34 Postpartum Haemorrhage and Retained Products of Conception Postnatal

Stephen O. Porter

34.1 Background

Obstetric haemorhage is the fourth most common cause of direct maternal death in the United Kingdom, accounting for 21 deaths per 100,000 maternities (MBRACE 2013–2015) [1] a concerning increase of 7 deaths from the previous triennium [2]. Between 1994 and 2012, postpartum haemorrhage accounted for between 30 and 80% of deaths attributable to obstetric haemorrhage [2]. It is however, widely acknowledged that this small mortality rate forms the tip of a much larger morbidity ice-berg. In addressing maternal mortality and morbidity, Bewley et al. estimated that the associated morbidity rate is up to one hundred times higher [3]. Based on this assertion, the morbidity rate associated with postpartum haemorrhage in the 2012–2014 triennium may have been as high as 1040 per 100,000 maternities.

Although morbidity following postpartum haemorrhage is not necessarily due to clinical negligence, claims for clinical negligence are likely to arise in the setting of morbidity (Fig. 34.1).

A 10-year review of NHSLA claims identified 111 claims for postpartum haemorrhage. Eighty-two of the cases involved retained products, twenty-five involved haemorrhage and in four cases no central theme was identified. The total value of the claims identified was £3 million [4].

34.2 Minimum Standards

Primary postpartum haemorrhage (PPH) is defined as the loss of 500 mL or more of blood from the genital tract within 24 hours of the birth of a baby. Minimum clinical standards relate to the prediction or prevention of haemorrhage, recognition of loss and appropriate treatment.

1. Prediction/Prevention: Some of the risk factors for postpartum haemorrhage are listed in the Fig. 34.2. Once identified these should be documented and used to form a clear plan of care.
2. Recognition: Visual estimation of blood loss following delivery is unreliable and typically overestimates loss at small volumes and underestimates loss at larger volumes [5, 6]. Symptoms of haemorrhage often precede signs. These include unexplained anxiety, a feeling of being cold or breathlessness. It is therefore vital that healthcare workers pay particular attention to these symptoms in women at risk of postpartum haemorrhage. The use of MEWS/MEOWS (Modified Early Obstetric Warning Scores) charts should be employed to record the observations of all high-risk patients.

S. O. Porter
Airedale NHS Foundation Trust, Keighley, UK
e-mail: Stephen.porter@anhst.nhs.uk

S. Jha, E. Ferriman (eds.), *Medicolegal Issues in Obstetrics and Gynaecology*,
https://doi.org/10.1007/978-3-319-78683-4_34

3. Treatment: In the event of significant primary postpartum haemorrhage, the patient should be resuscitated in accordance with established national and or local guidelines. Blood loss should be accurately recorded, and all swabs weighed to ensure accuracy. Thereafter management should be directed at the cause of bleeding. It is vital that the clinician in charge appoints a scribe whose job it is to document the personnel present and the nature and timing of any interventions. If possible, the scribe should also note the timing of conversations with the patient and relatives particularly in relation to the consent for procedures. It is also vital that the clinician, at the conclusion of the case, records the events in chronological order.

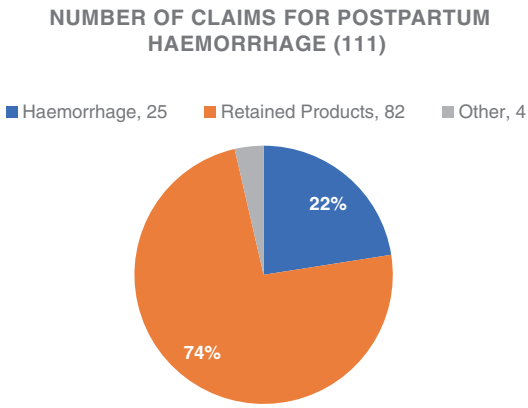

Fig. 34.1 Number of claims for postpartum haemorrhage 2000–2010 [4]

Secondary postpartum haemorrhage, defined as excessive vaginal bleeding from 24 hours up to 6 weeks postpartum, remains a complex condition to manage and treat. The amount of blood loss is not defined. Furthermore, normal postpartum loss may continue beyond 6 weeks in 25% of women [7], especially if breast-feeding, and the first period may be particularly heavy. These diagnostic uncertainties give rise to a lack of consensus on how best to manage secondary postpartum haemorrhage. Indeed, a Cochrane review of the management of secondary postpar-

Risk factor	The four Ts	OR (95% CI)
Multiple pregnancy	Tone	3.30 (1.00–10.60)[16] 4.70 (2.40–9.10)[24]
Previous PPH	Tone	3.60 (1.20–10.20)[16]
Pre-eclampsia	Thrombin	5.00 (3.00–8.50)[16] 2.20 (1.30–3.70)[11]
Fetal macrosomia	Tone	2.11 (1.62–2.76)[20] 2.40 (1.90–2.90)[24]
Failure to progress in second stage	Tone	3.40 (2.40–4.70)[23] 1.90 (1.20–2.90)[11]
Prolonged third stage of labour	Tone	7.60 (4.20–13.50)[16] 2.61 (1.83–3.72)[20]
Retained placenta	Tissue	7.83 (3.78–16.22)[20] 3.50 (2.10–5.80)[23] 6.00 (3.50–10.40)[24]
Placenta accreta	Tissue	3.30 (1.70–6.40)[23]
Episiotomy	Trauma	4.70 (2.60–8.40)[25] 2.18 (1.68–2.76)[20] 1.70 (1.20–2.50)[24]
Perineal laceration	Trauma	1.40 (1.04–1.87)[20] 2.40 (2.00–2.80)[23] 1.70 (1.10–2.50)[24]
General anaesthesia	Tone	2.90 (1.90–4.50)[11]

Fig. 34.2 Risk factors for postpartum haemorrhage [15]

tum haemorrhage concluded that there was no evidence from randomised controlled trials to demonstrate the efficacy of treatments for secondary postpartum haemorrhage [8]. The most common cause of secondary post-partum haemorrhage is sub-involution of the uterus, either due to infection, retained placental tissue or both.

Investigations will include baseline blood tests such as a full blood count, C reactive protein, group and save, coagulation studies and a serum bHCG. Vaginal swabs and wound swabs should be undertaken. In stable patients, a transvaginal ultrasound scan should be performed although its interpretation may be difficult.

In the presence of significant haemorrhage, resuscitation following local guidelines should be commenced prior to establishing a cause. In the presence of mild or moderate bleeding, or once the patient has been stabilised, broad spectrum antibiotics should form the part of the management of all patients with secondary post-partum haemorrhage [9]. If a conservative approach is adopted it is good practice to ensure the patient has easy access to medical review should her symptoms worsen.

Uterine evacuation and or hysteroscopy in women with secondary postpartum haemorrhage are not without complications and should be undertaken by a senior clinician. Uterine perforation may occur in 1.5% of cases [10] and a recent review showed that intra-uterine adhesions were present in 21.5% of women with a history of postpartum curettage [11]. Furthermore, there may be morbidity associated with a second procedure due to the incomplete evacuation of retained tissue or the need for a hysterectomy. It is therefore imperative that that the woman is *fully informed* of these risks and that this is carefully documented in the case notes.

Although pelvic ultrasound is often performed in women with secondary postpartum haemorrhage, the role of ultrasound in determining whether there are retained products, and whether surgical evacuation is needed, is not clear. In a study by Edwards et al. [12], in which women with normal postpartum loss were scanned, an echogenic mass within the endometrial cavity was found in 51% of women on day seven, 21% on day fourteen and 6% on day twenty one. They hypothesised that either 'an echogenic mass does not always represent retained products of conception, or that products of conception are commonly retained and are therefore of little clinical significance in many cases'. In another study, the authors concluded that in women with postpartum bleeding in the week following delivery, the presence of an echogenic mass and a uterine antero-posterior (AP) diameter greater than the 90th centile (approximately 25 mm) indicated the presence of retained products of conception [13]. Although the study did not address ultrasonic findings beyond the first postpartum week, similar findings later in the puerperium are likely to have a greater association with retained placental tissue. In the presence of on-going troublesome bleeding and equivocal scan findings, surgical evacuation of the uterus may be beneficial as was demonstrated in a study in which all 72 women undergoing a uterine evacuation for secondary postpartum haemorrhage stopped bleeding despite only 36% having proven histological evidence of retained tissue [14].

The indications for uterine evacuation or hysteroscopy in secondary postpartum haemorrhage are:

(a) Significant uterine bleeding irrespective of, or in the absence of positive scan findings
(b) Troublesome uterine bleeding with an echogenic mass and a uterine AP diameter of greater than 25 mm
(c) Persistent loss that has not responded to antibiotics, irrespective of scan findings.

34.3 Clinical Governance Issues

The Royal College of Obstetricians & Gynaecologists (RCOG) and the World Health Organisation (WHO) are two of several organisations that that have produced robust evidence-based guidelines for the management of postpartum haemorrhage [15, 16]. These form the basis of assessing the minimum standard of

care owed to patients. Guidelines by definition are not mandatory. However, departure from accepted practice may help a claimant who is seeking to prove negligence.

Organisations as well as individuals owe a duty of care to patients. In *Bull v Devon AHA* [17], Mrs. Bull had brought an action against Devon Health Authority on behalf of her severely handicapped son, one of twins, who had been injured as a result of a delay in the registrar's arrival while she was in labour. The system for summoning an obstetrician urgently had broken down and there was a delay of over an hour before the registrar arrived. The Court of Appeal held that the system had failed to provide an acceptable level of care. In *Wilsher v Essex Area Health Authority* [18], a baby sustained a hypoxic brain injury because a junior doctor inserted an umbilical catheter into the vein instead of the artery even though he checked with the registrar, who made the same error. The Court of Appeal held that the standard of care should not be lower for inexperienced doctors.

These cases suggest that an organisation can be held directly responsible, and not just vicariously through the actions of its employees, for the standard of care provided for its patients. In relation to postpartum haemorrhage it is therefore important that trusts have up to date guidelines and that all staff involved in the management of post-partum haemorrhage are trained to so. This can be evidenced by documented regular skills and drills, mandatory training and by ensuring that the induction of all new doctors includes training in the management of postpartum haemorrhage in accordance with local practice.

All cases where blood loss is in excess of 1500 mls, requiring theatre readmission, hysterectomy or intensive care admission should be reported by the appropriate risk management pathway. Accurate documentation remains essential and this may be aided by the use of preformatted proforma sheets. Where there is blood loss in excess of 1500 mls clinicians should active the major obstetric haemorrhage (MOH) protocol to endure urgent arrival of blood and blood products and senior personnel over a wide range of specialties.

34.4 Reasons for Litigation

The reasons for litigation following postpartum haemorrhage relate to:

- Delayed diagnosis
- Under estimation of blood loss
- Failure to initiate active resuscitation with blood and blood products
- Delayed investigation of continued postpartum bleeding
- Failure to offer ultrasound examination of the post-partum uterus
- Failure to consider both conservative and surgical management
- Delayed evacuation of retained placental tissue
- Failure to follow hospital guidelines
- Inadequate pre-operative counselling regarding the risks of complications for women requiring surgical management
- Complications arising during a surgical procedure (uterine perforation, ureteric injury) or following a procedure (e.g. Asherman's syndrome)

34.5 Avoidance of Litigation

Hospital Trusts need to ensure that easy to access, up-to-date, evidence-based guidelines are available within maternity departments. All staff working with women at risk of haemorrhage should be adequately trained. There should be evidence of regular skills and drills training involving all relevant staff. Trusts should ensure that there are clear operational policies dealing with logistics and infrastructure, including the provision of appropriate equipment, theatre space, medication, and directions on major incident procedures.

The key to avoiding complaints, litigation and significant morbidity in post-partum haemorrhage is:

- Prediction/Prevention
- Recognition
- Action

Women at high risk of post-partum haemorrhage should be identified early. They should be assessed for risk factors antenatally, during labour and in the immediate post-partum period. Any risks identified should be clearly documented along with a plan of care. This should include as a minimum, active management of the third stage of labour and any other measures specific to the type and severity of haemorrhage thought to be most likely. Recognition of significant postpartum haemorrhage may not be obvious if there is low level persistent bleeding. Regular clinical assessments including the use of and correct interpretation of MEWS/MEOWS charts is essential to avoid missing the 'slow bleeder'. The initial management of postpartum haemorrhage is uncontroversial and is widely available in a number of national and international guidelines [15, 16]. It is therefore essential that the practitioner adheres to these guidelines unless there is a very good reason not to do so. An adverse outcome following widely accepted practice is easier to defend than one which arises after deviation from standard practice. It is good practice to ensure that every decision for a post-partum hysterectomy is discussed with at least one other senior clinician.

In the UK, the most common source of litigation in relation to postpartum haemorrhage involves the management of persistent bleeding with retained products [4]. Before undertaking uterine evacuation at any time in the puerperium, it is essential that the clinician carefully counsels the patient about the risk of perforation, return to theatre, hysterectomy and subsequent intra uterine adhesions. Surgical evacuation with antibiotic cover should be offered to women with secondary post-partum bleeding/loss and scan findings of a thickened endometrium (over 25 mm) and an echogenic mass. In the authors unit, endometrial measurements with echogenic masses are not reported. All women with an echogenic mass in the uterine cavity of 3 cm or more are offered surgical evacuation. Surgical evacuation should also be offered to women with negative scan findings with persistent loss that has not responded to conservative management. If a conservative approach with the use of antibiotics is adopted or indeed chosen by the woman, the clinician must ensure that the patient is reviewed either in the community or in a Gynaecology Assessment and Treatment Unit (GATU). This approach allows the clinician to reassess the patient and be proactive in adopting surgical management should conservative measures fail.

Communication is vital, and the clinician must arrange timely follow-up, preferably, in a quiet setting, in order to debrief the woman and her partner and address any concerns they may have.

When a woman initiates a claim after a postpartum haemorrhage, a court will determine negligence based on:

- What was said or not—Montgomery [19]
- What was done or not—Bolam [20], England, Wales & NI; Hunter [21], Scotland
- Whether harm occurred as a direct result

The standard for valid consent is high. When proposing a treatment, with its attendant risks and benefits, a clinician must consider whether "a reasonable person in the patient's position would be likely to attach significance to the risk, or whether he is or should reasonably be aware that the particular patient would be likely to attach significance to it." It is therefore vital that when undertaking a placenta accreta caesarean section or transferring a woman bleeding heavily to theatre, that the clinician explains clearly and calmly that hysterectomy is a potential outcome. This is particularly important in women of low parity in whom fertility may be an important consideration. It is also vital to communicate this calmly and sensitively to her partner.

If the clinician's actions are not *"in accordance with a practice accepted as proper by a responsible body*", (Bolam) or those *"which no doctor of ordinary skill in that field would have taken if acting with ordinary care"*, (Hunter), then they have breached their duty of care to the

patient. Breach of duty may be an act of omission or commission. If harm follows as a direct result the clinician will be found to have been negligent. The standard likely to be employed is that set by national evidence-based guidelines.

The importance of clear, comprehensive, contemporaneous documentation cannot be overemphasized. Illegible, incomplete documentation may create an impression of a *laissez-faire* approach to the care of the patient. Furthermore, as the limitation period is currently 3 years the clinician may have no direct recollection of the patient and so will be entirely reliant upon his documentation.

34.6 Case Study

Mrs. H, a 23-year-old professional photographer in her first pregnancy, was pregnant with twins. The pregnancy progressed without any complication, until week 36 when she went into preterm labour. Mr. L was the obstetrician on duty. As the first twin was a breech presentation, an emergency caesarean section was performed under spinal anaesthetic and both twins were delivered in good condition.

Soon after the procedure, whilst still in the recovery room, Mrs. H began bleeding steadily vaginally and became hypotensive. She was resuscitated with intravenous fluids. Mr. L administered oxytocin with little *effect*, *followed by insertion of misoprostol per rectum*.

He did not follow hospital protocol for postpartum haemorrhage which advised the administration of ergometrine and carboprost if the bleeding continued despite the use of oxytocin. As the bleeding continued, Mr. L decided to take Mrs. H to theatre for an examination under general anaesthesia to identify the source of bleeding. In the meantime, resuscitation continued with blood products.

During laparotomy, the uterus was found to be atonic, but there was no rupture or evidence of any retained products of conception. Unfortunately, Mrs. H's condition deteriorated, and she began to develop disseminated intravascular coagulation. Mr. L reported this to the patient's husband, informing him that "there were no options" other than removing the uterus.

It was impossible to gain informed consent from the patient as a consequence of her clinical condition at that time. Mr. L proceeded to perform a hysterectomy. Mrs. H made a satisfactory recovery from her surgery but made a claim against Mr. L for his management.

Experts were critical of Mr. L, as he had failed to follow the hospital guidelines on the management of postpartum haemorrhage and secondly by not considering alternative surgical options such as internal iliac artery ligation or ligation of the uterine and ovarian arteries.

Furthermore, Mr. L had not documented why he had not considered less radical intervention before resorting to a hysterectomy in such a young woman in her first pregnancy. The case was settled out of court for a moderate sum.

In this case, reported in the January 2013 edition of the MPS journal [22], one could argue (as the author would) that Mr. L quickly concluded that the cause of the bleeding was surgical and therefore, returned the patient to theatre for an EUA. Deviation from the hospital guideline which in this case may have been appropriate at the time, was not documented. There was also no consultation with a consultant colleague. The issue of consent in these cases is fraught with difficulty but needs to be obtained in as sensitive and compassionate manner as possible. It is not clear whether the Obstetrician considered and discounted internal iliac or uterine artery ligation—it was not documented.

Documentation is crucial, particularly if treatment departs from local or national guidelines. It is also good practice to gain the support of a colleague when performing a post-partum emergency hysterectomy.

The importance of post-partum debriefing (which may be several appointments with the woman and her partner) is vital.

Key Points: Postpartum Haemorrhage and RPOC Postnatal

- Identify women at high risk for postpartum haemorrhage and document management plan.
- Ensure that delivery suites have the personnel, equipment and infrastructure to manage postpartum haemorrhage
- Adhere to guidelines for major primary postpartum haemorrhage unless there is a logical reason not to do so.
- Ensure consent for surgical procedures is thorough and valid
- Ensure that documentation is contemporaneous and meticulous
- If secondary postpartum haemorrhage is managed conservatively, ensure that follow-up arrangements are made with the woman
- Ensure that the woman and her partner are offered at least one opportunity to be debriefed following a postpartum haemorrhage in a quiet interruption free environment.

References

1. MBRRACE-UK (2012–2014) – Saving lives, improving mothers' care. 2016.
2. MBRRACE-UK (2009–2012) – Saving lives, improving mothers' care. 2014.
3. Waterstone M, Bewley S, Wolfe C. Incidence and predictors of severe obstetric morbidity: case control study. BMJ. 2001;322(7294):1089–93. discussion 1093-1084
4. Maternity Claims – Information Sheet Postpartum Haemorrhage. Ten years of maternity claims – NHS Litigation Authority. 2012;113–4.
5. Yoong W, Karavolos S, Damodaram M, et al. Observer accuracy and reproducibility of visual estimation of blood loss in obstetrics: how accurate and consistent are health-care professionals? Arch Gynecol Obstet. 2010;281:207–13.
6. Chua S, Ho LM, Vanaja K, Nordstrom L, Roy AC, Arulkumaran S. Validation of a laboratory method of measuring postpartum blood loss. Gynecol Obstet Investig. 1998;46:31–3.
7. Neill A, Thornton S. Secondary postpartum haemorrhage. J Obstet Gynaecol. 2002;22:119–22.
8. Alexander J, Thomas PW, Sanghera J. Treatments for secondary postpartum haemorrhage (review). Cochrane Database Syst Rev. 2008;1
9. Groom KM, Jacobson TZ. The management of secondary postpartum haemorrhage.
10. Pather S, Ford M, Reid R, Sykes P. Postpartum curettage: an audit of 200 cases. Aust N Z J Obstet Gynaecol. 2005;45:368–71.
11. Deans R, Abbott J. Review of intrauterine adhesions. J Minim Invasive Gynecol. 2010;17(5):555–69. Epub 2010 Jul 24
12. Edwards A, Ellwood DA. Ultrasonographic evaluation of the postpartum uterus. Ultrasound Obstet Gynecol. 2000;16:640–3.
13. Mulic-Lutvica A, Axelsson O. Ultrasound finding of an echogenic mass in women with secondary postpartum hemorrhage is associated with retained placental tissue. Ultrasound Obstet Gynecol. 2006;28:312–9.
14. King PA, Duthie SJ, Dong ZG, Ma HK. Secondary postpartum haemorrhage. Aust N Z J Obstet Gynaecol. 1989;29:394–8.
15. Mavrides E, Allard S, Chandraharan E, Collins P, Green L, Hunt BJ, Riris S, Thomson AJ, on behalf of the Royal College of Obstetricians and Gynaecologists. Prevention and management of postpartum haemorrhage. BJOG. 2016;124:e106–49.
16. WHO recommendations for the prevention and treatment of postpartum haemorrhage. World Health Organization. 2012.
17. Bull v. Devon Area Health Authority [1993] 4 Med LR 117 (CA).
18. Wisher v. Essex AHA [1986] 3 All ER 801 (HL).
19. Montgomery v Lanarkshire Health Board [2015] UKSC 11.
20. Bolam v Friern Hospital Management Committee [1957] 1 WLR 582.
21. Hunter v Hanley 1955 SLT 213.
22. Ignoring the guidelines. Medical Protection Journal. 1 Jan 2013.