³⁶ Another recent study by Van Geelen and

associates³⁷ showed no difference in functional urethral length among vaginally delivered women who had an episiotomy and those who did not. Interestingly, loss of urethral length was less in abdominally delivered women than in vaginally delivered women.

A recent prospective randomized study of liberal versus restrictive use of episiotomy in 1,000 women showed a similar incidence of urinary incontinence among both groups at three months postpartum.²⁸

In fact, the entire process of symptomatic pelvic relaxation is less well understood than many obstetrician-gynecologists would care to acknowledge. While the number of cases of symptomatic pelvic relaxation requiring surgical correction is generally considered to be decreasing and the number of cases of episiotomy is considered to be increasing, no cause-and-effect relationship has been proved. Such factors as improved nutrition, diminished family size, increasing frequency of abdominal delivery, increased emphasis on relaxation during labor, and general increased emphasis on women's fitness may all be confounding variables.

Conclusions

In spite of some of the reservations made in this review, there can be no doubt that episiotomy is of value in selected cases, especially in the management of abnormalities of the second stage of labor. Many of the other frequently cited indications (prevention of lacerations, prevention of fetal injury, symptomatic pelvic relaxation) have yet to be confirmed by controlled, randomized studies.²⁸ Further studies are needed. It is also important to acknowledge complications such as lacerations, excess episiotomy, blood loss, and infection. Episiotomy should not be performed routinely. Pending collection of better objective data, we should use the procedure only when it seems realistically indicated.

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