Balloon tamponade for vaginal lacerations causing severe postpartum haemorrhage

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Case report

A 17-year-old Sri Lankan woman in her first pregnancy presented at 39 weeks and 4 days gestation with a clear history of ruptured membranes, confirmed on speculum examination, and regular painful contractions. No major problems had been encountered during the antenatal period. Vaginal examination found the cervix to be long, closed and posterior. The patient was admitted to the antenatal ward upon this presentation in the early stages of labour.

Later on the day of admission, the patient entered established labour and progressed quickly to deliver a female infant of 3220 g in good condition by normal vaginal delivery. The first stage of labour was recorded as having a duration of 2 hours and 25 minutes, while the second stage lasted 36 minutes and the third stage lasted 6 minutes with active management. Following delivery, it was reported that the perineum was intact and that the estimated blood loss was 200 ml. No comment was made regarding an examination of the placenta but the uterus was reported to be well contracted. Shortly after delivery, the patient was transferred to the postnatal ward.

Approximately 5 hours after delivery, the patient was noted to be passing very heavy lochia with clots. The patient rapidly became tachycardic and hypotensive. Resuscitation was immediately commenced and the patient was transferred to the operating theatre for examination under anaesthesia. Upon examination, a large ruptured haematoma and several large lacerations were found to the left wall of the vagina. The uterus was found to be slightly relaxed and bogy but once the cavity had been emptied of clots and some placental tissue and the prostaglandin carboprost had been given the uterus remained well contracted. The cavity of the haematoma was evacuated and it was clear that virtually all of the bleeding was originating from the damaged vaginal tissues. Attempts were made to repair the lacerations but blood loss continued and it became apparent that the patient was developing disseminated intravascular coagulopathy. With the patient remaining under anaesthesia, the vagina was packed with a gauze roll, but unfortunately, this failed to arrest the bleeding. In view of the difficulties in obtaining haemostasis, balloon tamponade was performed with two separate Bakri tamponade balloons (Cook Ireland Ltd, Limerick, Ireland) placed in the vagina. The superior balloon was inflated with 400 ml of saline, while the inferior balloon was inflated with 350 ml. Two small sutures of Mersilk braided silk (Ethicon Endo-Surgery, Inc. Cincinnati, OH, USA) between the labia were required to hold the balloons in place and prevent them from being expelled. The use of the balloon catheter almost entirely stopped all bleeding. The patient was given intravenous antibiotics as prophylaxis. The estimated total blood loss was 3000 ml and the patient overall required 8 units of blood, the initial 2 of which were of O negative group due to the urgency of the situation, 6 units of fresh frozen plasma and 1 unit of platelets.

The patient was transferred to the recovery area once she became stable and remained there until the balloon catheters were both deflated and removed after approximately 30 hours. Lochia remained minimal following the removal of the balloons and so the patient was able to be transferred to the postnatal ward. The patient made good further recovery and was able to be discharged home 5 days after her delivery. The patient was reviewed in the postnatal clinic approximately 6 weeks after discharge, when she reported that she had experienced no further bleeding and speculum and bimanual examination revealed a normal vagina with no scarring or adhesions.

Discussion

Postpartum haemorrhage (PPH) is a major complication of delivery, being responsible for an annual mortality of approximately 150 000 women worldwide. While the most common cause of PPH is uterine atony, it is recognised that
vaginal or perineal trauma during delivery can also cause the rapid loss of large amounts of blood and can also lead to PPH. Management of PPH initially involves the rapid correction of hypovolaemia with crystalloid and red blood cells as a first priority, with the concomitant use of measures to reduce and stop blood loss. Conservative, mechanical compressive and surgical measures can be employed in cases of uterine atony. In the case of PPH secondary to vaginal or perineal trauma, corrective management usually involves surgical repair. However, where blood loss is severe or prolonged (as described above) the patient’s clotting can become deranged and a state of disseminated intravascular coagulopathy can ensue. In such cases, further attempts to repair any tears and lacerations can be futile as all that is achieved is the creation of further bleeding points each time a stitch is attempted. It is in such cases that the use of balloon tamponade may be beneficial.

Balloon tamponade to arrest bleeding has been accepted practice in medicine for over 50 years, with the Sengstaken–Blakemore tube having an established place in the management of bleeding oesophageal varices and balloon tamponade having also been employed in association with prostatectomy and massive bladder haemorrhage. Balloon tamponade of the atonic postpartum uterus using a variety of equipment has been well described. Although the use of a Sengstaken–Blakemore tube to successfully treat vaginal lacerations with intractable haemorrhage has been described previously, this was in a case where the lacerations were secondary to trauma outside of childbirth. Our case appears to be the first time where balloon tamponade has been used to treat PPH occurring due to vaginal lacerations. Particular advantages of the use of balloon tamponade over the more traditional forms of vaginal packing with gauze are of easier insertion, the fact that a drainage channel removes the masking of blood volume lost that is possible with gauze packs and the easier removal possible with a balloon. In addition, the use of balloon tamponade appears not to slough off superficial layers of vaginal mucosa triggering fresh bleeding and causing subsequent scarring and adhesions as can occur with a gauze pack. As was seen in this case, healing of the vagina without any scarring or adhesions would suggest that the use of balloon tamponade might be associated with reduced postpartum discomfort and dyspareunia, which is commonly a problem where severe vaginal lacerations have occurred. We note that this use of balloon tamponade is contrary to the guidelines recently proposed by Kerikos and Mukhopadhyay but note that their case series only included PPH secondary to uterine causes. However, we would still suggest that the use of balloon tamponade should be considered in the case of large PPH secondary to vaginal lacerations where blood loss cannot be readily limited by appropriate surgical techniques. 

References