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# The practice of episiotomy in public hospitals in Hong Kong

## 香港公立醫院中外陰切開術的應用情況

**Objective.** To review the use of episiotomy during vaginal delivery in Hong Kong public hospitals.

**Design.** Prospective observational survey.

**Setting.** Public hospitals, Hong Kong.

**Participants.** Women who underwent normal vaginal delivery of a singleton foetus with cephalic presentation.

**Main outcome measures.** Number of women having an episiotomy, severe-degree (third- or fourth-degree) tear, other types of tear, blood loss at delivery, postpartum haemorrhage, need for blood transfusion, puerperal pyrexia, wound infection, gaping wound that required suture removal, and drainage or resuturing of a perineal wound.

**Results.** Between 1 January and 31 March 2003, there were 6222 singleton spontaneous normal vaginal deliveries in the public hospitals of Hong Kong. Of the 6167 women in whom the status of the perineum was known, episiotomy was performed in 5274 (85.5%). Primiparous women were more likely to undergo episiotomy at delivery than multiparous women (97.9% vs 71.4%). Women with episiotomy had significantly less perineal tearing of any kind than those without. The occurrence of any type of perineal tear and severe-degree (third- or fourth-degree) tear was significantly lower in primiparous women who had an episiotomy than those without ( $P < 0.05$ ). Women with episiotomy had increased mean blood loss at delivery but other complications were not significantly increased.

**Conclusions.** In Hong Kong, episiotomy is routinely performed during normal vaginal delivery. It is associated with a significantly lower overall rate of perineal tearing. This study was observational, nonetheless the occurrence of other complications was likely to increase when episiotomy was performed. Firm evidence from several randomised controlled studies shows that routine episiotomy is unjustified and possibly harmful. Routine episiotomy should not be promoted in Hong Kong without further randomised controlled study.

### Key words:

Delivery, obstetric;

Episiotomy;

Parity;

Perineum/injuries;

Pregnancy

### 關鍵詞：

分娩，產科；

外陰切開術；

經產狀況；

會陰／受傷；

懷孕

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**目的：**檢討在香港公立醫院中，為產婦陰道分娩時進行外陰切開術的情況。

**設計：**前瞻性觀察調查。

**安排：**公立醫院，香港。

**參與者：**懷單胞胎嬰兒並以頭產式及經陰道自然分娩的婦女。

**主要結果測量：**接受外陰切開術的產婦數字，以及統計出現嚴重（第三或第四程度）外陰撕裂或其他類型外陰撕裂，分娩時血液流失、產後溢血、輸血需求、產褥發熱、傷口感染、傷口裂開需要清拆縫合線、排放或重新縫合傷口的產婦數字。

**結果：**2003年1月1日至3月31日期間，共有6222名懷有單胞胎的產婦於香港公立醫院經陰道自然分娩。在可以掌握到會陰情況的6167名產婦中，有5274名（佔85.5%）接受了外陰切開術。首次分娩的婦女相比曾經分娩的婦女較常接受外陰切開術（97.9%比71.4%）。接受外陰切開術的產婦出現任何類型外陰撕裂的比率，明顯較沒有接受此手術的產婦為低，而首次分娩的產婦在手術後出現各種外陰撕裂或嚴重（第三或第四程度）外陰撕裂的情況都明顯較不接受手術的為低（ $P < 0.05$ ）。接受外陰切開術的產婦分娩時平均失血量較多，但其他併發症並沒有明顯增加。

**結論：**在香港，正常陰道分娩時都會進行外陰切開手術。這手術可明顯減低整體外陰撕裂的比率。雖然是次研究屬於觀察性質，但這手術出現併發症的情況有上升趨勢。來自多個隨機對照研究的證據都顯示，常規外陰切開術不但未能被證明為合理，而且甚至可能有害。在沒有更多隨機對照研究前，香港不應推廣常規的外陰切開術。

## Introduction

Episiotomy was first described by Ould in 1741<sup>1</sup> and was popularised by DeLee in the 1920s.<sup>2</sup> Despite little scientific support for its routine use, it continues to be a frequently performed obstetric procedure. Asian race (predominantly Chinese) is an established risk factor for third- and fourth-degree perineal tears during delivery.<sup>3,4</sup> It is thought that the perineum is smaller and tighter in Asians and that routine episiotomy may decrease the risk of perineal tear during delivery. Mediolateral episiotomy is usually preferred because of the risk of a third- or fourth-degree tear from the extension of a midline episiotomy.<sup>5</sup>

In a western population, restrictive episiotomy is associated with less posterior perineal trauma, less suturing, and less complications than routine episiotomy but more anterior perineal trauma.<sup>6</sup> A number of studies in western populations show that the less use of episiotomy is associated with a reduction in severe perineal laceration.<sup>7,8</sup> In view of the available evidence, it has been suggested that routine episiotomy should be abandoned: an episiotomy rate of more than 30% does not appear to be justified.<sup>9</sup> This survey conducted in Hong Kong public hospitals from January to March 2003 specifically examined the practice and effect of episiotomy.

## Methods

Data were extracted from the Specialty Clinical Information System (SCIS) for all deliveries in Hong Kong public hospitals between 1 January and 31 March 2003. Basic demographic data including the age and parity of the women were collected and the occurrence of episiotomy during delivery was recorded. Any complications arising from the episiotomy wound prior to discharge were entered into the SCIS. Data were manually collected if complications were detected following hospital discharge or if a woman required re-admission or was seen at the hospital: these data were matched with the data extracted from the SCIS.

Perineal tear indicates a posterior perineal tear and is used interchangeably in this report unless otherwise indicated. There are four degrees of perineal tear<sup>5,10</sup>:

- First degree: superficial injury to perineum involving skin only;
- Second degree: injury to the perineum involving perineal muscles but not involving the anal sphincter complex;
- Third degree: injury to the perineum involving the anal sphincter complex; and
- Fourth degree: injury to the perineum involving the anal sphincter complex and rectal mucosa.

Other types of tear in this report include anterior perineal tear and vaginal tear. Data were entered into both categories if a woman experienced both a posterior tear and other tear.

## Statistical analysis

Student's *t* test was used to analyse data for continuous variables. Chi squared test and Fisher's exact test were used for categorical data. A P value of less than 0.05 was considered statistically significant. Data were analysed using the Statistical Package for the Social Sciences (Windows version 10.0; SPSS Inc, Chicago [IL], US).

## Results

Between 1 January and 31 March 2003, 9085 deliveries were recorded in the public hospitals of Hong Kong (8984 singletons, 100 twins, and 1 triplet). Only singleton births were analysed because of the many confounding factors associated with multiple births. A total of 1938 patients delivered by Caesarean section and 14 patients who had abortions with foetuses weighing less than 500 g before 22 weeks of gestation (WHO definition) were excluded from analysis. Episiotomy is generally employed in vaginal breech deliveries and instrumental deliveries to facilitate delivery of the foetal head.<sup>5,11</sup> Patients who had vaginal breech deliveries (n=20), instrumental vaginal deliveries by forceps (n=88), and vacuum extraction (n=700) were therefore excluded from analysis. Mode of delivery was not recorded in two women. The remaining 6222 singleton spontaneous vaginal deliveries were analysed.

Perineal status was not recorded in 55 women. Of the 6167 women in whom the status of the perineum was known, episiotomy was performed in 5274 (85.5%) women, 893 (14.5%) women had no episiotomy. The episiotomy rate varied from 77.8% to 92.7% in different hospitals.

Of the 6222 singleton spontaneous vaginal deliveries, 6020 (96.8%) were of Chinese ethnics; 3312 were primiparous women and 2910 were multiparous. The status of perineum at delivery was not recorded in 28 (0.8%) primiparous and 27 (0.9%) multiparous women. Of the remaining 6167 women with the status of perineum known, 3215 (97.9%) primiparous and 2059 (71.4%) multiparous women had an episiotomy. Primiparous women were more likely to receive episiotomy at delivery ( $P<0.001$ ).

The mean age of women with episiotomy was 29.0 (standard deviation [SD], 0.14; range, 14-46) years, significantly younger than those without (mean age, 31.7; SD, 0.35; age range, 14-45 years) [Student's *t* test,  $P<0.05$ ]. The mean parity in women with episiotomy was 0.44 (SD, 0.02; range, 0-6) and in those without episiotomy 1.51 (SD, 0.04; range, 0-6). In this population, lower parity was associated with a higher episiotomy rate.

The presence or absence of any tear (including vaginal, anterior or posterior perineal tear) in women with and without episiotomy is summarised in Table 1. Women with episiotomy had significantly less tear (in any form) than those without ( $P<0.001$ ). Among the 5274 women with

**Table 1. Number of women with or without tears in relation to episiotomy**

	Episiotomy, n=5274 No. (%)	No episiotomy, n=893 No. (%)	Odds ratio for tears (95% CI)
No tear	5094 (96.6)	185 (20.7)	-
Any tear (all degrees of tears and other types of tear)*	180 (3.4)	708 (79.3)	0.009 (0.007-0.012) <sup>†</sup>
Other types of tear*	66 (1.3)	30 (3.4)	0.079 (0.049-0.127) <sup>‡</sup>

\* Comparison of the frequency of tears in relation to episiotomy, Chi squared test,  $P < 0.001$

<sup>†</sup> Significantly less tears favour the use of episiotomy

**Table 2. Number of primiparous women with or without tears in relation to episiotomy**

	Episiotomy, n=3215 No. (%)	No episiotomy, n=69 No. (%)	Odds ratio for tears (95% CI)
No tear	3072 (95.6)	19 (27.5)	-
Any tear (all degrees of tears and other tears)*	143 (4.4)	50 (72.5)	0.018 (0.01-0.031) <sup>†</sup>
Third- or fourth-degree tear <sup>‡</sup>	7 (0.2)	2 (2.9)	0.104 (0.021-0.506) <sup>‡</sup>

\* Comparison of the frequency of tears in relation to episiotomy, Chi squared test,  $P < 0.001$

<sup>†</sup> Comparison of the frequency of third- or fourth-degree tears in relation to episiotomy, Fisher's exact test,  $P = 0.027$

<sup>‡</sup> Significantly less tears favour the use of episiotomy

**Table 3. Number of multiparous women with or without tears in relation to episiotomy**

	Episiotomy, n=2059 No. (%)	No episiotomy, n=824 No. (%)	Odds ratio for tears (95% CI)
No tear	2022 (98.2)	166 (20.1)	-
Any tear (all degrees of tears and other tears)*	37 (1.8)	658 (79.9)	0.005 (0.003-0.007) <sup>†</sup>
Third- or fourth-degree tear <sup>‡</sup>	0	1 (0.1)	Not applicable

\* Comparison of the frequency of tears in relation to episiotomy, Chi squared test,  $P < 0.001$

<sup>†</sup> Comparison of the frequency of third- or fourth-degree tears in relation to episiotomy, Fisher's exact test,  $P = 0.292$

<sup>‡</sup> Significantly less tears favour the use of episiotomy

episiotomy, posterior perineal (first-, second-, third-, or fourth-degree) tears were noted in 119 (2.3%). Of these, six were third-degree tears and one was fourth-degree (5.9% of posterior perineal tear). Other types of tear occurred in 66 women (1.3% of all women with episiotomy). Among the 893 women without episiotomy at delivery, perineal tear was noted in 708 (79.3%). Most of these were first-degree tears (90.8%); three were third-degree tears (0.4% of all posterior perineal tear). There were 30 (3.4%) tears of other types. The rate of severe (third- or fourth-degree) tear was 0.1% in women with episiotomy and 0.3% in women without. The difference was not statistically significant ( $P = 0.3$ ). The percentage of other types of tear in the presence or absence of episiotomy varied from 0% to 4.5% and 0% to 13.6%, respectively between hospitals. It was significantly lower in women with episiotomy (1.3%) compared with those without (3.4%) [ $P < 0.001$ ; Table 1].

Women were further classified in two groups—primiparous and multiparous—and the effect of episiotomy was analysed. Of the 3284 primiparous women, 50 (72.5%) of 69 had tears (of any types) when episiotomy was not performed, and 143 (4.4%) of 3215 had tears in the presence of episiotomy ( $P < 0.001$ ) [Table 2]. In the presence of episiotomy, the rate of any type of perineal tear was lower (4.4%) compared with that in the absence of episiotomy (72.5%). In addition, the occurrence of severe tear (third- or fourth-degree) was significantly lower

in primiparous women with episiotomy compared with those without (0.2% compared with 2.9%;  $P < 0.05$ ) [Table 2]. A similar pattern of occurrence for all types of tear was evident in the 2883 multiparous women. When episiotomy was performed, 37 (1.8%) of 2059 women had tears of any type. Nonetheless 658 (79.9%) of 824 women had tears when episiotomy was not performed ( $P < 0.001$ ) [Table 3]. Unlike primiparous women, the use of episiotomy in multiparous women did not reduce the incidence of severe perineal tear ( $P = 0.292$ ).

Women with episiotomy had increased mean blood loss at delivery: 248.1 mL (standard error [SE], 4.3 mL) compared with 206.2 mL (SE, 23.2 mL) in those without ( $P < 0.001$ ). Other complications including perineal pain, bleeding, genital haematoma formation, postpartum haemorrhage, puerperal pyrexia, wound infection, gaping wound that required suture removal, and drainage or resuturing of perineal wound were not significantly increased in women with episiotomy. The distribution of these complications in women with and without episiotomy is shown in Table 4.

## Discussion

The routine use of episiotomy is being increasingly questioned and is no longer recommended by standard obstetric textbooks.<sup>12</sup> Episiotomy nevertheless remains one of the most commonly employed procedures in labour

**Table 4. Distribution of complications in women with and without episiotomy**

Complications	Episiotomy, n=5274 No. (%)	No episiotomy, n=893 No. (%)	P value
Primary postpartum haemorrhage	201 (3.8)	30 (3.4)	>0.05*
Genital haematoma	10 (0.2)	1 (0.1)	>0.05†
Bleeding from wound	6 (0.1)	0	>0.05†
Puerperal pyrexia	119 (2.3)	10 (1.1)	>0.05*
Gaping wound	30 (0.6)	0	>0.05†
Wound infection	12 (0.2)	1 (0.1)	>0.05†
Incision and drainage	12 (0.2)	1 (0.1)	>0.05†
Resuturing	14 (0.3)	0	>0.05†
Mean blood loss (SE) [mL]	248.1 (4.3)	206.2 (23.1)	<0.001‡

\* Chi squared test

† Fisher's exact test

‡ Student's *t* test, two-tailed, equal variance not assumed

wards in Hong Kong. It is performed in 97.9% of primiparous women and 71.4% of multiparous women, an overall rate of 85.5%. Our episiotomy rate was far higher than that supported by scientific evidence and other trials.<sup>6,13,14</sup>

Studies from western countries suggest that routine episiotomy is unnecessary since it does not decrease the occurrence of posterior perineal tear.<sup>6</sup> There is also no evidence that routine episiotomy benefits pelvic floor muscle tone, urine or faecal incontinence, or intrapartum foetal morbidity.<sup>15-17</sup> In the present survey, women with episiotomy had significantly fewer tears than those without (overall reduction from 79% to 6%). The associated lower rate of tear was mainly from the posterior tear of milder (first- and second-) degrees and other types of tear (anterior perineal and vaginal). There was no significant decrease in severe perineal tear (0.1% with episiotomy vs 0.3% without). Episiotomy was nonetheless associated with a significantly lower rate of severe (third- or fourth-) degree perineal tear from 2.9% to 0.2% in primiparous women.

The main concern about routine episiotomy in our population is the possible complications. Although not statistically significant, there was an increase in the occurrence of some complications associated with the use of episiotomy. This study was observational. Thus the results may reassure obstetricians about the use of episiotomy in our population, nonetheless routine episiotomy even in primiparous women should not be recommended. Little information was available to explain why episiotomy was or was not performed, and women with routine episiotomy were not compared with those with restrictive episiotomy. The 'other types of tear' in this survey included anterior perineal tear and vaginal tear but severity was not coded in the database. The tears could have ranged from unsutured minor lacerations to extensive sulcus tears. The percentage of other types of tear in the presence and absence of episiotomy varied from 0 to 4.5% and 0 to 13.6%, respectively. This variation may be due to variation in reporting among hospitals. Although this survey identified an association between episiotomy and a lower rate of perineal tears, it should not be considered definitive or causative since these results contradict those of other randomised trials and meta-analyses.<sup>6,14,18</sup>

The increase in the occurrence of various complications, though not statistically significant, should give cause for concern and the liberal use of episiotomy should be restricted. This survey did not provide long-term follow-up data, thus some chronic complications that may only become evident much later on (eg pain, dyspareunia) would not have been identified.

The high episiotomy rate in this survey presumes that episiotomy is beneficial yet a deliberate first- or second-degree tear. The decision to perform episiotomy should be judicious. Recent reviews have conclusively determined that routine episiotomy should be abandoned and its appropriateness determined on an individual patient basis.<sup>6,9,14,18</sup> Episiotomy should not be promoted as routine practice in an Asian population without further randomised controlled study.

## Conclusions

The high episiotomy rate in this survey suggests that the procedure is considered routine. Its use is associated with a significantly lower rate of perineal tears overall and a significantly lower rate of severe (third- and fourth-degree) posterior perineal tears in primiparous women. Nonetheless there is an increase in the occurrence of complications. Routine episiotomy is now established to be unjustified and possibly harmful. Further randomised controlled studies should be conducted in Hong Kong before any recommendations can be made for our local population.

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