

Emergency Peripartum hysterectomy

A review of the current literature

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ABSTRACT

Emergency peripartum hysterectomy (EPH) is one of the most risky operations performed in modern-day obstetrics¹. This review aims to illustrate international trends in crude rates, indications, and the risk factors for EPH across several centres worldwide.

Rates of EPH have remained stable over time, and are reported at between 0.3 and 2.7 per 1000. The only centre which has reported data in two time periods noted no significant change in rates over time.

The main indication for EPH has changed over time from uterine atony to uncontrolled placental site haemorrhage. This has been attributed to the rising rate of caesarean section. The main risk factors for EPH are abnormal placentation, previous caesarean delivery and uterine curettage, increasing parity, and possibly caesarean section as the current mode of delivery.

Studies looking at differences in outcomes found no distinction between women who underwent subtotal hysterectomy and those who underwent total hysterectomy, although it is not clear why a decision for subtotal hysterectomy was made. Overall morbidity remains high at around 50% for the majority of the studies. Mortality is rare.

The consensus of studies supports further use of conservative management to preserve the uterus.

KEYWORDS

Peripartum hysterectomy; maternal foetal medicine; emergency obstetrics; epidemiology

INTRODUCTION

Emergency peripartum hysterectomy (EPH) is a potentially life-saving

procedure, usually performed when conservative measures to control haemorrhage have failed. EPH carries significant risks of mortality and clinically significant morbidity. It is one of the highest risk procedures performed in modern-day obstetrics.¹

This review is a summary of international trends in EPH from the current literature. It compares crude rates, indications, and the risk factors for EPH across several centres worldwide.

Definition of EPH

EPH is defined as hysterectomy performed either at the time of delivery or in the immediate postpartum period, due to complications arising from the delivery.²⁻⁵ Hysterectomy planned prior to delivery is not considered EPH^{4,6-7}. Studies have used varying definitions of the peripartum period; the majority define the immediate post-partum period as up to 24 hours after delivery.^{3,6,8-13} The majority of studies excluded cases where the gestation of the pregnancy was under 28 weeks.^{3,8,11,14}

Rates of EPH

Rates of EPH are under three per cent of the population at risk in reviewed papers after 1992. However, most current series reported a rate of 0.3-0.7 per cent.^{2-4,8,10,12-13,15} Table 1 shows a range of rates of EPH across different countries from the largest studies reviewed.^{2-5,8-11,15-19}

There are no appreciable differences between rates of EPH in developed nations and developing ones.^{14,18-19} However, there were fluctuations in rates even within the same country.^{9,11}

Many studies were performed at secondary and tertiary centres,^{3,6,10,14,18-20} and did not include in their denominator, the number of deliveries in centres from which there were transfers. In one study, 14 such transfers accounted for 28.7 per cent of the total number of EPH performed. Some of the studies with the highest crude rates also had the longest post-partum time periods and the least exclusion criteria.^{5,19}

Two studies reviewed rates of EPH by year.^{8,5} The Turkish study⁸ showed a decrease in the rates of EPH, and suggested better obstetric care as the reason. The US-based study showed no change in rates over time.⁵ Only one pair of studies compared rates in the same institution over different time periods. Clark et al⁷ had reported a rate of 1.02 per 1000,

Table 2: Rates of EPH reported in papers published since 1993

Reference	2	3	4	5	8	9	10	11	14	15	16	17	18	19
Rate per 1000	0.5	0.5	0.6	1.6	0.3	1.3	0.7	1.4	2.3	0.5	1.2	2.2	2.3	2.7
Country	Jordan	Turkey	USA	USA	Turkey	USA	Hong Kong	USA	South Korea	Canada	South Africa	India	Nigeria	USA
Study period	Jan 1994 - Aug 1998	Jan 1996 - June 2001	Jan 1989 - Feb 2000	Oct 1983 - July 1991	Jan 1985 - Jan 1994	Jan 1985 - June 1990	May 1984 - Dec 1994	Jan 1991 - Dec 1997	Jan 1986 - April 2001	1988 - 2000	Jan 1993 - June 1998	1994 - 2001	Jan 1986 - Dec 2000	Jan 1990 - Jan 1995
Number of months studied	56	66	144	94	120	66	127	84	183	156	66	96	180	60
Number of EPH	19	38	79	117	67	123	52	48	101	76	71	50	46	39
Number of total deliveries	41,221	142003	122025	75,656	208772	94,689	73,819	34,241	31,044	142634	59,380	23,187	20,344	14,220
Number of caesarean sections (% total)	3,586 (8.7%)	19,882 (14%)	Not stated	Not stated	23,941 (11%)	13,996 (15%)	Not stated	Not stated	11,924 (38%)	Not stated	Not stated	Not stated	Not stated	4,149 (29%)

(n=70) between 1978 and 1982, while Stanco et al reported a rate of 1.3 EPH per 1000 deliveries during 1985 to 1990.⁹ Although there appears to have been an increase in the rate of EPH, this difference was not statistically significant (chi-squared test p=0.10).

Indications

In the past, the most common indications for EPH had been uterine atony and uterine rupture.^{7,21} Recent literature shows uncontrollable haemorrhage due to morbidly adherent placenta (accreta; increta, or percreta) is the most common indication.^{2,3,5,9-11} Clark et al. had reported uterine atony as the most common indication in 1983⁷, while Stanco et al. found placenta accreta was the main indication at the same institution, in 1993.⁹

Several studies attribute this phenomenon to the rising incidence of caesarean sections and uterine curettage.^{7,11} There is a strong association in the literature between previous caesarean delivery and/or uterine curettage and placenta accreta.^{2,9,11-12,17,20} Moreover, management of uterine atony has improved through advancements in pharmacology (ie prostaglandins), reducing its incidence as the primary indication.^{5,11} Studies stratifying by parity showed uterine atony as the main indication among primiparous women,^{3,11} but accreta was the main indication amongst multiparous women.

Risk factors

The majority of recent studies suggest abnormal placentation is now the major risk factor for EPH.^{1,4-5,9,19,21} Several studies documented previous caesarean delivery and/or uterine curettage as an important risk factor:^{2-3,4,9-11,13,15,19} Kastner et al. noted the increased incidence of abnormal placentation in women with previous caesarean delivery.¹¹

Caesarean section as the current mode of delivery was also suggested as a risk factor.^{9,11,19} Two studies suggested the proximity of the operating theatre as a major reason,^{4,14} but did not compare delivery-to-decision times between modes of delivery, or adjust for associated abnormal placentation.⁴ Increasing parity was also noted as a risk factor.^{5,17,18}

Morbidity and mortality

The majority of studies reported no maternal mortality.^{2-6,9-11,15} Mortality associated with EPH appears to be confined to developing nations.^{16,17,18} Nevertheless, the overall morbidity remains high; postoperative complications ranged from 43%² to 65%.⁵ Rates of blood transfusions also remained high at around 90% for the majority of the studies.^{1-5,8,10-12,17-19,21-22}

Alternative management

Several methods of conservative management have been reported in the literature to address EPH indications. Tamponade procedures and the administration of oxytocics (syntocinon, ergometrine, syntometrine) and prostaglandin analogues may have decreased the rates of EPH due to uterine atony. Haemostatic suturing, oversewing of the placental site, uterine and internal iliac artery ligation, and arterial embolisation techniques might reduce the incidence of EPH from placental site bleeding. The majority of studies advocated increased use of these 'uterine saving' procedures in order to reduce EPH rates.^{1-2,4,5-6,9,11-14,17-18}

The time spent on alternative surgical manoeuvres may increase the risk of coagulation disturbance.^{12,18} However, rates of disseminated intravascular coagulation reported are low.¹² The majority of studies did not record delivery-to-decision intervals or measures of blood loss prior to making a decision to proceed to EPH.

CONCLUSION

EPH remains a rare complication of delivery. Individual clinicians will consequently only see a handful in their practising years. However, it is a high risk procedure for which clinicians need to be prepared and avoid if possible. To do this it is preferable to have much information about the risk factors and indications for EPH.

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As the rates of caesarean section continue to rise, it is likely that EPH will follow suit. Recent advances allow for delivery in a controlled fashion with immediate uterine artery embolisation available. The key to this approach is identification of women at risk of EPH, which pooled data can provide. We are becoming increasingly aware that women with abnormal placentation need to be counselled carefully prior to delivery about the risk of EPH.

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REFERENCES

1. Castenada S, Karrison T, Cibils LA.
Peripartum hysterectomy.
Journal of Perinatal Medicine. 28:472-481. 2000.
2. Abu-Heija AT, Jallad FF.
Emergency peripartum hysterectomy at the Princess Badeea Teaching Hospital in North Jordan.
Journal of Obstetrics & Gynaecology Research. 1999; 25;3:193-195.
3. Akar ME, Yilmaz ES, Yuksel B, et al.
Emergency peripartum hysterectomy.
European Journal of Obstetrics & Gynaecology and Reproductive Biology. 2004;113:178-181.
4. Kacmar J, Bhimani L, Boyd M, et al.
Route of delivery as a risk factor for emergent peripartum hysterectomy: A case-control study.
Journal of Obstetrics & Gynaecology Research. 2003;102:141-5.
5. Zelop CM, Harlow BL, Frigoletto FD, et al.
Emergency peripartum hysterectomy.
American Journal of Obstetrics & Gynaecology. 1993; 168: 1443-1448.
6. Yamamoto H, Sagae S, Nishikawa S, et al.
Emergency postpartum hysterectomy in obstetric practice.
Journal of Obstetrics & Gynaecology Research. 2000; 26; 5: 341-345.
7. Clark SL, Yeh SY, Phelan JP, et al.
Emergency hysterectomy for obstetric haemorrhage.
Obstetrics & Gynaecology. 1984; 64: 376-380.
8. Zorlu CG, Turan CT, Danisman N, et al.
Emergency hysterectomy in modern obstetric practice.
Acta Obstetrica et Gynaecologica Scandinavica. 1998; 77:186-190.
9. Stanco LM, Schrimmer DB, Paul RH, et al.
Emergency peripartum hysterectomy and associated risk factors.
American Journal of Obstetrics & Gynaecology. 1993;168:879-883.
10. Lau WC, Fung HYM, Rogers MS.
Ten years experience of caesarean and postpartum hysterectomy in a teaching hospital in Hong Kong.
European Journal of Obstetrics & Gynaecology and Reproductive Biology. 1997;74:133-137.
11. Kastner ES, Figueroa R, Garry D, et al.
Emergency peripartum hysterectomy: experience at a community teaching hospital.
Obstetrics & Gynaecology. 2002;99:971-975.
12. Zamzami TYY.
Indication of emergency peripartum hysterectomy: a review of 17 cases.
Archives of Gynaecology & Obstetrics. 2003;268:131-135.
13. Chew S, Biswas A.
Caesarean and Postpartum hysterectomy.
Singapore Medical Journal. 1998; 39 (1):9-13.
14. Bai SW, Lee HJ, Cho JS, et al.
Peripartum hysterectomy and associated factors.
Journal of Reproductive Medicine. 2003; 48:148-152.
15. Baskett TF.
Emergency obstetric hysterectomy.
Journal of Obstetrics & Gynaecology. 2003; 23 (4):353-355.
16. Sebitloane MH, Moodley J.
Emergency peripartum hysterectomy.
East African Medical Journal. 2001; 78 (2): 70-74.
17. Saxena SV, Bagga R, Jain V et al.
Emergency peripartum hysterectomy.
International Journal of Gynaecology & Obstetrics. 2004; 85;2: 172-172.
18. Okogbenin SA, Gharoro EP, Otoide VO, et al.
Obstetric hysterectomy: fifteen years' experience in a Nigerian tertiary centre.
Journal of Obstetrics & Gynaecology. 2003; 23 (4); 356-359.
19. Bakshi S, Meyer BA.
Indications for and outcomes of emergency peripartum hysterectomy. A five year review.
Journal of Reproductive Medicine. 2000; 44:733-737.
20. Yaegashi N, Chiba-Sekii A, Okamura K.
Emergency postpartum hysterectomy in women with placenta praevia and prior caesarean section.
International Journal of Gynaecology and Obstetrics. 2000; 68:49-52.
21. Chestnut DH, Eden RD, Gall SA, et al.
Peripartum hysterectomy: A review of cesarean and postpartum hysterectomy.
Obstetrics & Gynaecology. 1985; 65: 365-70.
22. Al-Sibai MH, Rahman J, Rahman MS, et al.
Emergency hysterectomy in obstetrics – a review of 117 cases.
Australian and New Zealand Journal of Obstetrics and Gynaecology 1987; 27:180.