

## EQUIPMENT TRAY FOR POSTPARTUM HEMORRHAGE

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Primary postpartum hemorrhage is most often due to uterine atony which usually responds to the appropriate application of oxytocic drugs. In a minority of cases, however, the atonic uterus will not contract with any uterotonic agents, particularly in cases of prolonged and augmented labor with an exhausted and infected uterus. In these instances, a variety of surgical techniques may be necessary, including uterine tamponade with packing<sup>1</sup> or balloon devices<sup>2-4</sup>, uterine compression sutures<sup>5-8</sup>, major vessel ligation<sup>9,10</sup>, and hysterectomy, all of which are discussed in detail in other chapters of this book. In addition to uterine atony unresponsive to oxytocic agents, numerous other causes of postpartum hemorrhage may require surgical intervention with more equipment than is available in the standard vaginal delivery or Cesarean section packs. These include high vaginal or cervical lacerations with poor exposure, placenta previa and/or placenta accreta at the time of Cesarean section, and uterine rupture. In most obstetric units, and for the individual obstetrician and nursing personnel who work there, the additional equipment and instruments for these surgical techniques are rarely used. Thus, when they are needed they may not be readily available and valuable time will be lost searching for them. For these reasons, every obstetric unit should have a readily available, sterile 'obstetric hemorrhage equipment tray' upon which is placed all the necessary material for surgical management of postpartum hemorrhage.

Experience with one such equipment tray in a large Canadian unit has shown it is used in about 1 in 250 Cesarean deliveries and 1 in 1000 vaginal deliveries<sup>11</sup>. The most common surgical techniques that called for use of the tray were uterine compression sutures, uterine tamponade, uterine and ovarian artery ligation,

and suture of cervical and/or vaginal lacerations<sup>11</sup>. The most common predisposing causes of its use were placenta previa, with or without partial accreta, and uterine atony refractory to oxytocic agents<sup>11</sup>.

The contents of an obstetric hemorrhage tray are shown in Table 1. As individual obstetric units undoubtedly have a varying availability of supplies, local conditions may modify these contents. Three vaginal retractors are necessary for access to and exposure of high vaginal and or cervical lacerations. Heaney or Breisky-Navratil

**Table 1** Contents of obstetric hemorrhage equipment tray

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*Access/exposure*

- Three vaginal retractors (Heaney, Breisky-Navratil)
- Four sponge forceps

*Eyed needles*

- straight 10 cm
- curved 70-80 mm, blunt point

*Sutures*

- No. 1 polyglactin (vicryl)
- O and No. 2 chromic catgut with curved needle
- Ethiguard curved, blunt point monocril

*Uterine/vaginal tamponade*

- Vaginal packs
- Kerlix gauze roll
- Uterine balloon (depending on local availability): Sengstaken-Blakemore, Rüsçh urological balloon, Bakri balloon, surgical glove and catheter, condom and catheter

*Diagrams (Figures 1-4)*

Pages with diagrams and instructions:

- Uterine and ovarian artery ligation
  - Uterine compression suture techniques: B-Lynch, square and vertical
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## POSTPARTUM HEMORRHAGE

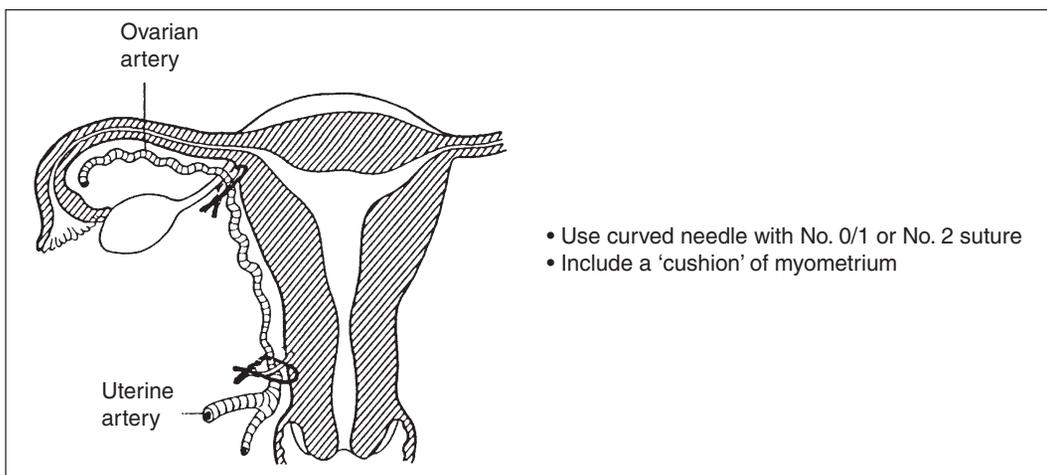
vaginal retractors are suitable for this purpose. Four sponge forceps are useful to identify and compress cervical lacerations, to provide compression to the edges of extensive vaginal lacerations or to uterine edges at the time of laparotomy for uterine rupture. Standard packaged suture material often contains needles that are too small for the placement of uterine compression sutures. Thus, a pair of eyed needles, preferably blunt point, one straight Keith 10 cm and one 70–80 mm curved, are advisable. A number of standard sutures should also be included: No. 1 polyglactin (vicryl) has a small needle but the vicryl can be cut off and inserted into the eyed needles. For the full B-Lynch compression suture, two of the standard suture lengths of vicryl may need to be tied together. If available, Ethiguard monocryl on a curved blunt point needle is ideal for the B-Lynch compression suture. The standard O and No. 2 chromic needles are suitable for uterine and ovarian artery ligation. For the vertical uterine compression sutures and square uterine compression sutures, the straight 10-cm needle threaded with No. 1 vicryl is appropriate.

Material and equipment for uterine and vaginal tamponade should be provided. For vaginal tamponade, which may be necessary to prevent hematoma formation following the suture of extensive vaginal lacerations, standard vaginal packing should suffice, although it may be necessary to tie more than one of these packs together. For packing the uterine cavity,

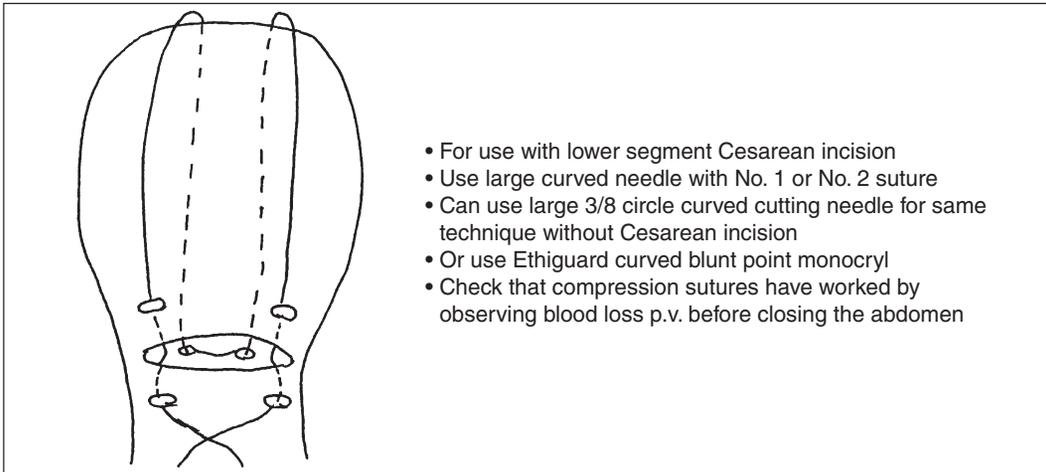
standard vaginal packing tied together can be adequate, but the ideal is a kerlix gauze roll which has a thicker six-ply gauze than the four-ply of the usual vaginal pack. In recent years, balloon tamponade has also been used for uterine atony unresponsive to oxytocic drugs following vaginal delivery. A variety of balloon devices have been used, including the Sengstaken-Blakemore tube<sup>2</sup>, the Rüsçh urological balloon<sup>4</sup> and the Bakri balloon<sup>3</sup> – the latter is commercially available (see Chapters 28 and 29). Others have improvised, for example using a surgical glove tied at the wrist around a plain urethral catheter which, when filled with water or saline, will mould to the contour of the uterus<sup>11</sup>. A condom has also been adapted for this purpose<sup>12</sup>. Depending on local availability, one or more of these balloon tamponade kits should be provided on the tray.

Because uterine compression sutures will rarely be used by an individual obstetrician and the technique may be forgotten, it is useful to have diagrams, which can be easily sterilized and included in the tray or placed on a wall chart under glass (Figures 1–4)<sup>11</sup>.

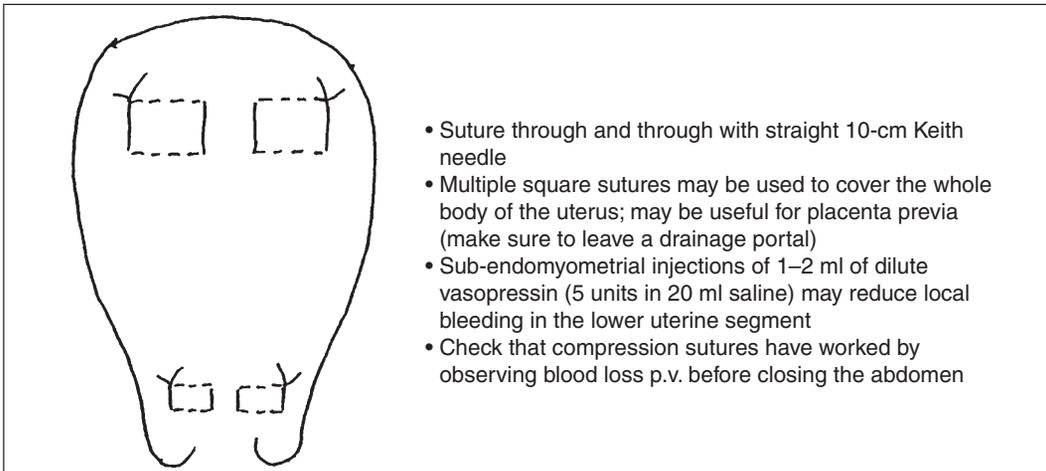
For postpartum hemorrhage due to uterine atony refractory to oxytocic agents, or secondary to trauma of the genital tract, the rapid application of surgical techniques for hemostasis is essential to reduce the need for blood transfusion, with its inherent potential morbidity. Often hysterectomy is the final definitive treatment and may be necessary as a life-saving



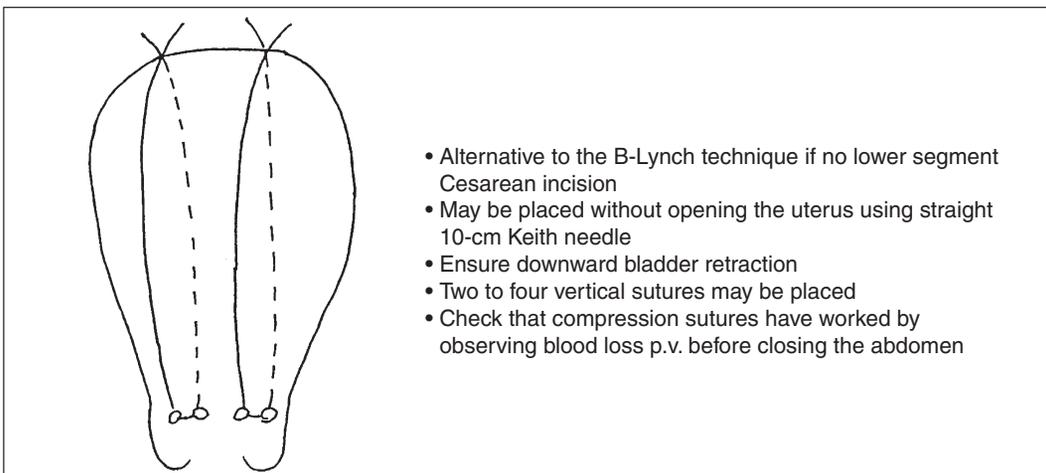
**Figure 1** Uterine and ovarian artery ligation



**Figure 2** Uterine compression sutures: B-Lynch technique



**Figure 3** Uterine compression sutures: square



**Figure 4** Uterine compression sutures: vertical

## POSTPARTUM HEMORRHAGE

maneuver. However, hysterectomy was avoided in all instances in one hospital using an obstetric hemorrhage tray on nine occasions in 1 year<sup>11</sup>. Thus, if the instruments and equipment are readily available for the rapid application of alternative surgical methods, then one is less likely to have resort to hysterectomy with its attendant morbidity and fertility-ending implications.

### References

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