

Emergency obstetric hysterectomy at two tertiary centers: a clinical analysis of 11 years experience

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Summary

This was a retrospective clinical study of emergency hysterectomy performed between 1997 and 2007 at two tertiary hospitals to study incidence, indications and maternal mortality. We included all women who required emergency hysterectomy to control major postpartum hemorrhage after delivery, following a pregnancy of at least 24 weeks' gestation, regardless of the mode of delivery. There were 12 emergency hysterectomies, with a frequency of 0.0726% among 16,521 deliveries. Indications included uterine atony (4 cases), uterine rupture (3 cases), uterine retroversion (2 cases), abnormal placentation (2 cases) and amniotic fluid embolization (1 case). The result was two maternal deaths. Although emergency obstetric hysterectomy is a life saving operation, it is associated with high maternal mortality.

Key words: Obstetric hysterectomy; Postpartum hemorrhage; Cesarean hysterectomy.

Introduction

Obstetric hemorrhage can potentially and rapidly become a life-threatening event and is still a major cause of maternal mortality across the world [1]. Over the past decade, the number of cesarean deliveries has increased and also the number of pregnant women with a scarred uterus from prior uterine incision. These patients with a scarred uterus are susceptible to many serious complications, such as uterine rupture, placenta previa and morbidly adherent placenta [2]. Although advances have been made in the development of conservative medical and surgical treatment of major obstetric hemorrhage, emergency peripartum hysterectomy is a life saving procedure, which is usually performed as a last resort for a variety of indications with massive uncontrollable intraoperative or postpartum hemorrhage [1, 3]. Obstetricians should be prepared to perform such operations safely as hysterectomies in those circumstances are different from those performed in gynecological surgery [2].

The purpose of the present study was to estimate the incidence, indications and maternal mortality associated with emergency peripartum hysterectomies performed at two tertiary Greek hospitals.

Material and Methods

In this retrospective clinical study performed between 1997 and 2007 at the maternal units of "Tzaneio" General Hospital, Piraeus and "Chatzikosta" Hospital, Ioannina, Greece we found all the cases of emergency peripartum hysterectomies. All cases were performed as an emergency at the time of cesarean section or in the immediate postpartum period due to life-threatening bleeding unresponsive to conservative measures within 24 hours of a delivery. The conservative treatments involved both

surgical and medical interventions, such as fundal massage, bimanual uterine compression, use of blood products, administration of oxytocin and prostaglandins and curettage of the placental bed. All cesarean hysterectomies or hysterectomies after vaginal delivery described were performed after 24 weeks' gestation. We excluded cases that required a hysterectomy for gynecological reasons.

Results

During the study period there were 16,521 deliveries and 5,360 were by cesarean section. In this period, 12 emergency hysterectomies were performed, with a frequency of 0.0726%; seven emergency hysterectomies were performed after cesarean section and five after normal labor (including vaginal-assisted delivery with the use of a vacuum). Among the seven cases after cesarean section, four were after previous cesarean section; four of the women were primiparas and eight multiparas. Abnormal vaginal bleeding was the reason in all cases. Indications included uterine atony (4 cases), uterine rupture (3 cases), uterine retroversion (2 cases), abnormal placentation (2 cases) and amniotic fluid embolization (1 case). Total hysterectomies were done for all cases. There were no operative complications such as a bladder injury or ileus and none of the patients had oophorectomy. The result was two maternal deaths and three stillborns. Maternal death was due to consumptive coagulopathy in one case and amniotic fluid embolization in the other.

Discussion

Emergency peripartum hysterectomy (EPH) is not commonly performed and is almost always done in the setting of life threatening hemorrhage during or immediately after abdominal or vaginal deliveries. The incidence of peripartum obstetric hysterectomy in our units is 0.726

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per 1,000 mothers delivered and this is in agreement with the incidence reported in the English literature, which varies from 0.2 to 1.3 per 1,000 deliveries [2, 4-7]. In our study, the indications for EPH were uterine atony (4 cases), uterine rupture (3 cases), uterine retroversion (2 cases), abnormal placentation (2 cases) and amniotic fluid embolization (1 case). Chestnut *et al.* [8] found that the major indication for the procedure was uterine rupture followed by uterine atony and placenta accreta. Clark *et al.* [9] reported uterine atony (43%) to be the most common cause of emergency peripartum hysterectomy followed by placenta accreta (30%) from 1978 to 1982. However, Stanco *et al.* studied the same population from 1985 to 1990 and found that placenta accreta (50%) had become the most frequent cause with uterine atony accounting for 21% of cases [6]. Similarly, Zelop *et al.* found placenta accreta (64%) and uterine atony (20%) the most common reasons for emergency peripartum hysterectomy [7]. In addition, Kastner *et al.* found placenta accreta (49%) and uterine atony (30%) the most common indications for emergency peripartum hysterectomy [10]. In the study of Selo-Ojeme *et al.* hemorrhage due to placenta previa was the main indication for emergency peripartum hysterectomy (47%) [1]. It seems that there were an increased proportion of hysterectomies being done for abnormal placentation and a decreasing proportion for uterine atony compared to those performed in the past. The reasons behind these observed changes are perhaps threefold. Firstly, the medical management of uterine atony has improved since the introduction of agents such as prostaglandin F_{2α} together with concomitant improvement in anesthetic and hematological support [11]. Secondly, a reduction in forceps deliveries in favor of ventouse or cesarean section may have reduced uterine trauma following vaginal delivery [11]. Thirdly, another main reason may be due to an increase in the number of cesarean deliveries over the past decade, as cesarean delivery is a well established risk for the development of placenta previa and accreta [2]. Previous cesarean section is known to increase the risk of placenta accreta occurring from 0.25% in the unscarred uterus to 0.65% following one cesarean section, rising to 10% following four or more cesarean sections. In addition, history of curettage is a risk factor associated with placenta accreta. As regards the prevalence of placenta previa, it increases from 24% following one uterine scar to 67% following four or more cesarean sections [4, 11]. However, an association between placenta previa and previous curettage has not been clearly shown [12-14]. Ananth *et al.* found a strong association between a history of abortion and the subsequent development of placenta previa [15].

Total hysterectomy is probably the favored procedure for most obstetricians-gynecologists, but does increase the risk of urinary tract injury when compared with the technically simpler subtotal operation [11]. Problems with the cervical stump have been reported in up to 11.4% of cases following subtotal hysterectomy, and usually consist of cyclical vaginal bleeding and discharge. Subsequent cervical stump carcinoma is extremely rare,

but evidently continued cytological surveillance is necessary [11]. Conservative surgical measures to preserve the uterus after life threatening hemorrhage during or immediately after abdominal or vaginal deliveries when the reason for the hemorrhage is not placenta accreta include vaginal or uterine packing and the B-Lynch brace suture [11]. Ligation of the internal iliac arteries may be effective, but it remains a very hazardous procedure, even in experienced hands, with risk of trauma to the internal iliac vein [11]. In 1985, Clark *et al.* reviewed the hospital records of 19 cases of bilateral hypogastric artery ligation for obstetric hemorrhage and found that ligation was only 42% effective at hemostasis, an increase in blood loss and operating time was noted, as well as an increase in the number of complications such as ureteral injury and cardiac arrest. These observations led them to recommend hypogastric artery ligation only for hemodynamically stable patients of low parity [16]. Selective arterial embolization is probably the most effective conservative option in the control of pelvic bleeding, preserving the uterus and hence future fertility, while reducing patient morbidity and length of hospitalization by avoiding further surgery [11].

Emergency postpartum hysterectomy is associated with significant blood loss and need for transfusion. Postoperative complications are common and longer hospitalization inevitable [17]. Overall morbidity was reported in the range of 30-40% [2]. Gonsoulin *et al.* found that the incidence of transfusion was 68% in emergency cases and 14.6% in elective ones [18]. Urological injuries are usually related to scarring from previous cesarean deliveries encountered when dissecting the bladder from the lower uterine segment [7]. In our study, no bladder lesions occurred, but there were two maternal deaths.

Conclusion

Early intervention and proper technique facilitate good outcome. Experienced obstetricians can accomplish cesarean hysterectomy with speed, moderate blood loss and acceptable morbidity. Therefore, obstetricians should continue to be trained in major pelvic surgery.

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