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INSTRUMENTATION AND TECHNIQUES

Use of Ellavi Balloon Tamponade Device for Management of Atonic PPH

Gaurav S. Desai[1] · **Ashwini Sakhalkar**[2]

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Abstract
In this manuscript the authors describe the Ellavi balloon tamponade device and its use in the management of atonic postpartum hemorrhage. Additionally the manuscript discusses a case in which this device was used.

Keywords Balloon device · Tamponade · Postpartum hemorrhage

Introduction

Postpartum haemorrhage is still one of the most dreaded complications for an obstetrician today in spite of advances made to reduce maternal morbidity and mortality [1]. Methods to combat atonic PPH include medications, interventional devices and surgery, i.e., obstetric hysterectomy.

The Ellavi balloon tamponade device is a premade silicon balloon tamponade device. It acts by exerting intrauterine pressure to counter postpartum haemorrhage from an atonic uterus. We demonstrate a case scenario where this device was useful and discuss the place and utility of this novel device in reducing maternal morbidity and mortality [2].

Case Report

This device was used in a Level II centre, Department of Obstetrics and Gynaecology in Mumbai city. Prior consent was taken from the patient prior to the use of this device.

A 26-year-old housewife, married for 2 years, primigravida with an uneventful antenatal course started leaking per vaginum at term (39.4 weeks B/D and B/S). Her uterine activity did not commence 6 h after leaking of liquor hence oxytocin titration was ensued along with intravenous antibiotics and an enema. Within next two hours adequate uterine activity was noted and she went into active labor soon thereafter.

As the patient was unable to bear down an outlet forceps was applied. A female baby was delivered who cried immediately after birth. Left mediolateral episiotomy was sutured. Prophylactic 10 units oxytocin was given in intravenous infusion as was tranexamic acid 500 mg. Per vaginal passage of clots was observed soon after, for which intramuscular prostaglandin, methyl ergometrin and carbetocin were given. Additionally, a second large-bore intravenous line was placed to start intravenous fluids. Tachycardia (pulse up to 130 beats/minute) was noted on the monitor and a BP of 130/90 mm Hg was recorded.

In spite of the continuing medical line of management and head low position, patient kept passing clots and had persistent tachycardia. Cervix was traced and was found to be intact with no perineal trauma. Bleeding was found to be coming from the atonic anterior surface of the uterus where the placenta was attached. Manual compression with a mop was attempted for 5 min but this too failed to arrest bleeding. 1 unit packed red cell was issued and an Ellavi balloon tamponade device was introduced. The device was filled with tap water and inflated with 750 cc water which arrested bleeding. Patient's tachycardia settled within 1 h (pulse 90 beats/minute) and she was conscious cooperative and talking.

Patient was then shifted out of the operation theatre into the waiting room with the device in situ. The Ellavi balloon device was removed next morning after 15 h. No active

✉ Gaurav S. Desai
gdesai83@gmail.com

[1] Department of Obstetrics and Gynecology, Seth GS Medical College and KEM Hospital, Mumbai, India

[2] KB Bandra Bhabha Hospital, Mumbai, India

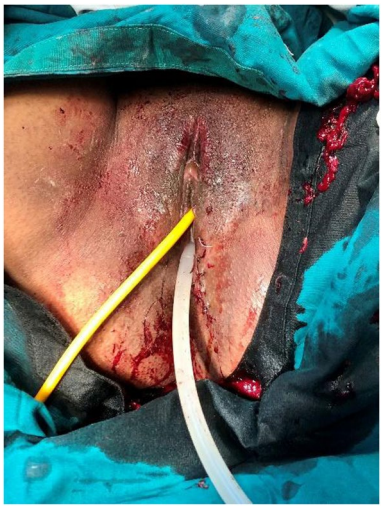

Fig. 1 Ellavi balloon tamponade device in situ along with Foleys catheter in a patient with atonic postpartum hemorrhage

Fig. 2 Graduated bag of balloon tamponade device filled with water

bleeding was noted. Patient was advised to breastfeed and was monitored for 24 h. She was discharged the day after in good condition and is doing well on follow-up visits (Figs. 1 and 2).

Ellavi Balloon Tamponade Device for PPH

The Ellavi balloon device has a prebuilt balloon tamponade device. It consists of a water reservoir or bag at one end which is connected to a balloon device via a silicon tube. The tube is of large bore diameter to allow fluid to quickly fill the balloon. Along the tube is a stop cork which is open while filling and closed to maintain or lock the fluid in the uterine cavity [3].

Method of use: In case of PPH resistant to medication a speculum is inserted into the vagina and cervical lip held with a sponge holding forceps. The (deflated)Ellavi balloon is then inserted up until the fundus of the uterus and kept in this position. An assistant then fills water into the reservoir bag till 1000 ml level and opens the stop cork to let fluid flow into the balloon by force of gravity with the bag at a higher position to the balloon device. Once the patient experiences pain and evidence of stoppage of bleeding is noted the stop cork is placed.

To remove the device first deflate the balloon by placing the bag at a low level and opening the stop cork. Water flows out and bleeding is assessed. In the situation where bleeding is noticed, place the bag at a higher level and after fluid flows back into the balloon close the stop cork [4].

Discussion

This balloon tamponade device obviates the need to manually fix a condom catheter with a tube and saline bag thus saving precious time during PPH. Both resident trainees and faculty of our institution have found it to be user friendly. Additionally, PPH has been controlled effectively, saving lives.

We recommend this or similar devices to be kept ready in all labor rooms to effectively tackle PPH. Cost of this device is not significantly high. This balloon tamponade can be used in management of PPH after usage of prostaglandins, methyl ergometrin analogues and tranexamic acid and prior to surgical options like uterine or iliac ligation and hysterectomy.

This is an economical option which can be adopted by centres and labor rooms across the country in tier 1, 2 and 3 cities. It requires little expertise as demonstrated by our residents and faculty. Additionally it can also be used to transfer a patient to a higher centre due to non-availability of surgical care or blood products [5].

Conclusion

The authors describe a case of use of a balloon tamponade device (Ellavi balloon device). It is an effective and easy to use device for managing PPH resistant to medication.

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Declarations

Conflict of interest The author has no conflict of interest.

Ethical statement All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000 [5].

Informed consent Informed consent was obtained from patient for being included in the study.

Human or animal participants Research involving Human Participants and/or Animals - compliance with ethical standards.

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