

Randomised Controlled Trial of Perineal Shaving versus Hair Cutting in Parturients on Admission in Labor

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Objectives: To compare the maternal and neonatal outcomes between perineal shaving and hair cutting in parturients on admission in labor.

Material and Method: Five hundred pregnant women with labor pain and no medical or obstetric complications were selected at random on admission to be assigned into two groups at Rajavithi Hospital from 1st November 2001 to 28th February 2002. Forty two women were excluded because of cesarean section. Two hundred and twenty-seven cases received perineal hair cutting and 231 cases received perineal shaving.

Results: The gestational age at delivery was statistically significant difference between those receiving perineal hair cutting (39.4 week) comparing with those receiving perineal shaving (39.1 week) ($p < 0.05$). There was no statistically significant difference in 2 groups for puerperal morbidity, perineal wound infection and dehiscence. There were no neonatal infection and puerperal infection in both groups, where as both accoucheurs and perineorrhaphy operators were more satisfied the perineal shaving group than the cutting group ($p < 0.001$).

Conclusion: Perineal shaving or hair cutting on admission in labor had no statistical significant difference effect on the perineal wound infection and dehiscence, neonatal infection, puerperal morbidity and infection.

Keywords: perineal shaving, perineal hair cutting, perineal wound infection and puerperal infection.

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Removal of the perineal hair was not mentioned in the birth preparation until a century ago. Clipping the hair was the earlier recommended method than the shaving⁽¹⁾. Even though benefit of predelivery perineal hair shaving such as: cleanliness, easier to repair the perineum had been mentioned, but there were many disadvantages for the parturients such as: multiple abrasions and itching from the hair regrowth⁽²⁾. There were only a few previous comparative studies between the effect of perineal hair shaving and cutting on admission in labor on the maternal and neonatal aspects⁽²⁻⁴⁾.

There were many questions when the authors started the present study. "Why do we want to do this trial?", was one of the most frequent questions, asked because Basavi and Lavender⁽⁵⁾ concluded in the Cochrane review that there was insufficient informa-

tion to recommend perineal shaving for women on admission in labor. The authors answered that there were only two studies in their reviews and there was some unclear information about methodology and only postpartum maternal febrile morbidity and perineal colonization were mentioned as the main outcome measurements in these studies^(2,3). The study by Meiland et al⁽⁴⁾ also reported only episiotomy wound infection. So the authors designed a better randomized controlled trial to evaluate the exact maternal and neonatal outcomes between the perineal shaving and the hair cutting group on admission in labor.

Material and Method

The present study recruited 500 pregnant women who were admitted in the labor room of Rajavithi Hospital between 1st November 2001 and 28th February 2002. The cases with the following criteria for enrollment were: term pregnancy (gestational age of 37-42 weeks) true labor pain, singleton, cephalic

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presentation and living fetus. Those with medical or obstetric complications such as premature rupture of membranes and anti-HIV seropositive, having been treated with antibiotics within 7 days of admission, birth canal or anal infection were excluded. The hospital's ethics committee approved the study and written informed consent was obtained from the patients. The pregnant women were randomly allocated to receive either perineal shaving or perineal hair cutting using a series of sealed sequentially numbered, envelopes that had been prepared by using a published table of random. Those without contraindications received unison enema as a routine procedure in Rajavithi Hospital. The authors cut the perineal hair down to 0.5 cm above the skin in the perineal hair cutting group and shaved the perineal hair in the shaving group. Throughout the delivery, all patients were attended by nurses, externs and obstetrics-gynecology residents. Just before the delivery, the perineal region was scrubbed with 4% chlorohexidine scrub and rinsed with savlon solution (1:100). The episiotomy wounds were repaired either by externs or residents under the supervision of the senior residents. The authors discharged the uneventful intra- and postpartum cases on the 4th day of postpartum. If there was a perineal wound disruption or puerperal infection, the authors would perform pelvic examination and take wound and cervical swab culture for sensitivity and give her antibiotics. These patients were scheduled to return in one week for a follow-up evaluation and then 6 weeks for postpartum check up. The other normal patients were scheduled to return in six weeks for a postpartum check up. The main outcome measures were maternal complications such as: perineal wound infection, puerperal morbidity, puerperal infection, and neonatal infection, satisfaction of the patients and, accoucheurs and perineorrhaphy operators. From the literature review, the authors found that Meiland et al's⁽⁴⁾ study was similar to the present study. They reported that the perineal wound infection rate in the pubic shaving and hair cutting groups were 15% and 5%, respectively. The estimation of the sample size was using the formula⁽⁶⁾.

$$N = \frac{2pq(Z\alpha/2 + Z\beta)^2}{(pc-pt)^2}$$

N = Number of appropriated sample in each group
pc = Ratio of perineal wound infection in pubic shaving group = 0.15
pt = Ratio of perineal wound infection in hair cutting

group = 0.05
p = 1/2 (pc - pt) = 0.1
q = 1 - p = 0.9
Type I error (α), Type II error (β)
Z $\alpha/2$ = Standard value from Table Z at confidence level = 1.96
Z β = standard value from Table Z at power of test = 0.84

$$N = \frac{2pq(Z\alpha/2 + Z\beta)^2}{(pc-pt)^2}$$

$$N = \frac{2 \times 0.1 \times 0.9 (1.96 + 1.28)^2}{(0.15 - 0.05)^2}$$

= 188.96 cases

10% was added to the number calculated in case withdrawn or lost to follow-up. The total numbers in each group was 208 cases with 80% power of the test.

Definition

1. Perineal wound infection⁽⁷⁾: pain and erythema of the surgical margins of perineal or episiotomy wound with or without serous or purulent discharge

2. Puerperal morbidity⁽⁸⁾: temperature 38.0 C (100.4 F) or higher, arising on any 2 of the first 10 days postpartum exclusive of the first 24 hours, and to be taken by mouth at least four times daily.

3. Puerperal infection⁽⁸⁾: infection actually involves not only the decidua but also the myometrium and parametrial tissues after delivery

4. Satisfaction⁽⁹⁾: Likert scales were used to measure a person's intensity of satisfaction. There were 5 degrees such as: 5, excellent; 4, good; 3, average; 2, fair and 1, poor.

The data were analyzed by using Chi-square test (χ^2), unpaired T-test and Fisher-exact test. The level of statistical significance was noted at $p < 0.05$. All data were collected and analyzed by using the computer program SPSS/PC⁺ and: Epi - Info version 6.

Results

Five hundred pregnant women were initially enrolled in the present study: 249 cases in the shaving group and 251 cases in the cutting group. Forty two parturients who delivered by cesarean section were excluded. Thus, the first group consisted of 227 cases

with perineal hair cutting and the second group consisted of 231 cases with perineal hair shaving. Obstetric characteristics are shown in Table 1. Normal labor was the most common route of delivery in both groups. Only gestational age was statistically significant difference between the groups ($p < 0.05$).

Table 2 shows the maternal and neonatal complications. All of the wound infections and wound dehiscences were episiotomy wounds. No puerperal or neonatal infection were seen in the present study. There was no statistically significant difference in all maternal and neonatal complications.

The satisfaction of parturients between perineal hair cutting and shaving groups was not significantly different (Table 3). Whereas, the satisfaction of the accoucheurs and perineorrhaphy operators in the shaving preparation group were much more than the cutting group ($p < 0.001$).

Discussion

In the present study, systematic randomized controlled method, large number of participants and completed evaluation of both maternal and neonatal outcomes were the more dominant points over the other

Table 1. Obstetric characteristics (n = 458)

Delivery Data	Hair cutting (n = 227) (X ± SD)	Shaving (n = 231) (X ± SD)	p-value
1. Age (years)	24.6±5.5	24.8±5.6	0.767
2. Gestational age (weeks)	39.4±1.8	39.1±1.6	0.034*
3. Duration of labor (minutes)	443.7±183.5	430.7±117.6	0.960
4. Blood loss (ml)	229.5±117.6	234.6±117.3	0.403
5. Vaginal delivery			0.599
5.1 Normal labor	215 (94.7%)	214 (92.6%)	
5.2 Forceps extraction	10 (4.4%)	13 (5.6%)	
5.3 Vacuum extraction	2 (0.9%)	4 (1.7%)	

* = Statistically significant difference by unpaired t-test ($p < 0.05$)

Table 2. Maternal and neonatal complications (n = 458)

Complication	Hair cutting (n = 227)	Shaving (n = 231)	p-value
Perineal wound infection	16 (7.1%)	24 (10.4%)	0.205**
Perineal wound dehiscence	1 (0.5%)	0	0.496***
Puerperal morbidity	4 (1.8%)	2 (0.9%)	0.446***
Puerperal infection	0	0	NA
Neonatal infection	0	0	NA

NA = Not available

** = No significant difference by Chi-square test

*** = No significant difference by Fisher-exact test

Table 3. Satisfaction level of parturients, accoucheurs and perineorrhaphy operators on perineal hair-removal methods: Likert scales (n = 458)

Satisfaction	Hair cutting (n = 227) (X ± SD)	Shaving (n = 231) (X ± SD)	p-value
Parturients	3.8±0.7	3.8±0.7	0.438
Accoucheurs	3.4±0.7	4.3±0.6	<0.001*
Perineorrhaphy operators	3.7±0.6	4.1±0.6	<0.001*

* = Statistically significant difference by unpaired t-test

studies. A quite good randomization in both groups was achieved as indicated by similarity of the obstetric characteristics except the gestational age. However, if the authors were to consider the mean gestational age difference between the groups (0.30 week), the authors could assume that there was probably no clinical significance because of the very small value difference. Even though there was no statistical significant difference of the perineal wound infection between the groups, the present study revealed the infection rate in the shaving group to be 10.4% higher than that in the cutting group (7.1%). Meiland et al⁽⁴⁾, whose study design was similar to the present study, found that there was statistically significant difference in the infection rate in the shaving group (15%) compared with those in the cutting group (5%), ($p < 0.05$). The authors do not know exactly why there was no significant difference in perineal wound infection between the groups in the present study. However, the authors suggested that the larger sample size (458 cases vs 210 cases), criteria for diagnosis, duration of labor and different race may be of relevance in explaining their differences. The puerperal morbidity was not statistically significant difference between both groups as in the study of Kantor et al⁽²⁾, Johnson and Sidall⁽³⁾. What was the best between both methods when there was no statistically significant difference in maternal and neonatal complications between the two groups? The authors proposed that these following factors should be considered for further study such as; skin trauma, the satisfactions of parturients and medical staff, itching during the period of hair regrowth in the shaving group and cost of both methods. Shaving by razor can create cutaneous microlaceration that leads to colonization with microorganism⁽⁵⁾. Kantor et al⁽²⁾ confirmed this concept and reported that fewer women who had been cut had Gram- negative bacterial colonization compared with women who had been shaved even though these difference was not significant. The authors did not count and collect these kinds of skin trauma because such microlacerations could not be seen by naked eye.

The satisfaction of parturients of both methods were similar in the present study. The authors evaluated the satisfaction immediately after perineal repair had finished. Timing of evaluation of the satisfaction of the parturients should be a factor influencing the similar result in both groups because itching from the hair regrowth was a late complication. At that time, some parturients were so tired after the first and second stage of labor, that they did not seriously pay

attention to our questions. Then if the authors inquired six weeks later in the postpartum clinic their satisfaction should probably be altered especially in the shaving group. Seropian and Reynolds⁽¹⁰⁾ reported similar results but they studied preoperative skin preparation in several kinds of operation. The satisfaction of both accoucheurs and perineorrhaphy operators were significantly higher in the shaving method compared to the cutting method ($p < 0.001$, both). The authors thought that the convenience of the accoucheurs and perineorrhaphy operators may be the reason of these significant differences of satisfaction. They were accustomed to the shaved perineum because perineal shaving has been the routine procedure in Rajavithi Hospital for a long time before the period of the study. The lack of statistical significant difference in neonatal and maternal complications such as perineal wound dehiscence, puerperal morbidity and infection between shaving or cutting methods may simply be due to the small sample size because the prevalence of these events was lower than the perineal wound infection. The sample size was calculated using the perineal wound infection only. The cost of the methods including price of disposable razors, soap in the shaving method and price of scissors and cost of sterilization in the cutting method should be analyzed using health economic technique such as cost effectiveness. The authors did not collect and analyze these aspects in the present study. Nowadays, the patient's right is an important issue in medical treatment. All the patients should be counseled about risk and benefit of both the shaving or cutting method in the process of preparation for delivery and then they chose themselves the preferred method after good consideration. The medical staff should perform either shaving or cutting method depending on the patients' decision. So it was difficult to conclude what was the best between shaving and cutting method from this trial because there was limitation in analysis of some aspects such as cost and satisfactions of parturients in the late postpartum period.

Conclusion

Perineal shaving or hair cutting in parturients on admission in labor had no statistical significant different effects on the perineal wound infection and dehiscence, neonatal infection, puerperal morbidity and infection. The satisfaction of both accoucheurs and perineorrhaphy operators were significantly higher in the perineal shaving than in the cutting group ($p < 0.001$).

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การโกนหรือตัดขนบริเวณอวัยวะเพศเพื่อเตรียมการคลอดในสตรีตั้งครรภ์ที่เจ็บครรภ์คลอด

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วัตถุประสงค์: เพื่อเปรียบเทียบผลที่เกิดแก่ทารกและสตรีตั้งครรภ์ที่เจ็บครรภ์คลอดได้รับการโกนขนหรือตัดขนบริเวณอวัยวะเพศเพื่อเตรียมการคลอด

วัสดุและวิธีการ: สตรีตั้งครรภ์ที่เจ็บครรภ์และไม่มีภาวะแทรกซ้อนทางอายุรกรรมและสูติกรรมที่มาคลอดที่โรงพยาบาลราชวิถี ระหว่างวันที่ 1 พฤศจิกายน พ.ศ. 2544 ถึง 28 กุมภาพันธ์ พ.ศ. 2545 ได้รับการคัดเลือกเข้ามาในการศึกษานี้ 500 คน หลังจากได้ตัดผู้ที่ได้รับการผ่าตัดคลอดทางหน้าท้อง 42 คน คงเหลือ สตรีที่อยู่ในกลุ่มที่ 1 ซึ่งได้รับการตัดขนบริเวณอวัยวะเพศจำนวน 227 คน และ กลุ่มที่ 2 ซึ่งได้รับการโกนขนบริเวณอวัยวะเพศ จำนวน 231 คน

ผลการศึกษา: อายุครรภ์ขณะคลอดในกลุ่มที่ตัดขน (39.4 สัปดาห์) มากกว่าในกลุ่มที่โกนขน (39.1 สัปดาห์) อย่างมีนัยสำคัญทางสถิติ ($p < 0.05$) แต่ไม่มีความแตกต่างอย่างมีนัยสำคัญในอัตราการติดเชื้อ ของแผลฝีเย็บ แผลฝีเย็บแยก และ puerperal morbidity ระหว่าง 2 กลุ่ม ไม่มีทารกติดเชื้อ และภาวะติดเชื้อหลังคลอดในทั้ง 2 กลุ่ม ผู้ทำคลอดและผู้เย็บแผลมีระดับความพึงพอใจต่อวิธีการโกนมากกว่าวิธีการตัดขนบริเวณอวัยวะเพศอย่างมีนัยสำคัญ ($p < 0.001$)

สรุป: ไม่มีความแตกต่างอย่างมีนัยสำคัญทางสถิติในอัตราการติดเชื้อแผลฝีเย็บ แผลแยก การติดเชื้อในทารกแรกเกิด ภาวะ puerperal morbidity และการติดเชื้อหลังคลอดในสตรีตั้งครรภ์ที่ได้รับการโกนขนหรือตัดขนบริเวณอวัยวะเพศเพื่อเตรียมการคลอด