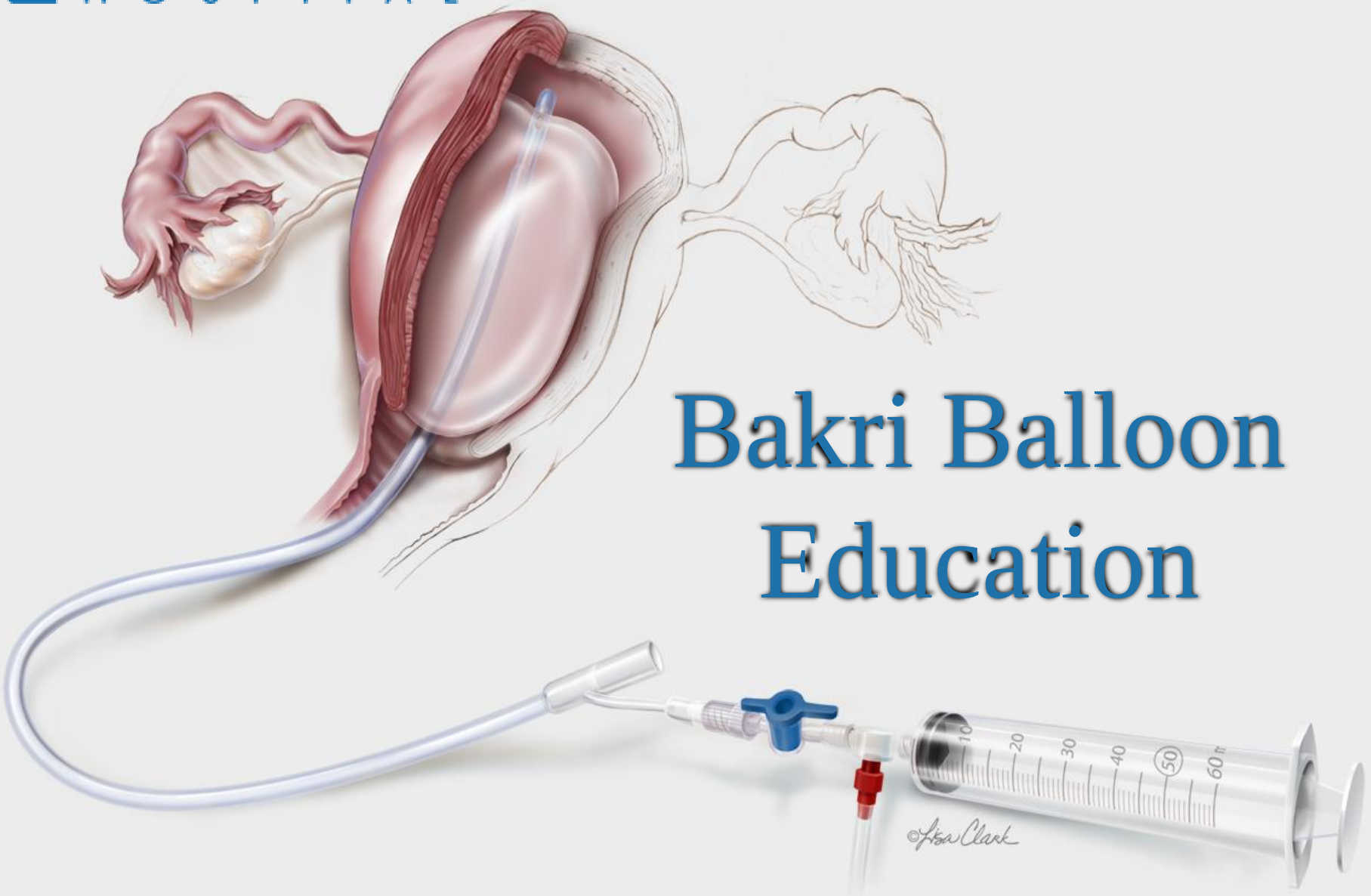
Pomerene HOSPITAL

Bakri Balloon Education



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Discussion

Discussion

- Postpartum hemorrhage (PPH) is defined as bleeding that occurs immediately after the placenta is delivered with an estimated blood loss in excess of 500 mL in a vaginal delivery and 1000 mL in a cesarean section
- Early PPH, also known as primary PPH, occurs after the delivery of the placenta, up to 24 hours after birth
- Late PPH, also known as secondary PPH, occurs anywhere from 24 hours up to 6 weeks after birth

Discussion

- Postpartum hemorrhage is an emergent situation
- The decision for appropriate treatment must be made in a matter of minutes
- PPH is known to be the leading cause of maternal morbidity and mortality worldwide

Discussion

Risk Factors Associated with Postpartum Hemorrhage

- ~ Uterine atony
- ~ Macrosomia
- ~ History of uterine atony
- ~ Clotted blood in uterus
- ~ Prolonged labor
- ~ Pitocin induction or augmentation
- ~ Vacuum extraction
- ~ Intraamniotic infection
- ~ Anesthesia effects
- ~ Trauma to genital tract
- ~ Precipitous labor
- ~ Multifetal gestation
- ~ Retained products of conception
- ~ Polyhydramnios
- ~ High parity
- ~ Precipitous birth
- ~ Forceps birth
- ~ Sepsis
- ~ Coagulation defects
- ~ Bladder distention

*Large episiotomy, including extensions; lacerations of the perineum, vagina, or cervix; ruptured uterus

Discussion

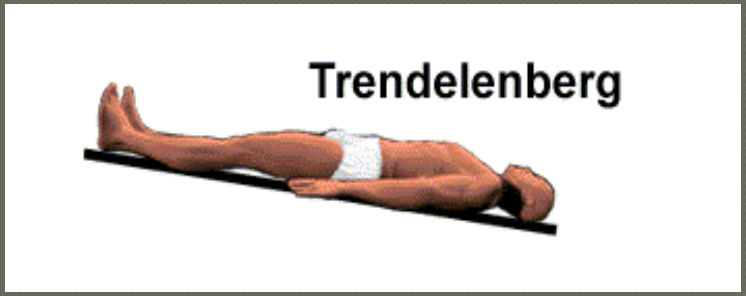
- The most common cause of postpartum hemorrhage worldwide is uterine atony, occurring in over 70% of cases
  - Because of increased blood flow to the placenta in late pregnancy, failure of the uterus to contract after placental separation can result in very rapid and significant blood loss
  - The usual methods to prevent PPH are uterine massage and administration of pitocin

Discussion

- Careful assessment and interpretation of maternal vital signs are critical in patient care during active bleeding
  - Vital signs usually trend such that pulse rate increases, blood pressure decreases, and pulse pressure decreases as blood loss progresses
  - Urine output also declines as hypovolemia worsens

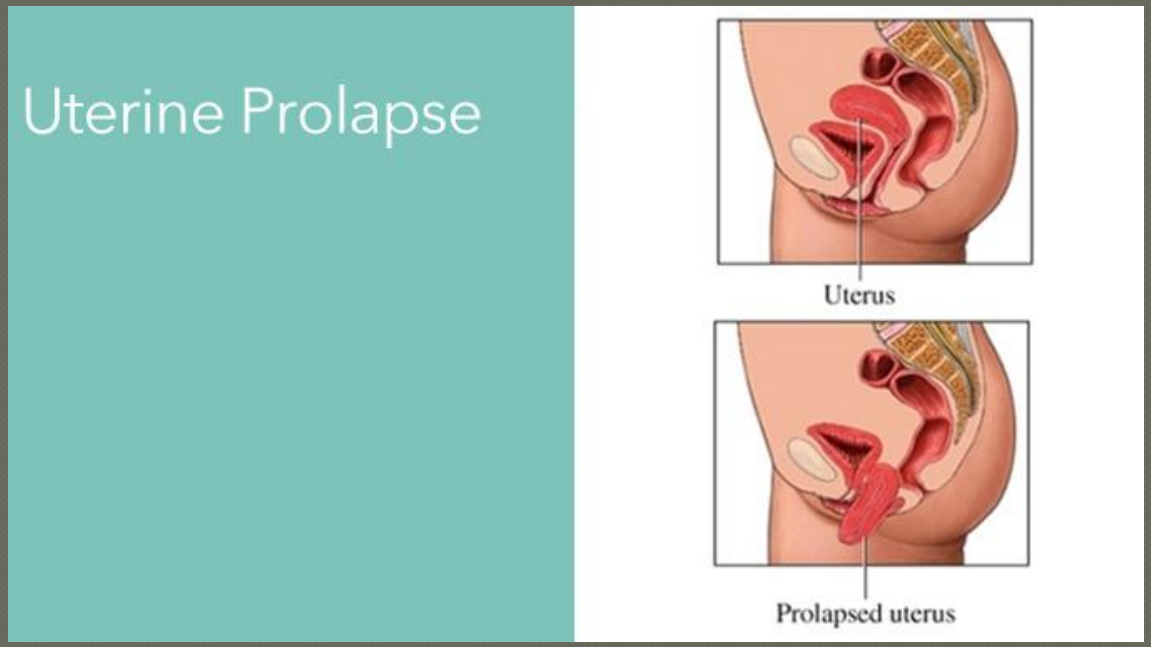
Discussion

- Initial management of a patient who is said to be having a postpartum hemorrhage is to put them in the trendelenburg position and apply bi-manual uterine massage



Discussion

- **NOTE:** Use caution when performing fundal checks to prevent causing a prolapsed uterus



Discussion

- Along with assessment of uterine tone, assess for bladder distention
- An oversized urinary bladder can increase uterine bleeding and should be drained to help achieve normal uterine tone

Discussion

- Further management of treating postpartum hemorrhage may often include pharmacologic therapy
  - Pitocin, Methergine, Hemabate, and Cytotec
- Pitocin is generally considered the first line of therapy, as it is commonly administered as a prophylactic measure and has few contraindications

Discussion

- Pitocin
  - Is often given IM or IV
    - IM dose: 10mg/ml
    - IV dose: 20 units in 1000 mL of Lactated Ringers

Discussion

- Methergine
  - If often given PO or IM
    - PO dose: 0.2mg every 6-8 hours after initial IM dose
    - IM dose: 0.2mg/mL every 2-4 hours up to 5 doses
  - Contraindicated in patients who are hypertensive

Discussion

- Hemabate
  - Given IM
    - Dose: 0.25mg every 15-90 minutes
      - Total dose of Hemabate should not exceed 2mg
  - Contraindicated in patients who are asthmatic
  - Common side effects to watch for are:
    - Diarrhea
    - Increase in temperature
    - Flushing

Discussion

- Cytotec
  - Can be given oral, sublingual, vaginal, and rectal
    - Dose: varies with each medical provider and each hemorrhage emergency (each tablet is 100mcg)
  - Common side effects to watch for are:
    - Diarrhea
    - Shivering, chills
    - Increase in temperature

Discussion

- Underestimation of blood loss is common
  - To help nursing staff adequately monitor and measure blood loss, a laminated card was placed on the top of every delivery cart explaining how to measure blood loss
  - The cards also include a list of the following weights:

Peach peri-pad = 30 grams

Blue chux pad = 20 grams

Yellow chux pad = 75 grams

Discussion

- **How to measure blood loss:**

REMEMBER: 1 gram = 1cc of blood

Weight of saturated peri-pad/chux

\- Weight of a non-saturated peri-pad/chux

Total blood loss

Ex. 390 grams – 75 grams (yellow chux pad) = 315cc of blood loss

Introduction

Introduction

Various management measures are used to control bleeding

- Uterotonics (ex. Pitocin, Cytotec, Methergine, and Hemobate)
- Packing
- Manual compression
- Embolization
- Laparotomy
- Hysterectomy

Introduction

An ideal management option would:

- Be easily administered and removed
- Control capillary/venous bleeding and surface oozing
- Gauge success of treatment in real time
- Avoid hysterectomy to preserve the patient's reproductive potential

Introduction

The Bakri Postpartum Balloon from Cook Medical:

- Is easily administered
- Allows quick determination of effectiveness
- Gauges ongoing blood loss through an inner lumen
- Removes easily without need for separate surgical procedure
- Conservatively manages hemorrhage

Introduction

The Bakri Postpartum Balloon

- ***Is easily administered***
  - Will easily pass through a dilated cervix
  - May be passed retrograde through a cesarean incision
  - May be inflated quickly
  - May be deflated quickly and removed if needed

Introduction

The Bakri Postpartum Balloon:

- ***Effectiveness can be quickly determined***
  - Tamponade may be quickly seen after the balloon is placed
  - If not effective, it may be easily removed
  - May help temporize a patient while preparations for more aggressive treatments are made

Introduction

The Bakri Postpartum Balloon:

- ***Gauges ongoing blood loss through inner lumen***
  - Drainage lumen of catheter with distal sideports allows real-time assessment of ongoing blood loss
  - May prevent delayed treatment of concealed hemorrhage above level of the tamponade balloon

Introduction

The Bakri Postpartum Balloon:

- ***Removes easily without need for separate surgical procedure***
  - Deflates in minutes
  - Removes easily transvaginally

Introduction

The Bakri Postpartum Balloon:

- ***Conservatively manages hemorrhage***
  - Is a simple yet effective tool that may help control uterine bleeding when uterotonic therapy fails

Indications

Indications

The Bakri Postpartum Balloon catheter is intended to provide temporary control or reduction of postpartum uterine bleeding when conservative management is warranted, and is indicated for use in the event of primary postpartum hemorrhage within 24 hours of delivery

Indications

NOTE: While the device is intended as a temporary means of establishing hemostasis in cases indicating conservative management of postpartum uterine bleeding, the application of this device should be in junction with close monitoring for signs of arterial bleeding and/or disseminated intravascular coagulation (DIC)

Contraindications

Contraindications

The use of this product is contraindicated in the presence of:

- Arterial bleeding requiring surgical exploration or angiographic embolization
- Cases indicating hysterectomy
- Pregnancy
- Cervical cancer
- Purulent infections of the vagina, cervix, or uterus

Contraindications

The use of this product is contraindicated in the presence of (cont.):

- Untreated uterine anomaly
- Disseminated intravascular coagulation (DIC)
- A surgical site that would prohibit the device from effectively controlling bleeding

Application

(ONLY TO BE DONE BY A PHYSICIAN)

Application

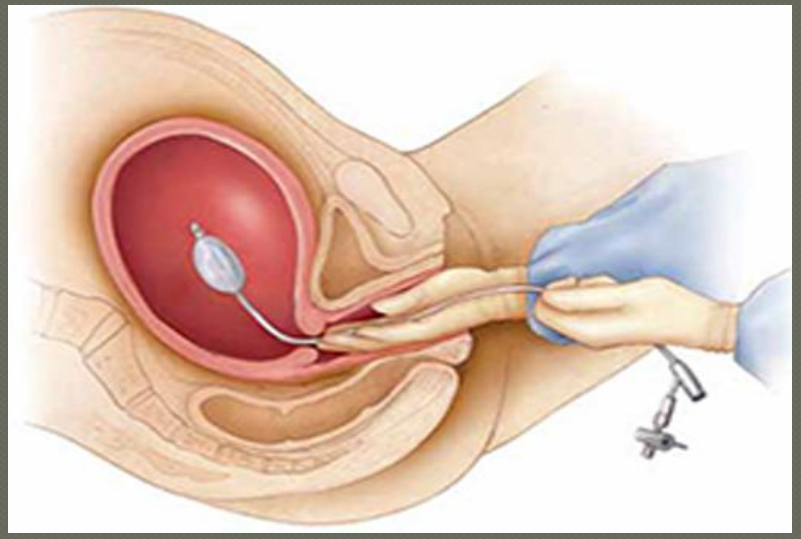
Vaginal Delivery: Transvaginal Placement

- Determine that the uterus is clear of any retained placental fragments, arterial bleeding, or lacerations
- Determine approximate uterine volume by ultrasound or direct examination

Application

Vaginal Delivery: Transvaginal Placement

- Under ultrasound guidance, insert the balloon portion of the catheter into the uterus, making certain that the entire balloon is inserted past the cervical canal and internal os



Application

Vaginal Delivery: Transvaginal Placement

- **Caution:** Avoid excessive force when inserting the balloon into the uterus
- If not already placed, insert a Foley catheter in the patient's bladder to collect and monitor urinary output (place before balloon is inflated)
- To ensure maintenance of correct placement and maximize tamponade effect, the vaginal canal may be packed with iodine- or antibiotic-soaked vaginal packing at this time

Application

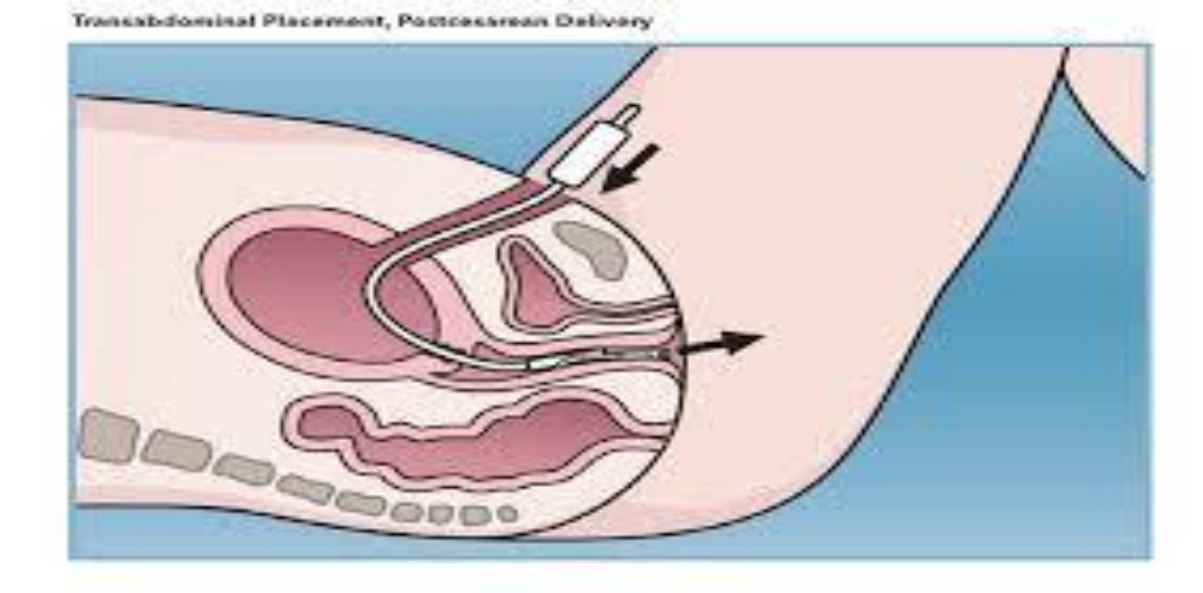
Cesarean Delivery: Transabdominal Placement

- Determine that the uterus is clear of any retained placental fragments, arterial bleeding, or lacerations
- Determine approximate uterine volume by intraoperative direct examination or postoperative ultrasound examination

Application

Cesarean Delivery: Transabdominal Placement

- From above: (via access of the Cesarean incision), pass the tamponade balloon, inflation port first, through the uterus and cervix



Application

Cesarean Delivery: Transabdominal Placement

- Have an assistant pull the shaft of the balloon through the vaginal canal until the deflated balloon base comes in contact with the internal cervical os
- Close the incision per normal procedure, taking care to avoid puncturing the balloon while suturing
- **NOTE:** Inflate the balloon after the uterine incision is closed to avoid balloon puncture

Application

Cesarean Delivery: Transabdominal Placement

- If not already placed, insert a Foley catheter in the patient's bladder to collect and monitor urinary output (place before balloon is inflated)
- To ensure maintenance of correct placement and maximize tamponade effect, the vaginal canal may be packed with iodine- or antibiotic-soaked vaginal packing at this time

Application

Instructions for balloon inflation:

- **Warning:** Always inflate the balloon with sterile liquid. Never inflate with air, carbon dioxide, or any other gas.
- **Warning:** Do not over inflate the balloon. The maximum inflation volume is 500cc of sterile liquid such as sterile water, sterile saline, or lactated ringers solution
- Ensure that a Foley catheter is placed in the patient's bladder before inflating the balloon

Application

Instructions for balloon inflation (cont.):

- To ensure that the balloon is filled to the desired volume, it is recommended that the pre-determined volume of fluid be placed in a separate container, rather than solely relying on a syringe count to verify the amount of fluid that has been instilled into the balloon
- Using the enclosed syringe, begin filling the balloon to the pre-determined volume through the stopcock

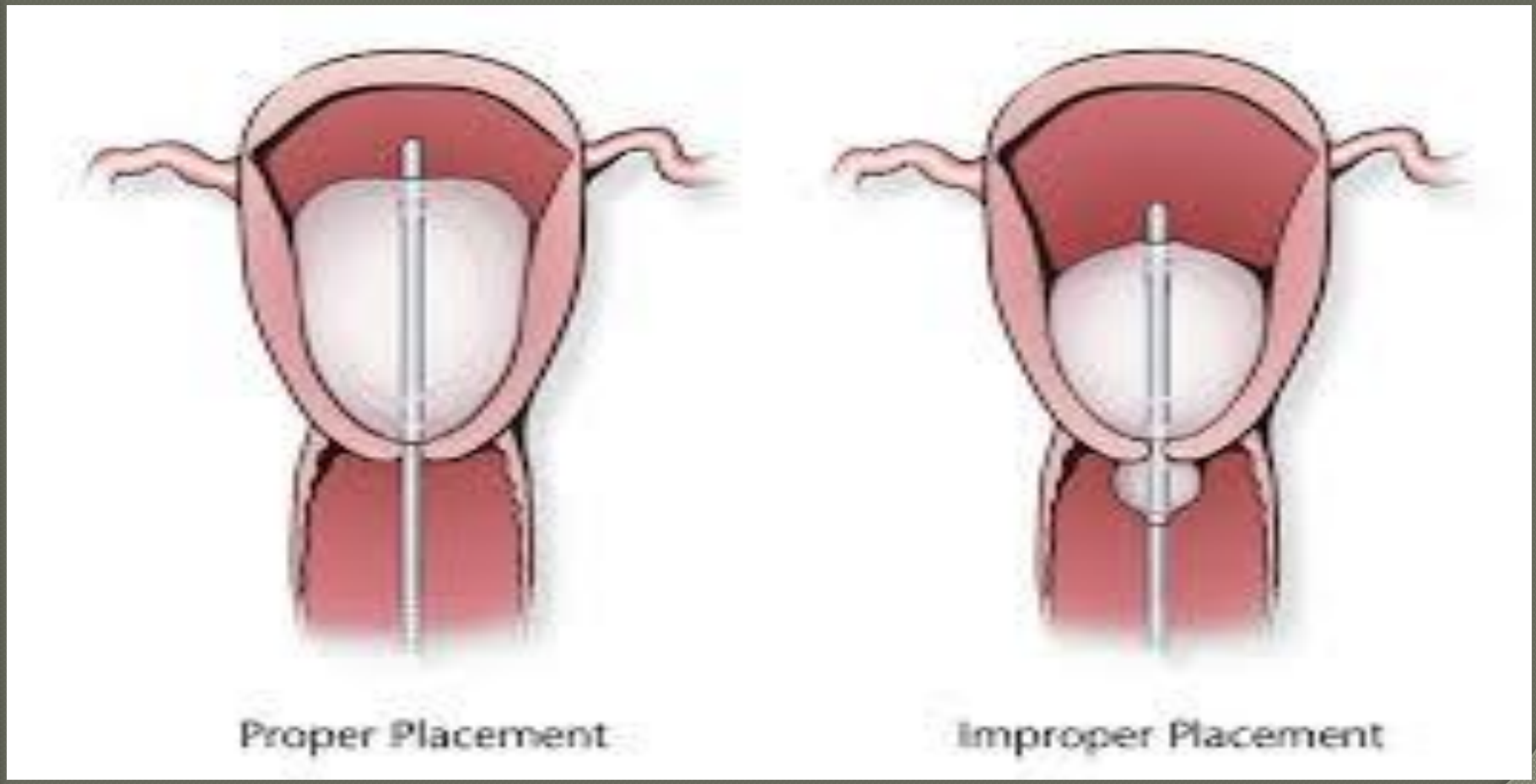
Application

Instructions for balloon inflation (cont.):

- Apply gentle traction to the balloon shaft to ensure proper contact between the balloon and tissue surface. To maintain tension, secure the balloon shaft to the patient's leg or attach a weight, not to exceed 500 grams.
- **NOTE:** If the balloon becomes dislodged due to shaft tension and cervical dilation, deflate, reposition, and re-inflate. Use of vaginal packing may be indicated at that time to aid in balloon placement.

Application

Application—Balloon Dislodged



Application

Bakri Postpartum Balloon Placement Video

https://www.youtube.com/watch?v=lRNxLFB8Vqw

Application

Patient Monitoring:

- Once balloon is placed and inflated, connect the drainage port to a fluid collection bag to monitor hemostasis
- **IMPORTANT:** To adequately monitor hemostasis, the balloon drainage port and tubing should be flushed clear of clots with sterile isotonic saline (the appropriate volume of saline and frequency of flushing should be determined by the physician)
- Patient should be monitored continuously for signs of increased bleeding, uterine cramping, or a deteriorating condition

Application

Patient Monitoring (cont.):

- Patient monitoring should include, but not limited to: blood pressure, pulse, urine output, cramping, pallor, and active bleeding
- **IMPORTANT:** Signs of deteriorating or non-improving conditions should indicate more aggressive treatment and management of uterine bleeding
- **IMPORTANT:** This device is not a substitute for surgical management and fluid resuscitation of life-threatening postpartum hemorrhage

Application

Balloon Removal:

- **IMPORTANT:** The removal of the Bakri Balloon is only to be done by the physician
- **NOTE:** Maximum time for indwelling of Bakri Balloon is 24 hours. The balloon may be removed sooner upon physician determination of hemostasis or the need to apply more aggressive treatment

Application

Balloon Removal (cont.):

1. Remove tension from balloon shaft
2. Remove any vaginal packing
3. Using appropriate syringe, aspirate contents of the balloon until fully deflated. Remove fluid in a slow, sequential manner
4. Gently tract the balloon from the uterus and vaginal canal and discard
5. Continue to monitor the patient for signs of uterine bleeding

References

- Bakri Balloon Placement Procedure located on the Pomerene Hospital Intranet
- Bakri Postpartum Balloon. (n.d.). Retrieved November 21, 2015, from http://obgyn.med.umich.edu/sites/obgyn.med.umich.edu/files/Bakri.pdf
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