Surgical Management of Obstetrical Hemorrhage: *Hypogastric Embolization*

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Maximazing Patient Safety

- **Medical Team Issues**
  - Preoperative preparation
    - Consultation for high risk patients
    - Team mobilization for unexpected emergencies
  - Surgical factors
  - Infrastructure
  - Postoperative monitoring
Peri-Operative Bleeding
Clinical Scenarios

- Optimizing patient presenting with bleeding
- Control of intra-operative bleeding
- Diagnosis and intervention in post-operative bleeding
Surgical Management
OR Equipment

• Trays
  • Gyn Long Tray
  • Hysterectomy Tray
  • Gyn Surgery Tray

• Cell Saver Equipment

• Preparation of products to accelerate coagulation

• Preparation for possible embolization
Surgical Management
Obstetrician/Surgeon

• Control Source of Hemorrhage

• Perform indicated procedure:
  • Repair of lacerations
  • Uterine source
    • Bacri balloon
    • Uterine artery ligation
    • Hysterectomy
  • Bilateral hypogastric artery ligation
    • Not advised

• Pack and consider
  • Interventional Radiology for embolization
  • Intraoperative embolization
Supplies

- Six to eight 20 mL syringes
- Three way stopcock
- Gelfoam cut into 5 mm squares
- Normal saline
- Two 14-gauge angiocatheters
- Sterile IV tubing ("anesthesia extension set")
- Two 0 silk ties, vessel loops
- Long tonsil and Right angle clamps
Preparation of Gelfoam Mixture
Preparing the Gelfoam

The gelfoam is cut into squares less than five millimeters each
Arranging the Supplies

The 20 mL syringes, normal saline and cut gelfoam squares are prepared on the sterile field in preparation for mixing.
Syringes and IV Tubing

The syringes and sterile IV tubing are kept on the sterile field.

Minimum of six to eight 20 mL syringes are needed for the procedure.
Filling the Syringes

Approximately 5-7 mL of the cut squares of gelfoam are placed into each 20 mL syringe.

At least three syringes should be prepared.
Mixing the Syringes

The syringe with the gelfoam is attached to a stopcock.

Second syringe with 20 mL of normal saline is attached to the other side of the stopcock and the two are mixed until the material passes easily through the stopcock.
IV tubing is primed with sterile saline.

Syringe with the mixture of gelfoam and saline is then attached to IV tubing to allow for direct injection into the vessel.
Internal Iliac (Hypogastric) Artery Embolization
Common iliac artery and its bifurcation are identified with retroperitoneal approach.

The internal iliac (hypogastric) artery is ligated with 0 silk ties distal to the origin of the posterior branch.
Hypogastric Artery Embolization

14-gauge angiocatheter is inserted distal to the suture ligation and arterial access is confirmed with flashback.

IV tubing is connected and the mixture is injected until resistance is appreciated and no further arterial flashback is obtained.
Obstetrical Clinical Experience

Hypogastric Artery Embolization

- Winthrop University Hospital: 2008 – 2015
  - Nine patients treated
    - One episode of posterior branch ischemia

- Stony Brook University Hospital: 2007-2008
  - Three patients
Thank you for your attention