Obstetric Hysterectomy: A 14-Year Experience of Rajavithi Hospital 1989-2002

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Objectives: *To review and compare the incidence rate of obstetric hysterectomised patients between two seven-year periods. The periods were from October 1, 1988 to September 30, 1995 and from October 1st, 1995 to September 30th, 2002. The data included demographic characteristics, indications, possible risk factors, complications, and operative managements.*

Material and Method: *Retrospective analysis of the data that was collected from medical and labor records of the obstetric hysterectomised patients from October 1, 1995 to September 30, 2002, the second seven-year period, compared with those in Pratumthong and Wattanaruangkowit's study from October 1, 1988 to September 30, 1995, the first seven-year period.*

Results: *Between 1998 and 2002, there were 201, 696 total deliveries with 111 obstetric hysterectomies. A significant increase in the average incidence rate of hysterectomy from 0.42 to 0.76/1,000 deliveries and maternal age, placenta previa and blood transfusion in the second period compared with the first period ($p < 0.05$). Postoperative complications and the other risk factors of obstetric hysterectomy were not significant difference.*

Conclusion: *The present study of obstetric hysterectomy demonstrates a significant increase in the incidence of hysterectomised rate, maternal age, blood transfusion, and placenta previa in the second period compared with the first period.*

Keywords: *Obstetric hysterectomy, Incidence, Complication, Rajavithi Hospital*

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Obstetric, including cesarean and postpartum hysterectomy is an uncommon but important obstetric operation. It is very often associated with a relatively high morbidity and mortality rate, especially when performed under emergency life-threatening situations. Rajavithi Hospital is the biggest tertiary center of Ministry of Public Health in Bangkok, Thailand. The hospital carries out about 10,000 deliveries per year and has a 3-year training program for its 36 obstetric-gynecological residents. In 1998, Prathumthong and Wattanaruangkowit[1] reported the incidence rate of obstetric hysterectomy in Rajavithi Hospital from October 1, 1988 to September 30, 1995, a seven-year period, was 0.42/1,000 deliveries. The purpose of the present study was to review the obstetric hysterectomy in Rajavithi Hospital from October 1, 1995 to September 30, 2002, another seven-year period, and to compare the data with the previous study including demographic characteristics, indications, possible risk factors, and complications.

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Material and Method

Retrospective analysis of the data was carried out on medical and labor records of patients with the following criteria such as gestational age of 28 weeks or more, cesarean hysterectomy (elective/emergency) or hysterectomy within the first 24 hr postpartum between October 1, 1988 and September 30, 2003. Each year started from October 1, through September 30 of the following year such as year 1989 = October 1, 1988 to September 30, 1989.

For comparison, the data was divided into two periods, both seven years. The first period was from

year 1989 to 1995, while the second period was from 1996 to 2002. The data reported by Pathumthong and Wattanaruangkowit[1] were used for the result of the first seven-year (1989-1995). Statistical analysis of the data was performed by mean ± SD using student-t-test and Chi-square test. Fisher's exact test was used where appropriate to compare between the two periods. A p-value < 0.05 was considered significant.

Results

From October 1, 1988 to September 30, 2003, there were 201,696 deliveries and 111 obstetric hysterectomies (0.55/1,000 deliveries). The detail of annual hysterectomised case and cesarean section rates are shown in Table 1. In the second seven-year period, there was a significantly higher rate of obstetric hysterectomy and cesarean section compared with the first seven-year period ($p < 0.05$). Table 2 shows a comparison of demographic data and operative parameters of patients who had a hysterectomy. Maternal age, birth weight, and blood transfusion showed a significant difference between the two groups ($p < 0.05$). Most obstetric hysterectomies occurred during cesarean section in both groups (75.5 and 62.9% respectively). Uterine atony was the most common indication (42.8 and 46.8%), followed by abnormal sites of placenta with uncontrolled hemorrhage (40.8 and 33.8% in the first and second periods, respectively). There were only two elective hysterectomies (4.08%) in the first period, one for myoma uteri and the other for carcinoma of the cervix. No elective hysterectomy was performed during the second period.

Risk factors of obstetric hysterectomy are shown in Table 3. Placenta previa was the only significant higher risk factor in the second period compared with the first period (24.1 and 8.5%, respectively) ($p = 0.02$). Table 4 shows the comparison of complications of hysterectomy. There were no significant differences between the two groups. There were two deaths in each study. In the first period, the cause of death was from hypovolemic shock (ruptured uterus and uterine atony). In the second period, the first death was from hypovolemic shock, caused by ruptured uterus and the other from congestive heart failure (underlying heart disease) and hypovolemic shock from uterine atony during cesarean delivery.

Discussion

A marked increase in obstetric hysterectomy is demonstrated by an increase from 0.42/1,000 deli-

Table 1. Obstetric hysterectomy, Rajavithi Hospital 1989-2002

Years	Deliveries	CS-rate (%)	Hysterectomiged Cases	Rate per 1,000 deliveries
1989	17,132	17.01	5	0.29
1990	17,309	18.65	4	0.23
1991	18,466	18.45	3	0.16
1992	16,726	18.24	4	0.24
1993	15,814	18.86	6	0.38
1994	15,817	18.85	12	0.76
1995	16,780	19.54	15	0.89
Total of 1st 7 year	118,044	18.52	49	0.42
1996	15,490	20.52	14	0.90
1997	14,615	20.59	6	0.41
1998	12,607	22.42	11	0.87
1999	10,623	23.71	5	0.47
2000	10,716	24.05	6	0.56
2001	10,129	24.57	8	0.79
2002	9,472	25.80	12	1.27
Total of 2nd 7 year	83,652	22.76	62	0.74
Total of 14 year	201,696	20.28	111	0.55

CS = Cesarean section

Table 2. Comparision of demographic data and operative parameter of paturients with hysterectomy, 1989-1995 and 1996-2002

Data	1989-1995 (mean ± SD)	1996-2002 (mean ± SD)	p-value
1. Maternal age (yr)	31.61 ± 6.20	37.42 ± 5.69	0.000001*
2. Parity	1.4 ± 0.80	1.30 ± 0.9	0.5
3. Gravida	2.65 ± 1.27	2.83 ± 1.07	0.6
4. Gestational age (wk) at delivery	38.21 ± 2.58	37.57 ± 3.40	0.2
5. Number of ANC	5.95 ± 3.63	7.10 ± 4.15	0.12
6. Mean birth weight (gm)	3,203 ± 762.23	2,809.9 ± 777.34	0.008*
7. Operative time (min)	177.81 ± 48.5	174.68 ± 52.16	0.75
8. Estimated blood loss (ml)	2,950 ± 2,225	3,368.18 ± 1,717.75	0.2
9. Bood transfusion (unit)	4.60 ± 3.26	6.17 ± 3.2	0.01*
10. Hospital stay (day)	8.79 ± 3.58	9.89 ± 6.53	0.29

* = Significant difference by Student t-test
ANC = Antenatal care attendance

Table 3. Comparison of risk factors of obstetric hysterectomy, 1989-1995 and 1996-2002

Indiaction	1989-1995 No of cases (%)	1996-2002 No of cases (%)	p-value
1. Cesarean delivery	37 (78.7)	48 (77.4)	0.81
2. Uterine atomy	21 (44.7)	29 (46.7)	0.68
3. Previous cesarean delivery	13 (27.7)	19 (30.6)	0.63
4. Abnomal sites of placenta			
- placenta previa	4 (8.51)	15 (24.1)	0.02*
- placenta accreta	2 (4.26)	6 (9.68)	0.45
- placenta increta	3 (6.38)	11 (17.76)	0.06
- placenta percreta	2 (4.26)	3 (4.84)	0.78

* = Significant difference
(Some cases had more than one risk factor)

Table 4. Comparison of complication of obstetric hysterectomy, 1989-1995 and 1996-2002

Complication	1989-1995 No of cases (%)	1996-2002 No of cases (%)	p-value
1. Urinary tract injury	4 (8.16)	3 (4.84)	0.83
2. Death	2 (4.08)	2 (3.22)	0.79
3. DIC	1 (2.04)	2 (3.22)	0.83
4. Shock	0	4 (6.44)	0.12
5. Acute renal failure	0	2 (3.22)	0.50
6. Post op fever	0	2 (3.22)	0.50
7. Bowel injury	1 (2.04)	0	0.44
8. Vaginal cuff bleeding	3 (8.16)	0	0.08
9. Pulmonary complications	2 (4.08)	0	0.19
10. Heart failure	0	1 (1.61)	0.99
11. Sepsis	1 (2.04)	0	0.44

(Some cases had more than one complication)
DIC = Disseminated intravascular Coagulopathy

veries in the first seven-year period to 0.74/1,000 deliveries in the second seven-year period. Even though the number of total deliveries decreased from 118,044 in the first period to 83,652 in the second, the incidence of cesarean delivery and obstetric hysterectomy was significantly increased from 18.5% to 22.7% in the first and second periods, respectively. Several factors such as increasing number of complicated referring cases, previous cesarean section cases should be one of the causes that increased the cesarean section rate.

It was suggested that the significant increasing rate of cesarean section might be relevant in explaining the increasing rate of obstetric hysterectomy, as most cases were intrapartum hysterectomy (75.5 and 62.9%, respectively). Uterine atony being the most common indication for hysterectomy was 44.7% and 46.7% in the first and second period, respectively. This correlates well with the study of Zorlu et al[2] and Suchartwatnachai et al[3] (41.9% and 29.5%, respectively).

The significant increase in blood transfusions from 4.60 to 6.17 units per case showed the severity of increasing severity of blood loss in spite of the non significant increasing number of estimated blood loss(EBL) from 2,950 to 3,368 ml. in the first and second period, respectively. However, the high EBL may be one of the reasons for hysterectomy as it was mainly affected by the time delay for conservative measures to be implemented before hysterectomy could be performed.

The significant increase in placenta previa from 8.5% in the first period to 24% in the second period may explain the increased volume of EBL and significant increase in blood transfusion. These significant higher rates of placenta previa in the second period, compared with the first period, is one of the reasons for the continued increased rate of obstetric hysterectomy as abnormal placental adherence is frequently associated with severe and uncontrollable hemorrhage[4]. Read et al [5] reported that placenta accreta is one of the common occurrences associated with placenta previa. The increased risk of subsequent placenta previa in cases of previous lower segment cesarean section have been reported due to a predilection for implantation over the uterine scar[6].

One of the common indications for cesarean section is a previous cesarean section. An increasing number of cesarean sections lead to an increasing number of previous cesarean sections, placenta previa, abnormal placenta adherence and finally obstetric hysterectomy.

Plauch et al[7] and Gonsoulin et al[8] reported a higher number of elective versus emergency cesarean hysterectomy (82.9% vs 17.1% and 86.2% vs 13.8% respectively). They also showed better results of elective compared to emergency cesarean hysterectomy such as, estimated and excessive blood loss, blood transfusion, operative time and febrile morbidity. However, a higher incidence of urinary tract injury was reported in the elective compared with emergency cesarean hysterectomy[7].

After exploring in detail the indications for cesarean hysterectomy many elective cases had only relative not absolute indications for cesarean hysterectomy such as, undesired fertility and history of dysmenorrhea and menorrhagia (45%)[8] and sterilization 46.3%[7]. Suchartwatnachai et al[3] in Thailand and Sturdee and Rushton[4] in Great Britain reported the same higher emergency compared with elective cesarean hysterectomy (74.5% vs 25.5% and 80.92% vs 9.08%, respectively) as the present study (95.82% vs 4.08% and 100% vs 0% in the first and second period, respectively).

Although the Rajavithi Hospital has a similar residency training program to that of Gonsoulin's, the Rajavithi Hospital had a lower elective cesarean hysterectomy rate compared with the Gonsoulin's. This reflects the Rajavithi's strict criteria for performing an elective cesarean hysterectomy. Therefore, elective cesarean hysterectomy at the Rajavithi Hospital should be limited to cases with an absolute and strong indication for hysterectomy only.

Several studies[3,4,8,9] reported no maternal death from obstetric hysterectomy but some reported maternal deaths in their studies varying form 1-5.1% [10-12]. Maternal deaths in the present study, in both periods (3.2% and 4.0%, respectively) was comparable with those studies where the causes of death were hypovolemic shock, amniotic fluid embolism, uremia, endotoxic shock and pulmonary embolism. Hypovolemic shock was the most common cause of death in both periods of the present study. It was suggested that most of them could have been prevented.

In conclusion, there was a significant increase in the incidence rate of obstetric hysterectomy, maternal age, blood transfusion and placenta previa in the second period (1996-2002) compared with the first period (1989-1995).

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การตัดมดลูกด้วยข้อบ่งชี้จากการคลอดบุตร: ประสบการณ์ 14 ปี ในโรงพยาบาลราชวิถี (2532-2545)

เอกชัย โควาวิสารัช

วัตถุประสงค์*: เพื่อเปรียบเทียบผู้คลอดที่ได้รับการตัดมดลูกทางสูติศาสตร์ ได้แก่ ลักษณะประชากรศาสตร์, ข้อบ่งชี้, ปัจจัยเสี่ยงที่น่าจะเป็น และภาวะแทรกซ้อน ระหว่าง 2 ช่วงเวลา ๆ ละ 7 ปี เริ่มตั้งแต่ 1 ตุลาคม พ.ศ. 2532 ถึง 30 กันยายน พ.ศ. 2545*

วัสดุและวิธีการ*: เก็บข้อมูลย้อนหลังจากเวชระเบียนและใบย่อคลอดของประชากรทั้ง 2 กลุ่มมาวิเคราะห์*

ผลการศึกษา*: ระหว่างปี พ.ศ. 2532 - พ.ศ. 2545 มีการคลอดทั้งหมด 201,696 ราย โดยมีการตัดมดลูกทางสูติศาสตร์ 111 ราย อัตราอุบัติการณ์เพิ่มขึ้นจาก 0.42 เป็น 0.76/1,000 การคลอด, อายุมารดา, การให้เลือด และรกเกาะต่ำ พบในช่วงที่ 2 มากกว่าช่วงที่ 1 อย่างมีนัยสำคัญ ($p < 0.05$) ส่วนภาวะแทรกซ้อนและปัจจัยเสี่ยงอื่น ๆ ของการตัดมดลูกทางสูติศาสตร์ ทั้ง 2 ช่วงไม่มีความแตกต่างกัน*

สรุป*: การศึกษาเรื่อง การตัดมดลูกทางสูติศาสตร์ นี้ พบว่า มีอัตราอุบัติการณ์ของการตัดมดลูกทางสูติศาสตร์เพิ่มขึ้น, อายุของมารดา, เลือดที่ให้และภาวะ รกเกาะต่ำเพิ่มขึ้น ในช่วงที่ 2 มากกว่าช่วงที่ 1 อย่างมีนัยสำคัญ*
