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SPECIAL COMMUNICATION

Episiotomy: What's the angle?

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In part four of his treatise, *The Law*, Hippocrates states: "There are in fact two things, science and opinion; the first begets knowledge, the second ignorance." In this issue of the Journal, Kalis and colleagues [1] provide scientific data concerning an important issue that has been debated for many years: whether the angle of mediolateral incision when the fetal head is distending the perineum is different from the angle of the wound after the neonate has been delivered. Although at first this may seem to be a semantic argument, it has great importance.

When an episiotomy is needed, some clinicians choose a mediolateral rather than a midline episiotomy, primarily to reduce the chance of anal sphincter rupture since it is well established that midline episiotomy carries a higher risk of sphincter laceration. This is a highly relevant issue because sphincter lacerations increase the chance that a woman may suffer fecal incontinence.

The angle at which an episiotomy can be made is a continuous variable. If we consider midline to be 0 degrees and a lateral episiotomy (never used today) to be 90 degrees, then it is theoretically possible to choose any angle from 0 to 90 degrees. Which angle should we choose? If a mediolateral episiotomy is performed to reduce anal sphincter injury, then this angle must be great enough that the incision and any potential subsequent tearing are far enough away from the anal sphincters that they are not injured. Statements quoted in Kalis et al. [1] suggest specific angles to be used when employing the mediolateral technique.

Now, here lies the problem. If the angle at which the incision is made differs from that which exists after the repair, then the question arises, which angle are we talking about? Is it 45 degrees before delivery or the angle after delivery? Does this matter?

Kalis et al. [1] make the important point that the angle of incision and the angle after repair are quite different. This is not a new observation, but quantification of the degree of difference is. Teaching on this difference has gone on for years and many of us can remember positioning the knife or scissors to make an incision at a 45 degree angle, only to be corrected by a more experienced colleague who suggested that an angle of approximately 60 degrees would result in the proper angle after delivery. Anyone who has had this experience and observed that the resulting episiotomy was at about 45 degrees once the neonate was delivered knows the importance of this lesson. It is hoped that this learning happens before several sphincters have been torn. The existence of data to prove these differences should ensure that the tradition of this training continues.

The simple statement that mediolateral episiotomy should be performed at 40 to 60 degrees does not indicate whether this is the incision angle or the angle after repair. Since these differ by about 15 degrees, it is an important consideration, especially if this difference brings the incision into the region of the sphincter. The harm that can result from this confusion is obvious. If the incision needs to be cut at 60 degrees to achieve a 45 degree angle after delivery, then the lack of clarity may lead to an increase in injury if an incision is cut at 45 degrees, resulting in a 25 to 30 degree postrepair angle falling within the region of the anal sphincter muscle. Stating which angle is required would eliminate this confusion.

Of course, none of these questions consider whether or not an episiotomy should be performed at all. This area has perhaps been the most contentious of all questions regarding episiotomy. Those who wish to avoid anal sphincter injury say

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that episiotomy should be avoided at all costs. If the only consideration were fecal incontinence then this would be the obvious answer. However, fecal incontinence caused by vaginal birth is by far the rarest form of pelvic floor disorder requiring subsequent surgery.

A broader view of pelvic floor injury and vaginal birth suggests that other factors should also be considered [2]. Only a few thousand sphincter repair operations for defects not successfully repaired at the time of delivery are performed each year in the United States. In contrast, approximately 200 000 operations are required for pelvic organ prolapse. Moreover, while fecal incontinence is weakly associated with vaginal birth, the link between vaginal birth and pelvic organ prolapse is very strong. Recent evidence links injury to the levator ani muscles at the time of vaginal birth with pelvic organ prolapse. Data from large cohort studies indicate that mediolateral episiotomy, as one part of a preventative strategy, reduced levator injury considerably [3,4] and reduced the occurrence of prolapse later in life [5].

There is no indication that the debates concerning episiotomy will be resolved soon. However, we can hope that better designed scientific studies such as that by Kalis et al. [1] will be conducted to target the important issues and provide one answer at a time. This will help guide our

direction instead of moving in circles and repeating the errors of the past.

At present, it seems clear that the incision must be made horizontal enough so that it avoids anal sphincter injury, and that making the incision at 45 degrees will place it too close to the often dilated anal sphincter. A somewhat more horizontal incision (e.g. 60 degrees) is needed so that the resulting angle after the neonate is delivered is the desired 45 degrees.

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