

# Evaluation of the angled Episcissors-60<sup>®</sup> episiotomy scissors in spontaneous vaginal deliveries

Rajnish P Patel<sup>1,2</sup>  
Sunita M Ubale<sup>2</sup>

<sup>1</sup>Suyog Women's Hospital,

<sup>2</sup>Rajiv Gandhi Medical College,  
Thane, India

**Background:** Obstetric anal sphincter injuries (OASIs) are the leading cause of anal incontinence in women. Episiotomies with a postdelivery suture angle of less than 30° to the midline are more likely to injure the anal sphincter directly, while those with a suture angle of more than 60° are associated with increased incidence of OASIs, as they do not relieve the pressure on the perineum. A safe zone of 40°–60° has been proposed. Recently, two new types of episiotomy scissors (Episcissors-60<sup>®</sup> Straight version and angled version) were introduced to ensure a standardized cutting angle of 60° to the midline. We audited our results with the angled Episcissors-60 in spontaneous vaginal deliveries.

**Materials and methods:** Consecutive patients delivering in two private maternity hospitals in Thane, India undergoing clinically indicated episiotomies were included. Only patients delivering spontaneously were included. The scissors were introduced vaginally at crowning, and aligned to orient the guide limb vertically from the posterior fourchette to the anus. While a single cut was preferred, a stagger cut was needed for some women. Postdelivery angles were measured by placing a protractor transparency on the perineum after delivery and marking the angle with an indelible ink pen. Per rectal examination was performed prior to suturing to detect OASIs.

**Results:** A total of 25 women underwent clinically indicated episiotomies. Of these, 16 women were nulliparous, eight women were para 1, and one woman was a para 2. One woman had a vaginal breech delivery (para 2), and the rest were cephalic vertex deliveries. The average age was 27 (range 20–35) years. The median birth weight was 2,800 g (standard deviation 312 g, interquartile range 2,500–3,000 g). The median postdelivery suture angle of the episiotomy was 50° (standard deviation 3.5°, interquartile range 48°–54°, range 45°–55°). No cases of OASI were detected in this series.

**Conclusion:** The Episcissors-60 angled version demonstrated a postdelivery suture angle of 50° in a cohort of Indian women undergoing spontaneous vaginal deliveries.

**Keywords:** 60° episiotomy, anal incontinence, episiotomy scissors, Episcissors-60, obstetric anal sphincter injuries (OASIs), Indian women

## Introduction

Obstetric anal sphincter injuries (OASIs) are the leading cause for anal incontinence (AI) in women.<sup>1–3</sup> Indian and other women of South Asian origin have been shown to have higher rates of OASIs compared with Caucasian women.<sup>4–6</sup>

A short perineal body has been suggested as the cause for the higher incidence of OASIs in women of Asian origin. It has been suggested that a prophylactic episiotomy might be used in women of Indian and Oriental origin. The numbers needed to treat (NNT) to prevent OASIs in Indian women resident in the UK undergoing forceps

Correspondence: Rajnish P Patel  
Suyog Women's Hospital, First floor,  
Nishigandh Towers, Kalwa Main Road,  
Thane, Maharashtra 400605, India  
Tel +91 98 2102 5417  
Email suyogmaternity@yahoo.com

delivery is 1.88, and vacuum delivery is 10.<sup>5</sup> Another study described a fivefold-increased risk of OASIs in Asian women.<sup>6</sup>

The episiotomy angle has been described as a significant factor in the causation of OASIs. Studies have shown an increased incidence of OASIs in association with postdelivery episiotomy angles that are very acute (suture angle less than 30°), as these can directly injure anal sphincters. Episiotomies that are too lateral (suture angle greater than 60°) do not relieve the pressure on the perineum.<sup>7</sup> Andrews et al<sup>8</sup> found a mean angle of 37° in episiotomies without OASIs, while Eogan<sup>9</sup> found a mean angle of 38°. Based on this, the concept of a safe zone of episiotomies with a suture angle between 40° and 60° has been proposed.<sup>7,10</sup>

Recently, a new type of episiotomy scissors (Episcissors-60®; MedInvent, LLC, Romsey, UK) were introduced that direct the episiotomy at 60° to the perineal midline at the time of cutting. These were a modification of the Mayo scissors with a guide limb that points toward the anus. A median angle of 43° was achieved in a case series of Caucasian women undergoing instrumental deliveries.<sup>10</sup> More recently, another version of the Episcissors-60 was commercially introduced with blades angled at 60° to the scissors shaft. To test the efficacy of these scissors in spontaneous vaginal deliveries, the results in patients requiring episiotomy in our practice were audited.

## Materials and methods

Consecutive patients delivering in two private maternity hospitals in Thane, India undergoing clinically indicated episiotomies were included. As no patient-identifying information was included, ethical approval was not sought. No patient follow-up was involved. Two experienced obstetricians performed all the episiotomies as per normal practice. The scissors were introduced vaginally at crowning, and aligned to orient the guide limb vertically from the posterior fourchette to the anus (Figures 1 and 2). While a single cut was preferred, a stagger cut was needed for some women. Postdelivery angles were measured by the obstetrician by placing a protractor transparency on the perineum after delivery, and the angle was marked with an indelible ink pen (Figure 3). Per rectal examination was performed prior to suturing to detect OASIs. Patients undergoing instrumental delivery were excluded from this series.

## Results

A total of 25 women underwent clinically indicated episiotomies for conditions like fetal distress, prolonged second stage



**Figure 1** Angled Episcissors-60® (MedInvent, LLC, Romsey, UK) used at crowning.

of labor, and maternal exhaustion. Of these, 16 women were nulliparous, eight women were para 1, and one woman was a para 2. One woman had a vaginal breech delivery (para 2), and the rest were cephalic deliveries. The average age was 27 (range 20–35) years.

The median birth weight was 2,800 g (standard deviation 312 g, interquartile range 2,500–3,000 g). The median postdelivery suture angle of the episiotomy was 50° (standard deviation 3.5°, interquartile range 48°–54°, range 45°–55°). No cases of OASI were detected in this series.

## Discussion

The angled version of the Episcissors-60 achieved a postdelivery suture angle of 50° in Indian women having spontaneous vaginal deliveries. This was 7° greater than the angles achieved with the scissors in instrumental births by Freeman et al.<sup>10</sup> This could be explained by the greater degree of perineal distension in instrumental births at the



**Figure 2** Episiotomy cut with Episcissors-60® (MedInvent, LLC, Romsey, UK), just before delivery.



**Figure 3** Postdelivery episiotomy suture angle being measured.

time of the episiotomy being performed. The mean birth weight in their study was 3,410 g, which differed significantly from that of the present study (2,800 g). It is possible that a higher-birth-weight fetus would distend the perineum more at crowning, leading to a lower postdelivery angle. It could also be related to differences in the position of the women while measuring the angles (in poles for instrumental births versus free-standing for spontaneous births). Nevertheless, we did not have a single patient with a postdelivery angle of less than 45°, which is reassuring.

Clearly, the incision angle of the episiotomy needs to be greater than the postdelivery suture angle to allow for perineal distension. The suture angle will vary between normal and instrumental deliveries, the individual accoucheur's timing of the episiotomy, and the indication for the episiotomy, ie, fetal distress versus prolonged second stage.

Kalis et al<sup>11,12</sup> first published the extent of perineal distension that occurs during labor. A 40° episiotomy (premarked with gentian violet staining) achieved an angle of 22° postdelivery, and a 60° premarked episiotomy achieved a postdelivery angle of 45°. Studies using stereophotogrammetry<sup>13</sup> have described a perineal distension of 2.77-fold in the transverse plane and 1.43-fold in the vertical plane. This is similar to the perineal distension of 3.26-fold noted in magnetic resonance imaging studies.<sup>14</sup>

A limitation of this study was that since it became our normal practice to use the Episcissors-60, we could not measure the angles in women undergoing episiotomies with the ordinary scissors as a comparator group. However, the literature suggests that postdelivery recorded episiotomy angles are quite close to the midline.<sup>8</sup> The authors believe that their episiotomies were angled more acutely prior to the change in practice to use the Episcissors-60. Another limitation was that endoanal ultrasound was not performed. However, Andrews et al<sup>15</sup> showed that truly occult anal sphincter injuries are very minimal.

A randomized controlled trial would be needed to definitively compare the current practice with using the Episcissors-60. However, given the fact that only 13% of clinicians are able to achieve an angle of 40° by visual estimation alone, and that the scissors are a fixed-angle device, there would be legitimate concerns as to whether randomization was ethical.

## Conclusion

The angled-version Episcissors-60 demonstrated a post-delivery suture angle of 50° in a cohort of Indian women undergoing spontaneous vaginal deliveries.

## Author contributions

Both authors participated in protocol/project development, data collection/management, data analysis, and manuscript writing/editing.

## Disclosure

The authors report no conflicts of interest in this work.

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