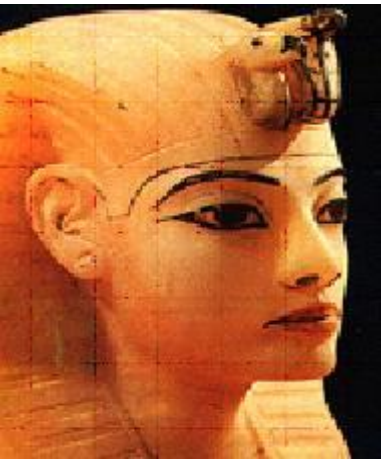
Postpartum Hemorrhage (PPH)

An Evidence Based View

Part II "Intractable PPH"



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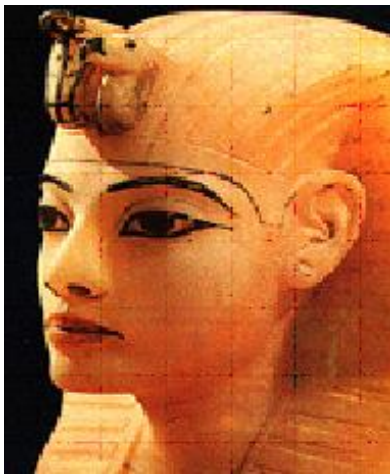
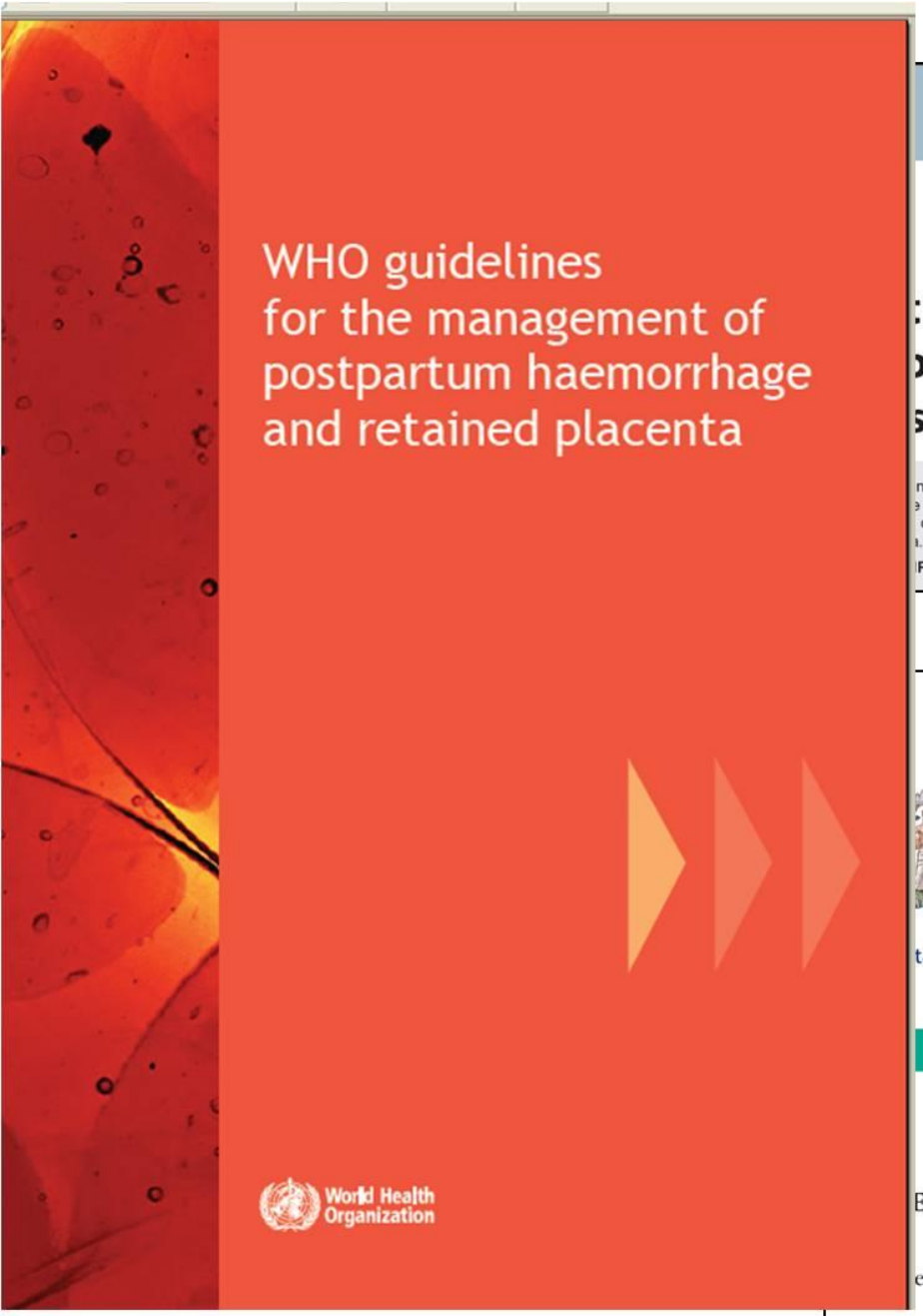


Sources of Evidence

- Pub Med.
- Cochrane library
- SOGC Hemorrhagic Shock Guideline No 115 2002
- RCOG Guideline P.Previa No.27 *2005*
- Misoprostol Guidance WHO 2007&FIGO 2009
- RCOG Guideline PPH No.52 May 2009
- WHO Guidelines PPH 2009
- SOGC PPH Guideline No 235 Octob.2009



SOGC CLINICAL PRACTICE GUIDELINE

No. 235 October 2009 (Replaces No. 88, April 2000)

:ive Management of the Third Stage of
)our: Prevention and Treatment of
stpartum Hemorrhage

nical Practice Guideline has been prepared by the Clinical
e Obstetrics Committee and approved by the Executive and
of the Society of Obstetricians and Gynaecologists of
.

PAL AUTHOR

be relevant. Each full-text article was critically appraised with use of the Jadad Scale and the levels of evidence definitions of the Canadian Task Force on Preventive Health Care.

Values: The quality of evidence was rated with use of the criteria described by the Canadian Task Force on Preventive Health Care.

Sponsor: The Society of Obstetricians and Gynaecologists of

Royal College of
Obstetricians and
Gynaecologists

tandards to improve women's health

Green-top Guideline
No. 52
May 2009

EVENTION AND MANAGEMENT OF POSTPARTUM HAEMORRHAGE

e first edition of this guideline.

1. Purpose and scope

Management Of Established PPH

4 components: undertaken simultaneously:

1. Communication
2. Resuscitation
3. Monitoring and investigation
4. Arresting the bleeding

- Treatment of the underlying disorder (4Ts)
- Management of Intractable PPH

RCOG Guideline PPH No.52 May 2009 (Grade C)

Intractable PPH

About 10 % of women will not respond to the initial management steps and are considered as intractable PPH.

They are caused mainly by

- Uterine atony
- Placenta Previa accretes at CS scar (PP accreta)
- Difficult trauma repair
- Coagulopathy

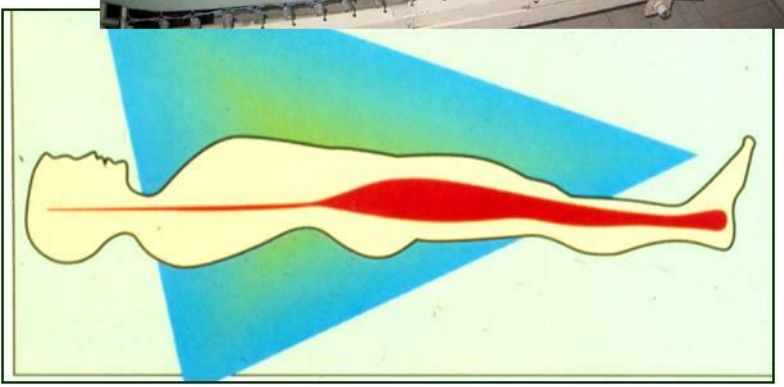
Intractable Postpartum Hemorrhage Algorithm

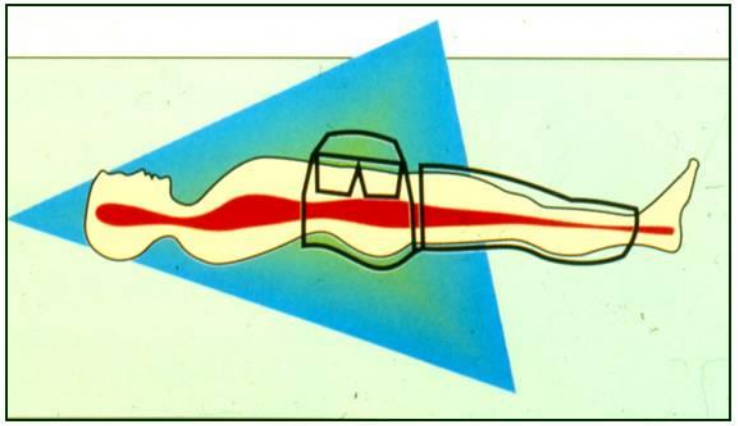
Vaginal delivery

Local Control

- Garment
- balloon tampnade
- Arterial embolization

Garment





Suellen Miller, 2005

Management of Uterine Atony

If pharmacological measures fail : "Intrauterine balloon tamponade "

is the first-line 'surgical' intervention

RCOG Guideline PPH No.52 May *2009 Grade C*

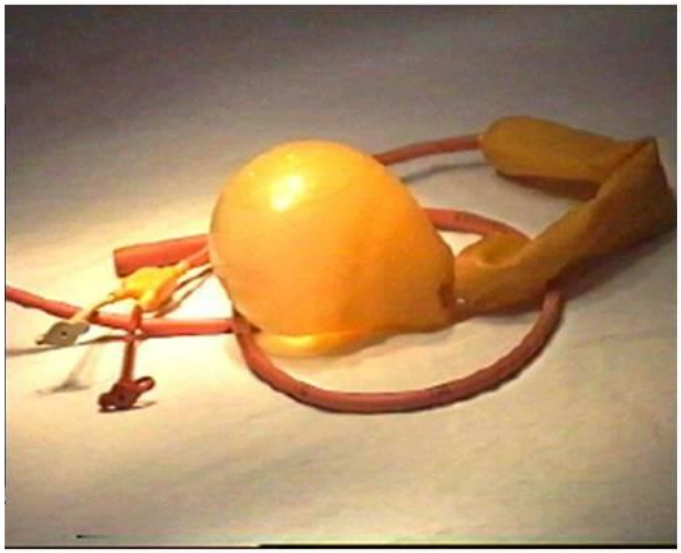
Intractable Postpartum Hemorrhage Algorithm

Vaginal delivery

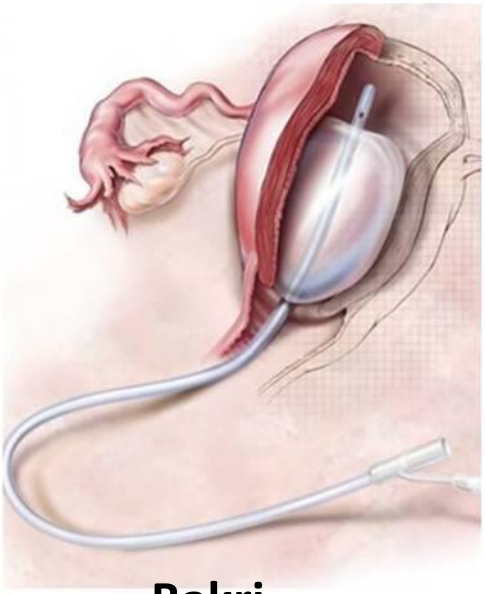
↓

Local Control

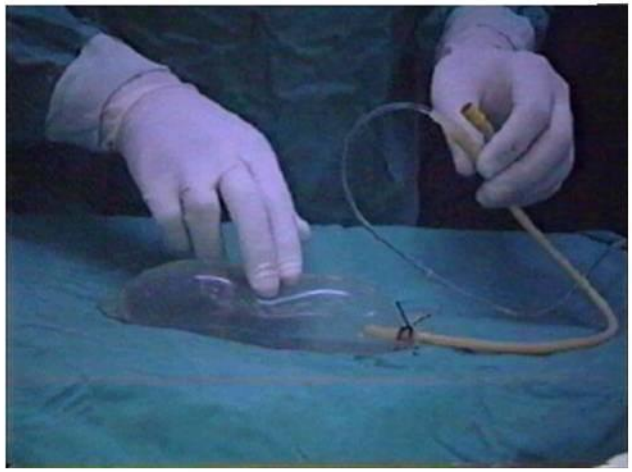
- Garment
- Gauze Pack or Balloon Tamponade
- Arterial embolization



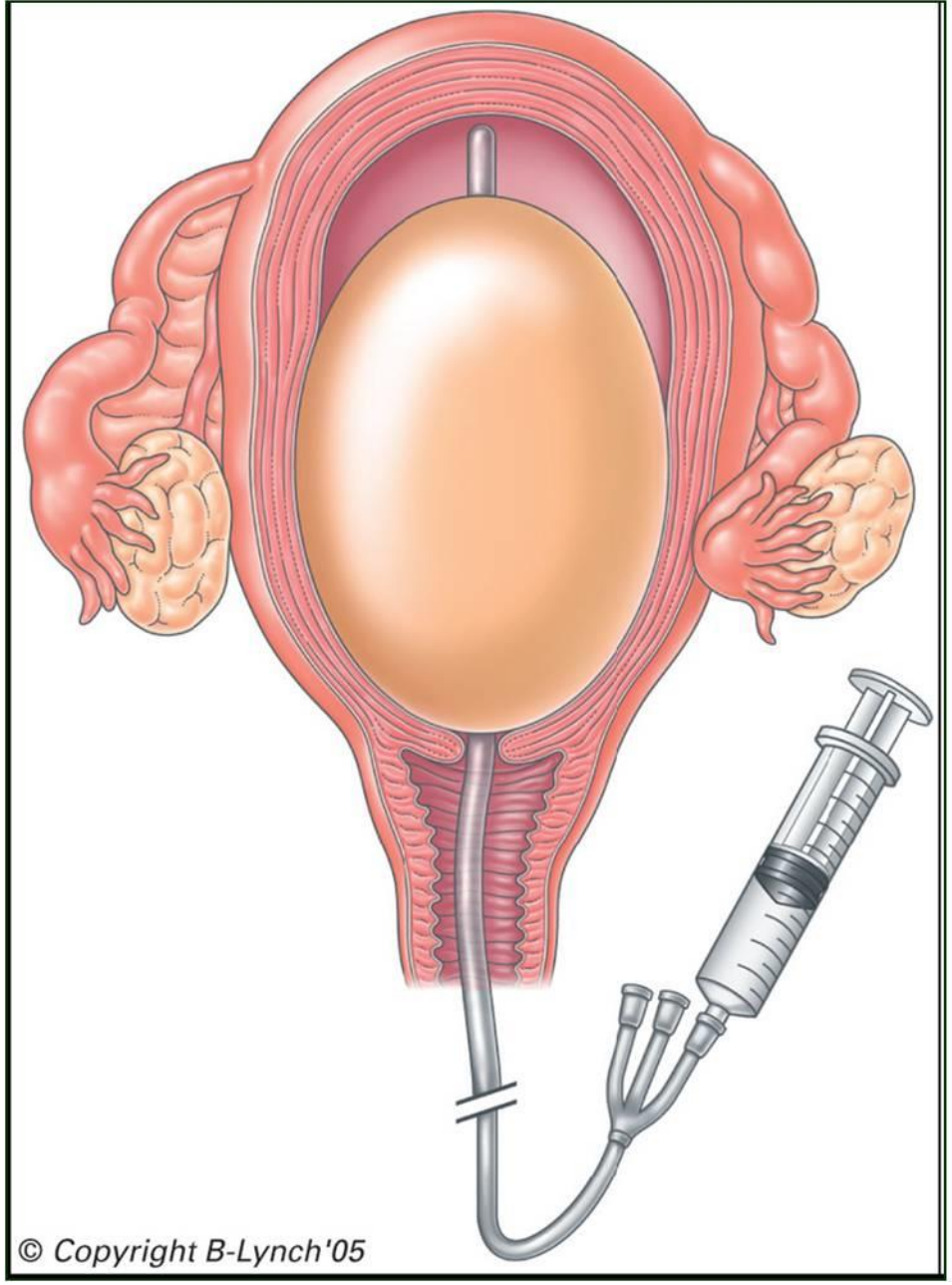
Sengstaken-Blakemore Tube



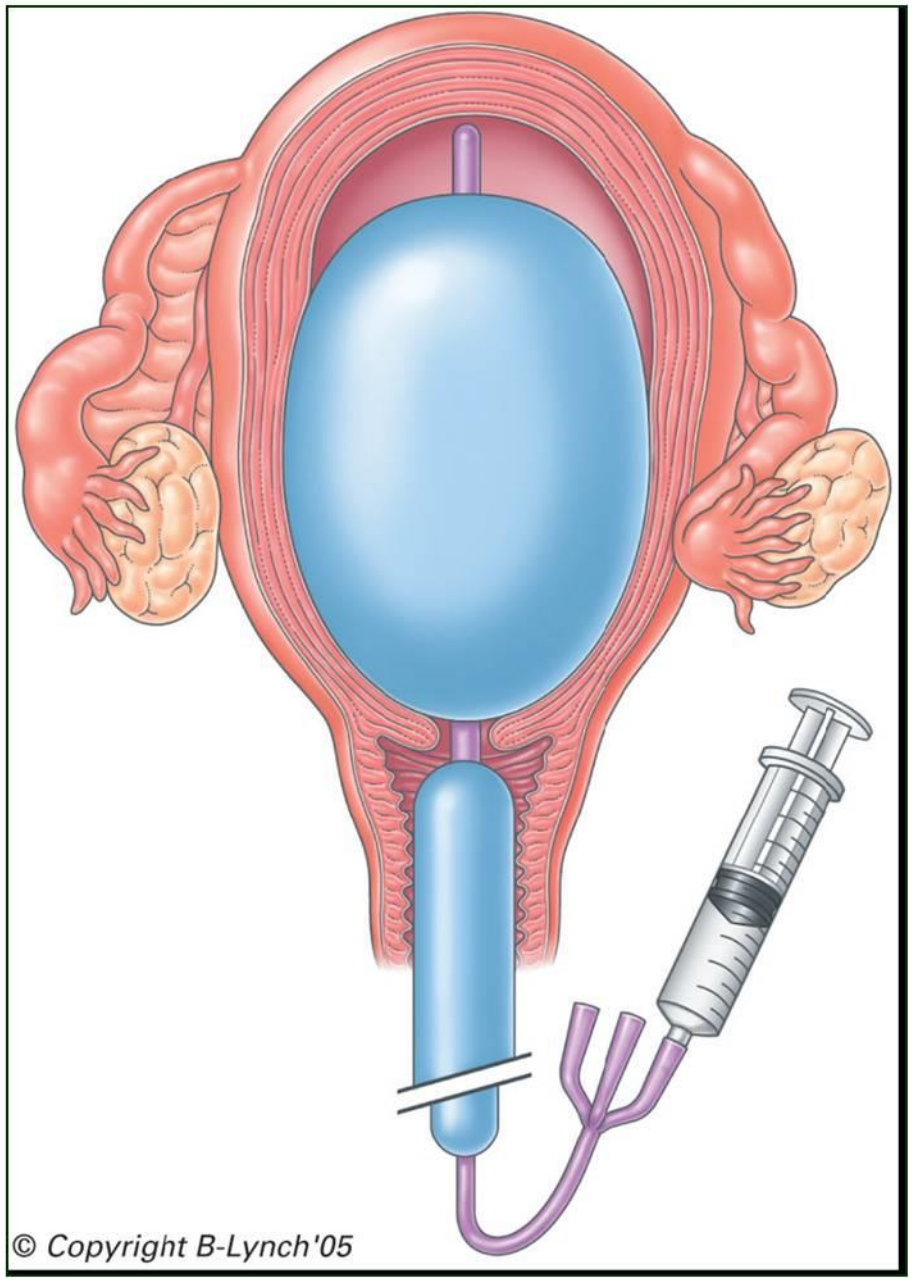
Bakri Tamponade Balloon



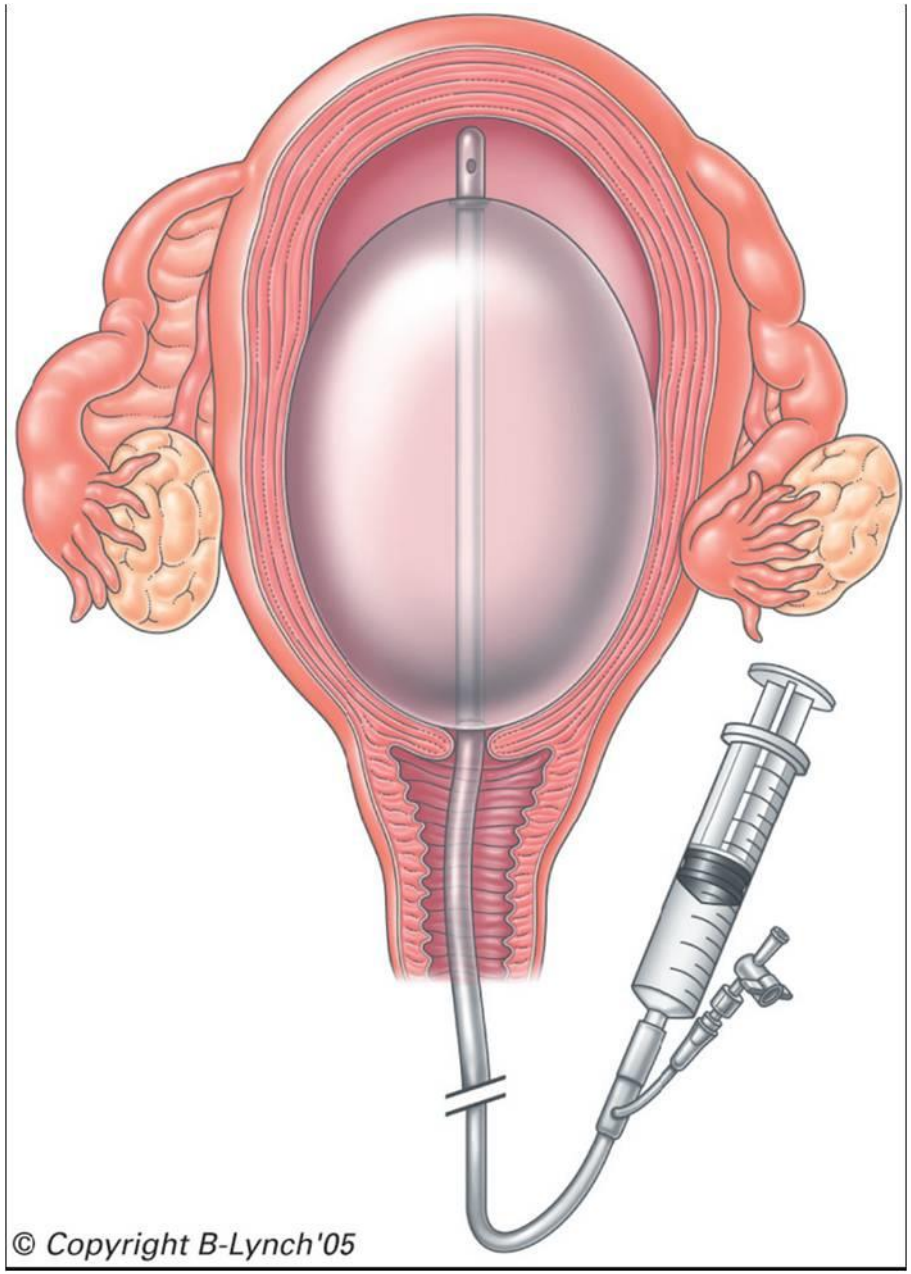
Condom



Bakri balloon



Sengstaken–Blakemore tube

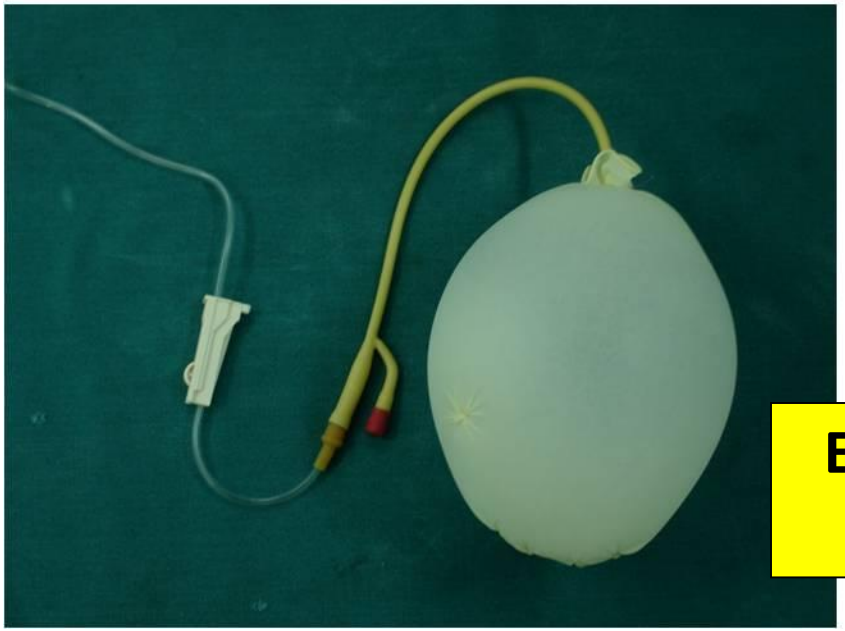


Rüsch hydrostatic balloon catheter

El-Sherbiny Inverted Glove Tapenade

- With aseptic precautions knots are mad on all fingers of a surgical glove to render it a single cavity .Then the glove is inverted to have a smooth outer surface.
- A sterile rubber catheter fitted with a inverted glove is introduced into the uterus. The glove is inflated with 200-500 mL normal saline, according to need.

El Sherbiny 2011



El Sherbiny 2011

Inverted finger knotted glove “Sherbiny Damietta”

Inverted finger knotted glove “Sherbiny”

El Sherbiny
2011

El-Sherbiny Inverted Glove Tapenade

- A roller gauze is introduced into the vaginal cavity to keep the uterine balloon in situ.
- The gloves are catheter was kept for 24 hours, and gradually deflated when bleeding ceased.

El Sherbiny ,2011

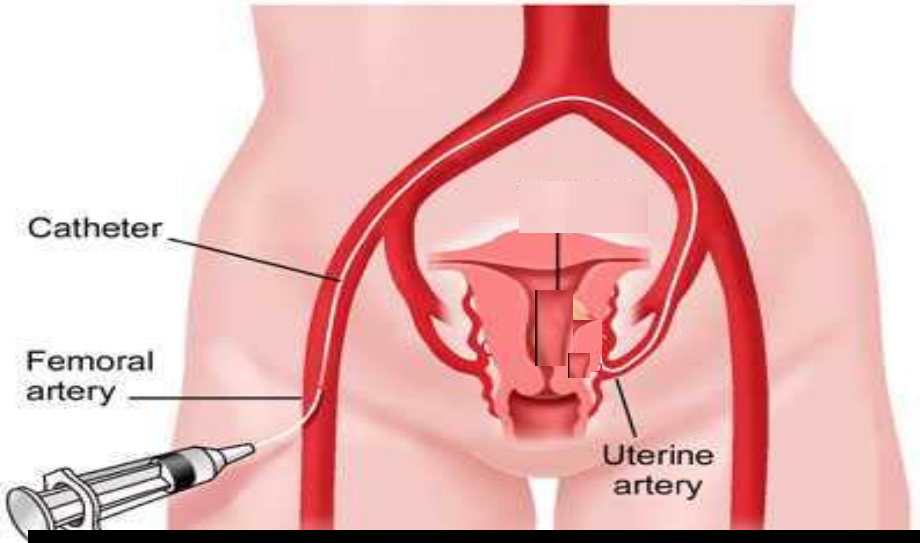
Intractable Postpartum Hemorrhage Algorithm

Vaginal delivery

Local Control

- Garment
- Gauze Pack or Condom
- Arterial embolization

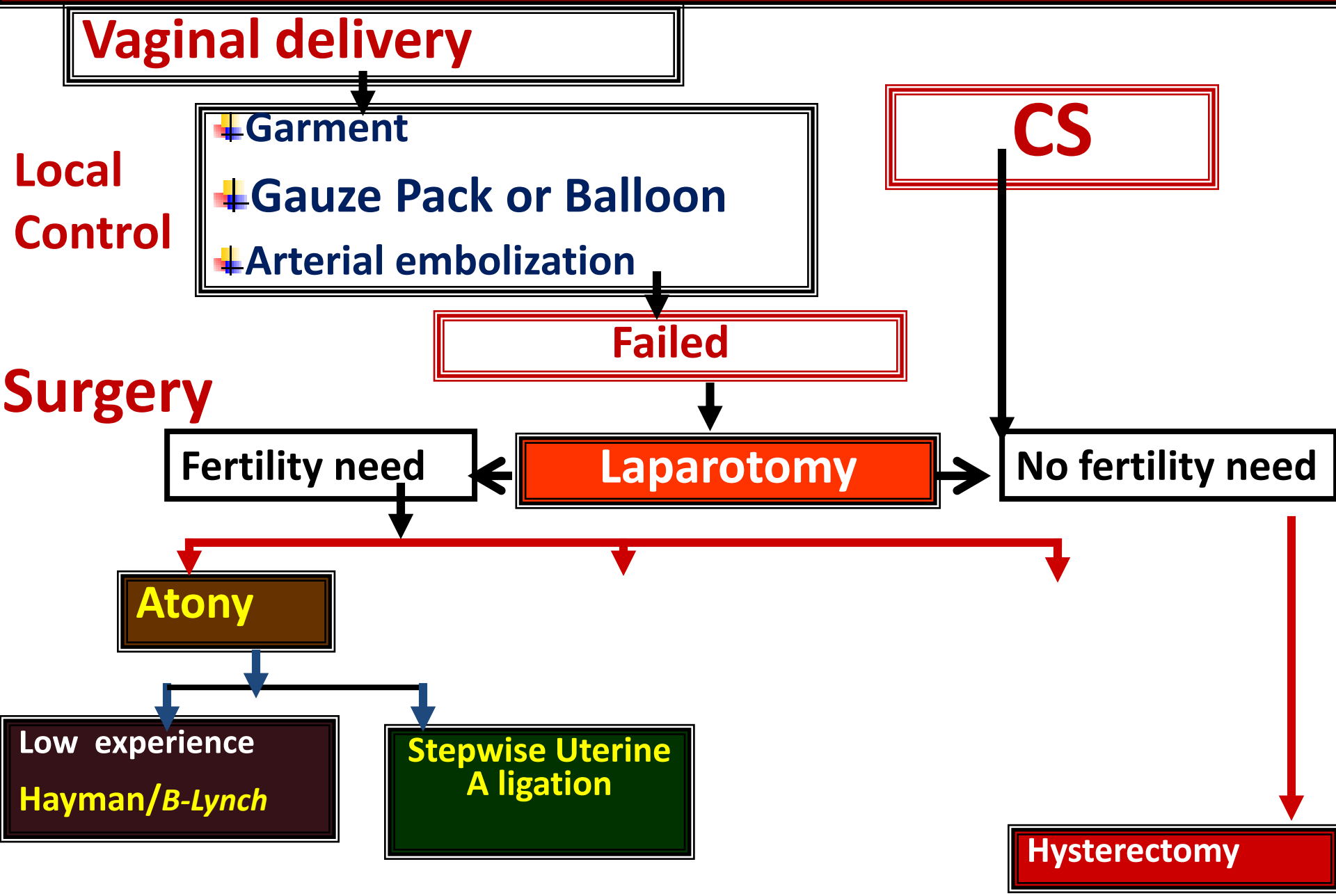
Arterial Embolization



gelfoam

selective arterial embolization

Intractable Postpartum Hemorrhage Algorithm

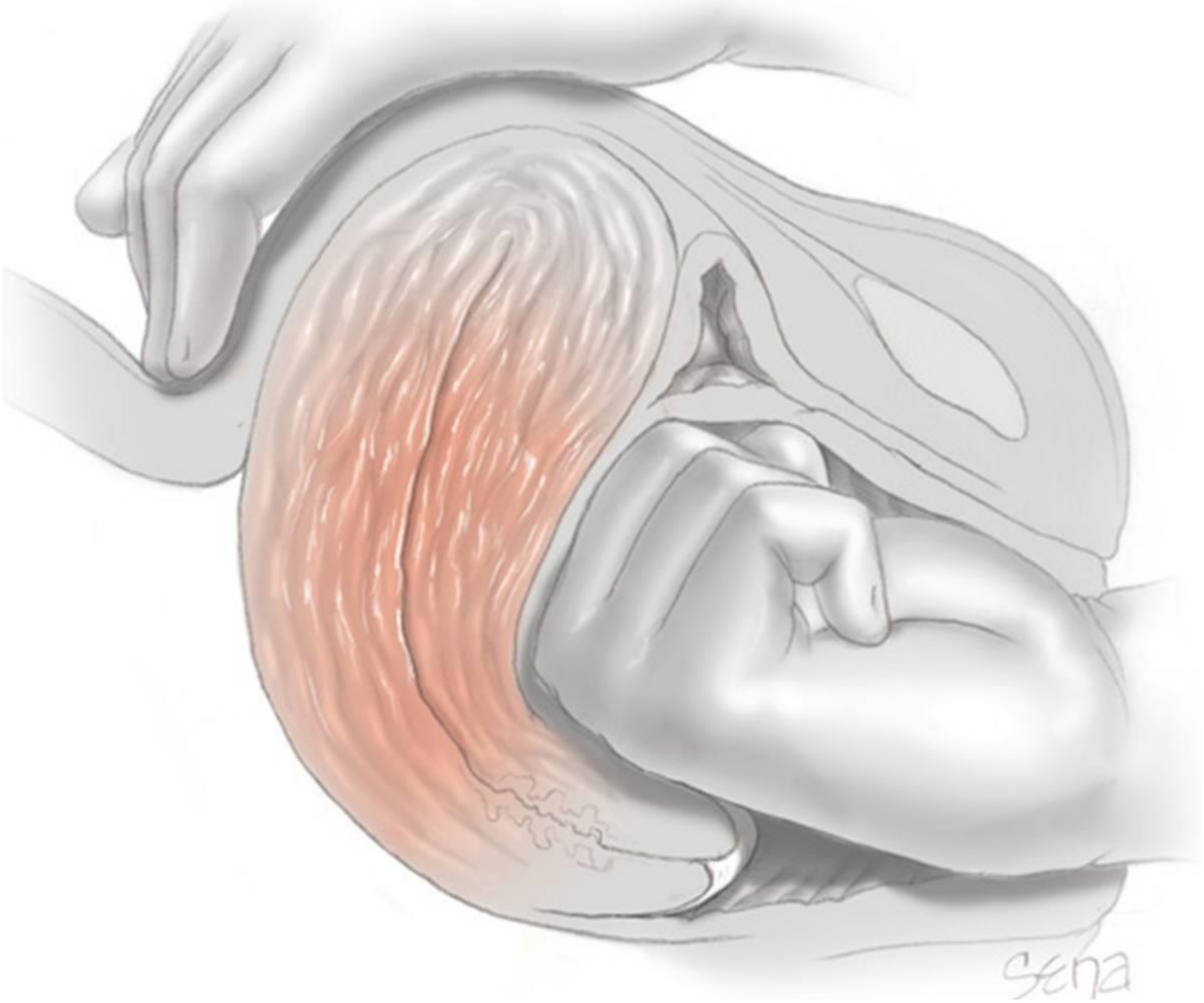


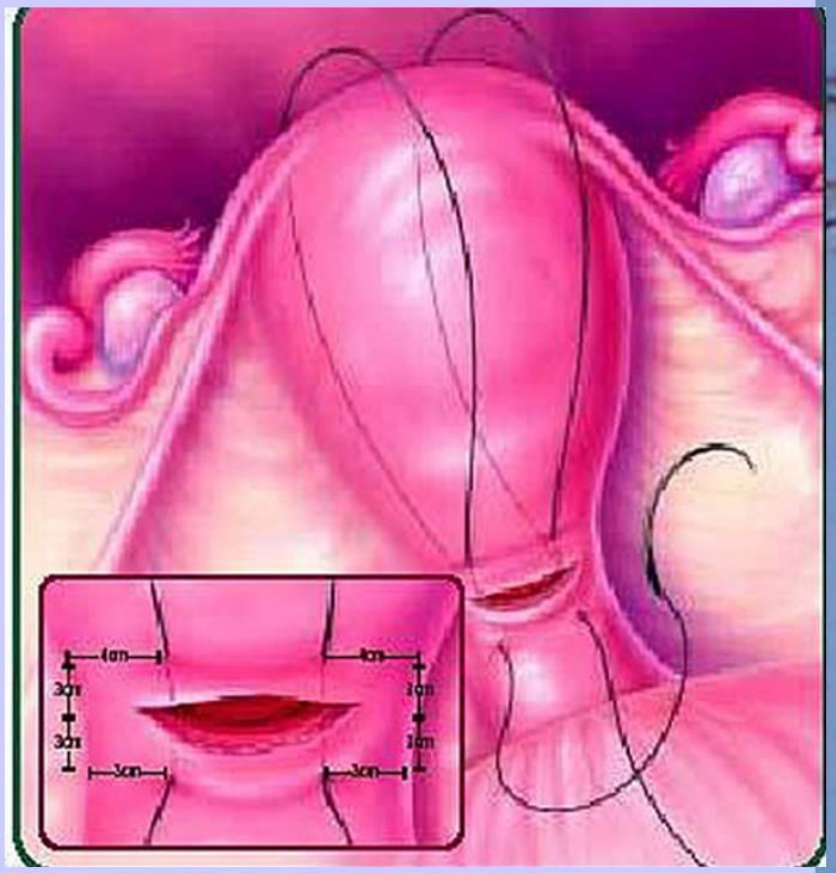
Management of Uterine Atony

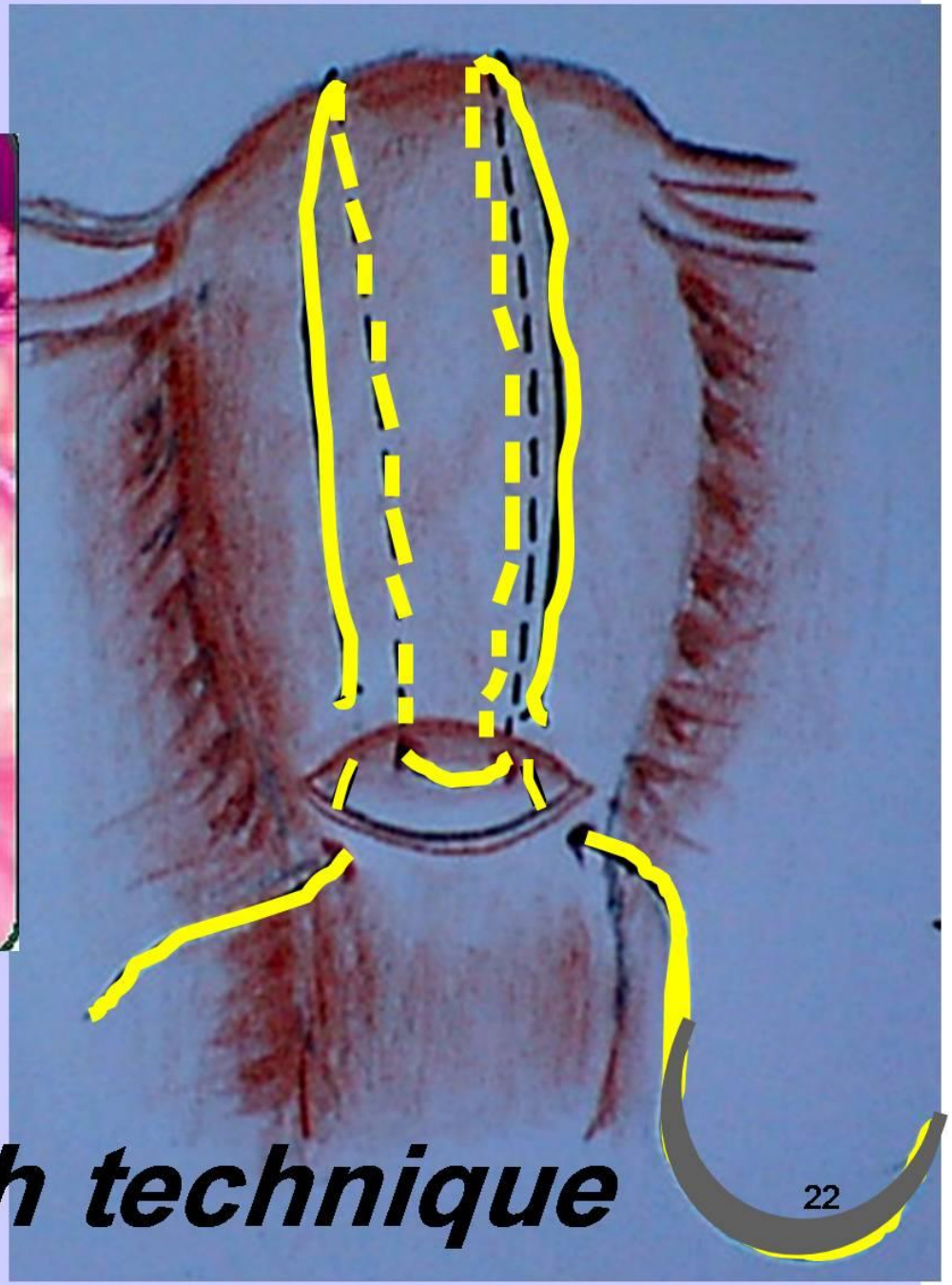
If tamponade fails: the following may be attempted, depending on clinical circumstances and available expertise:

- **Haemostatic brace suturing (B-Lynch or modified compression sutures)**
- **Bilateral ligation of uterine arteries**
- **Bilateral ligation of internal iliac (hypogastric) arteries**
- **Selective arterial embolisation**

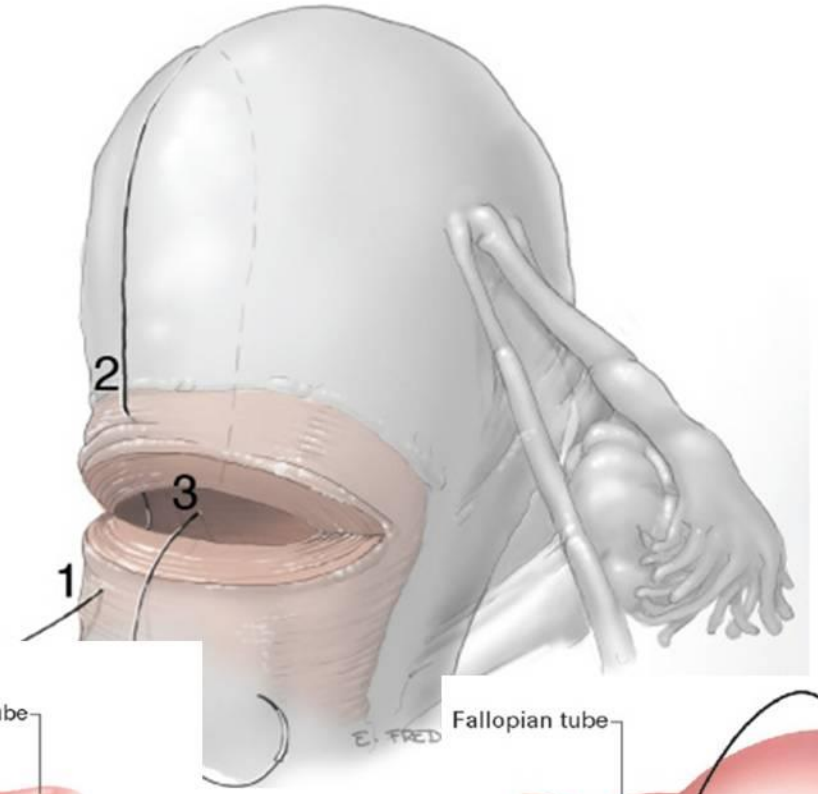
RCOG Guideline PPH No.52 May *2009* *Grade C*


Sena





B-Lynch technique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3
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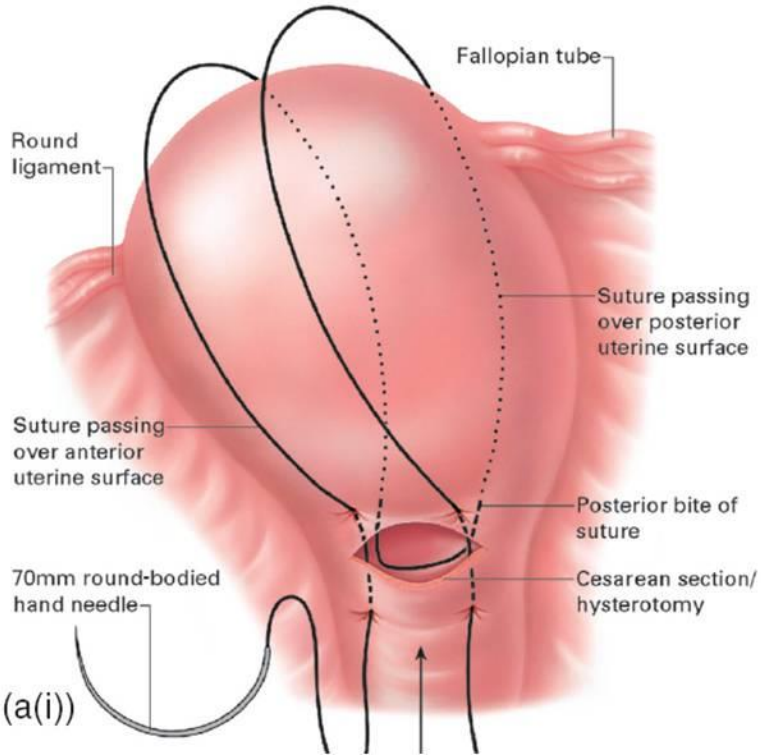
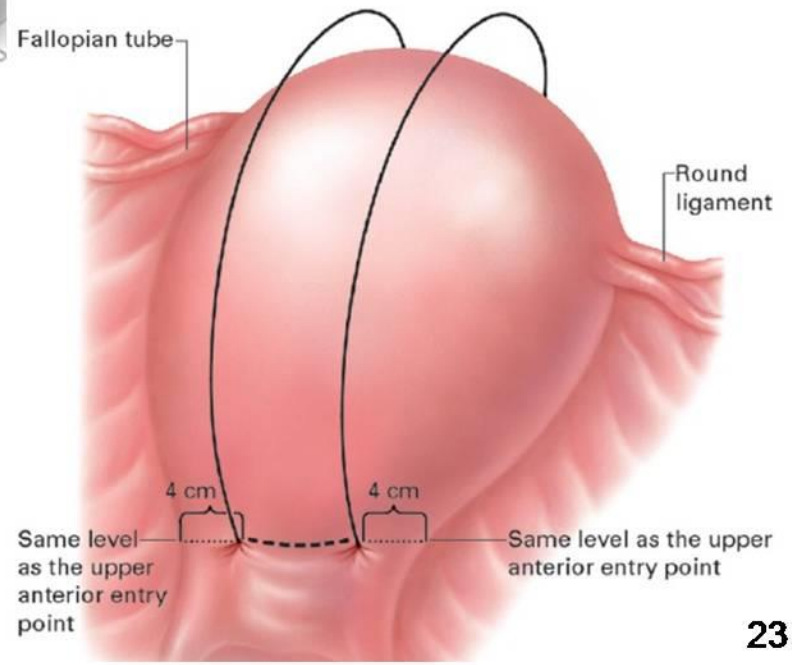
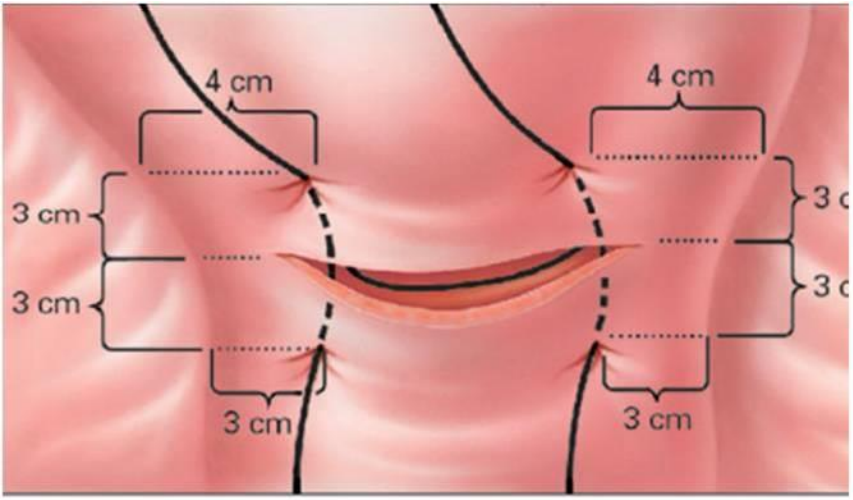
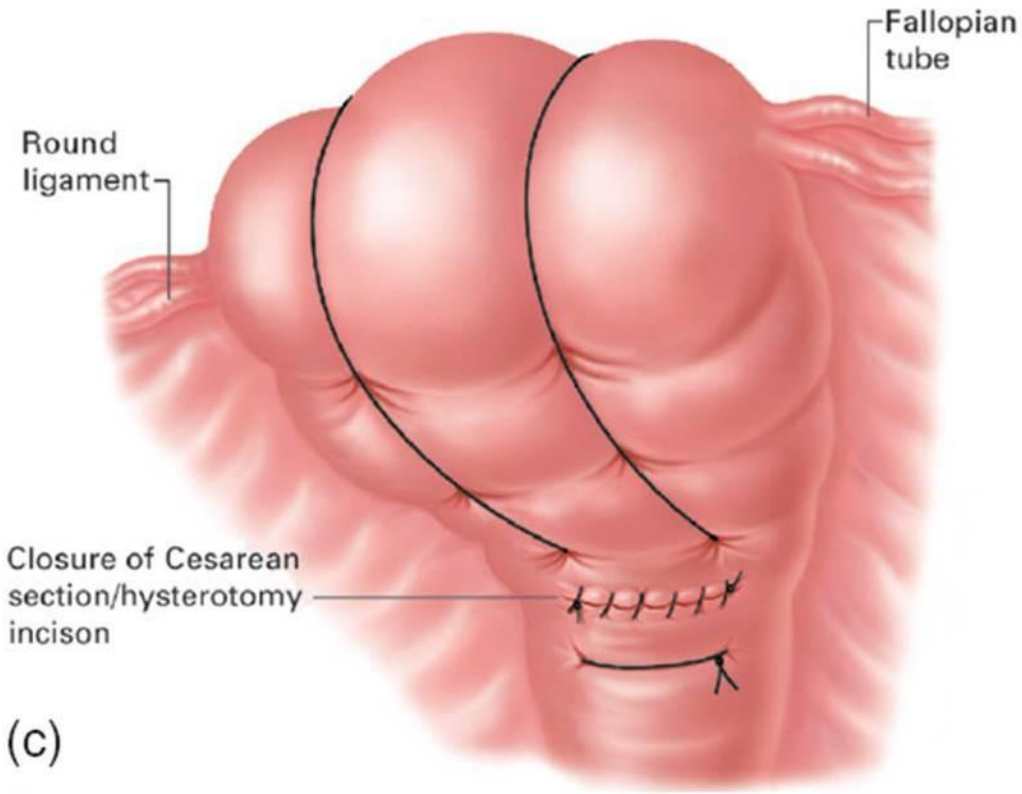

Fallopian tube
Round ligament
Suture passing over posterior uterine surface
Suture passing over anterior uterine surface
Posterior bite of suture
Cesarean section/ hysterotomy
70mm round-bodied hand needle
(a(i))


Fallopian tube
Round ligament
4 cm
4 cm
Same level as the upper anterior entry point
Same level as the upper anterior entry point


4 cm
4 cm
3 cm
3 cm
3 cm
3 cm


Fallopian tube
Round ligament
Closure of Cesarean section/hysterotomy incison

(c)

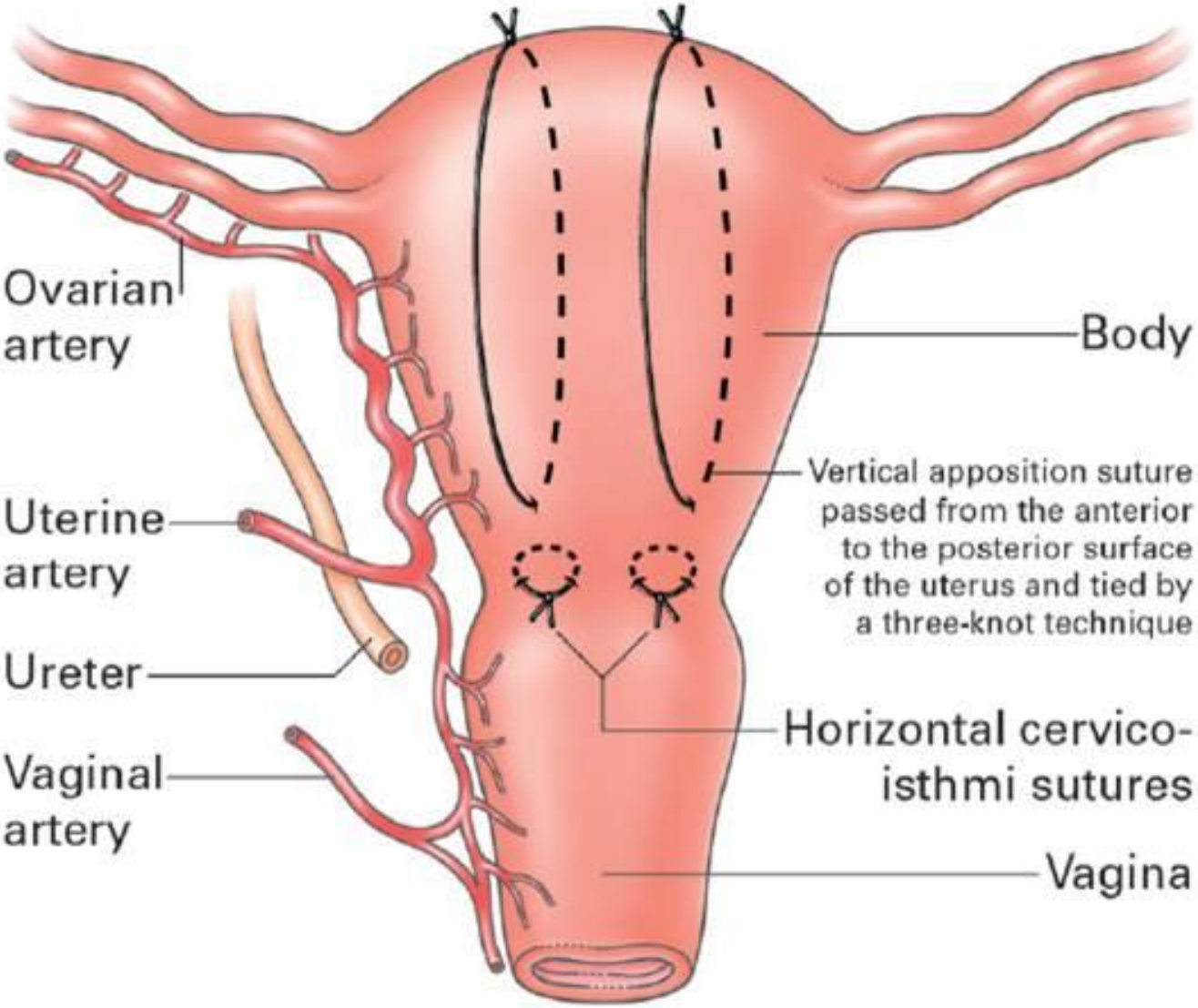

b

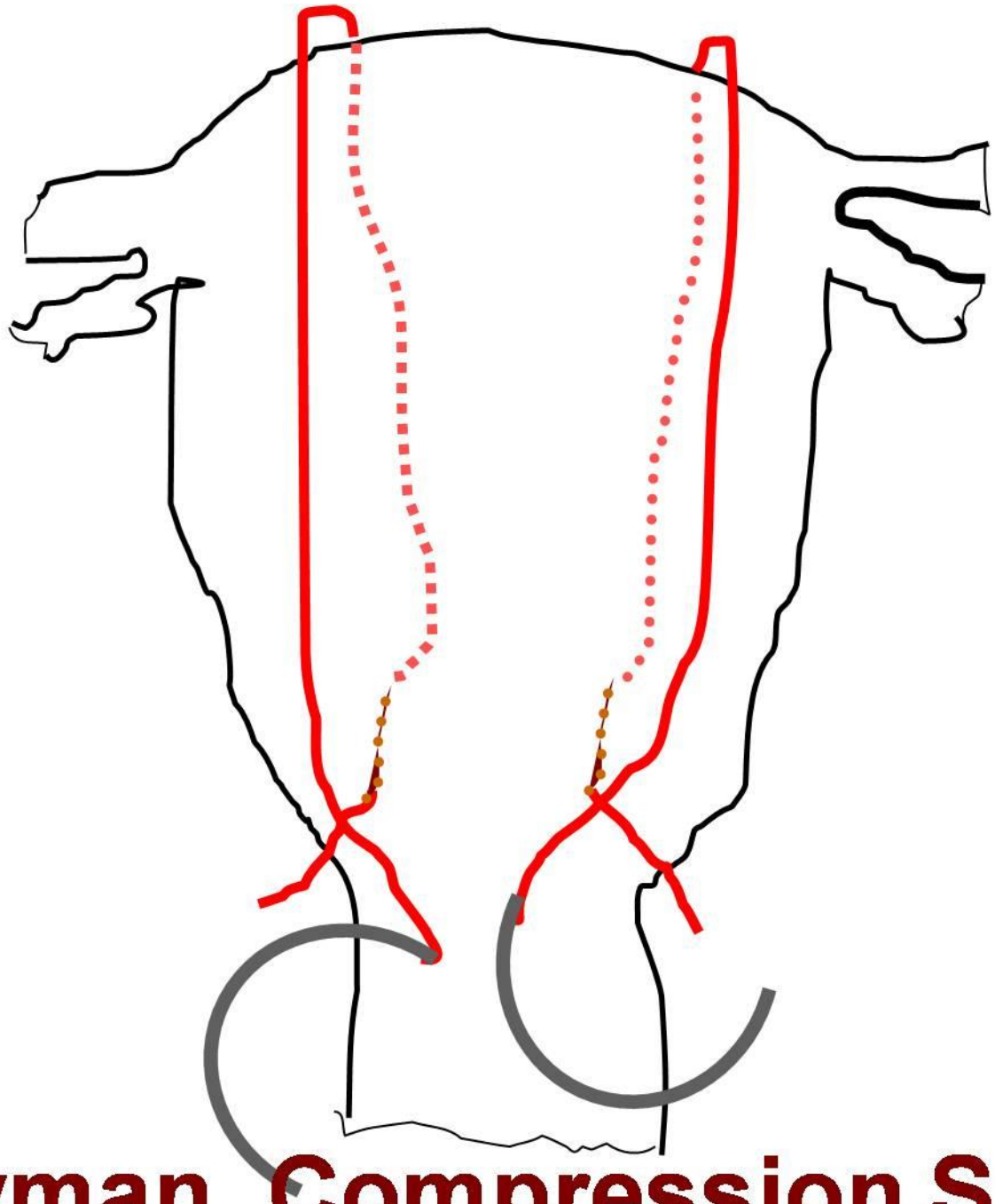
Hayman Compression Suture

A number 2 Vicryl or Dexon suture on a straight, blunt needle is used to transfix the uterus from front to back, just above the reflection of the bladder and is then tied at the fundus of the uterus.

This can be done as one suture on each side of the uterus, or more than one suture if the uterus is particularly broad,

Hayman et al Obst. Gynec. 2002,99;3;502-6





Hayman Compression Suture

Hayman Uterine Compression Suture

Uterine cavity not opened

Probably quicker to apply

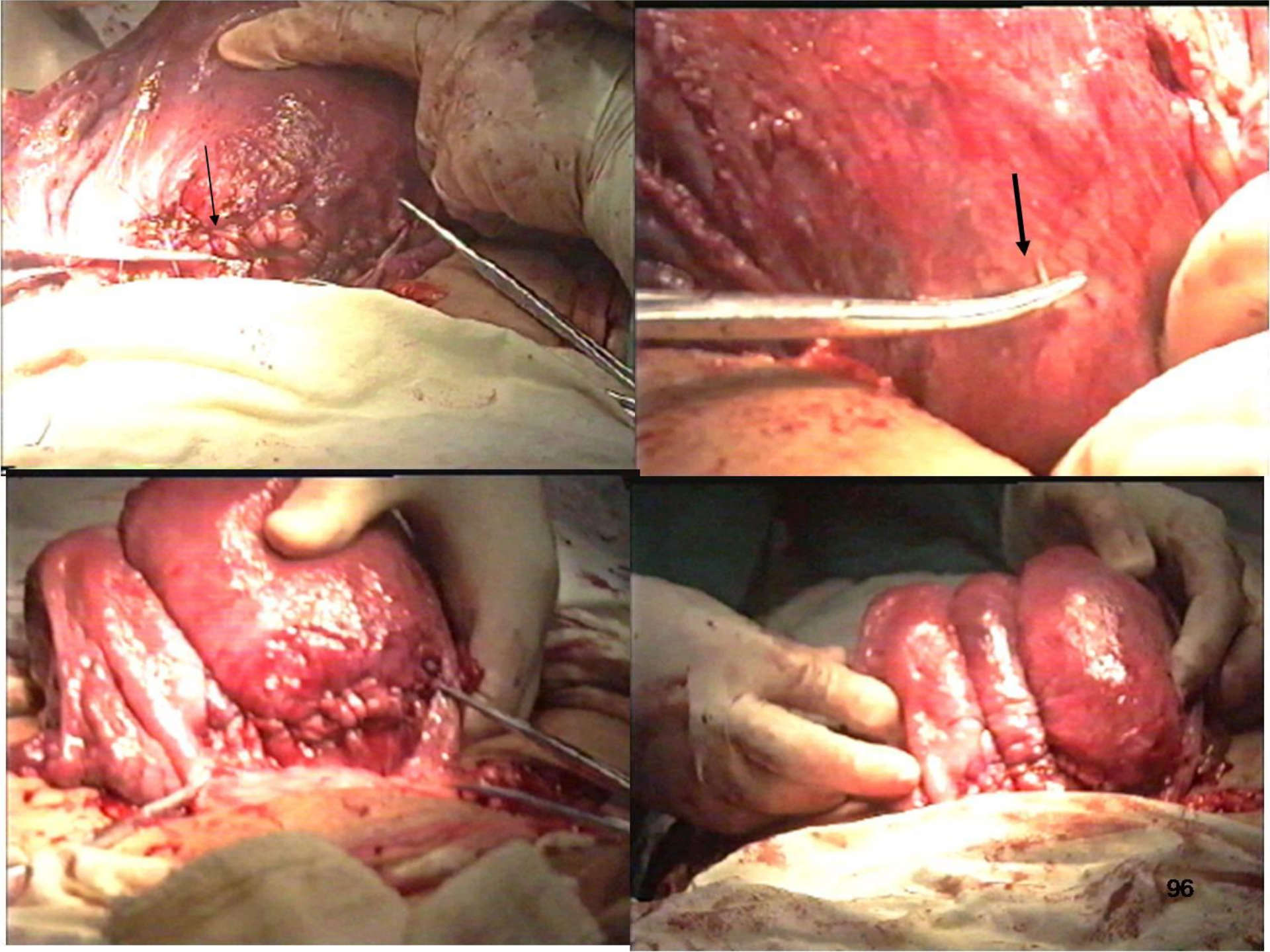
Uterine cavity not explored under direct vision

No feed-back data on fertility outcome

Morbidity feed-back data limited

Unequal tension leads may to segmented

Ischemia secondary to slippage of suture – ‘shouldering’ with venous obstruction



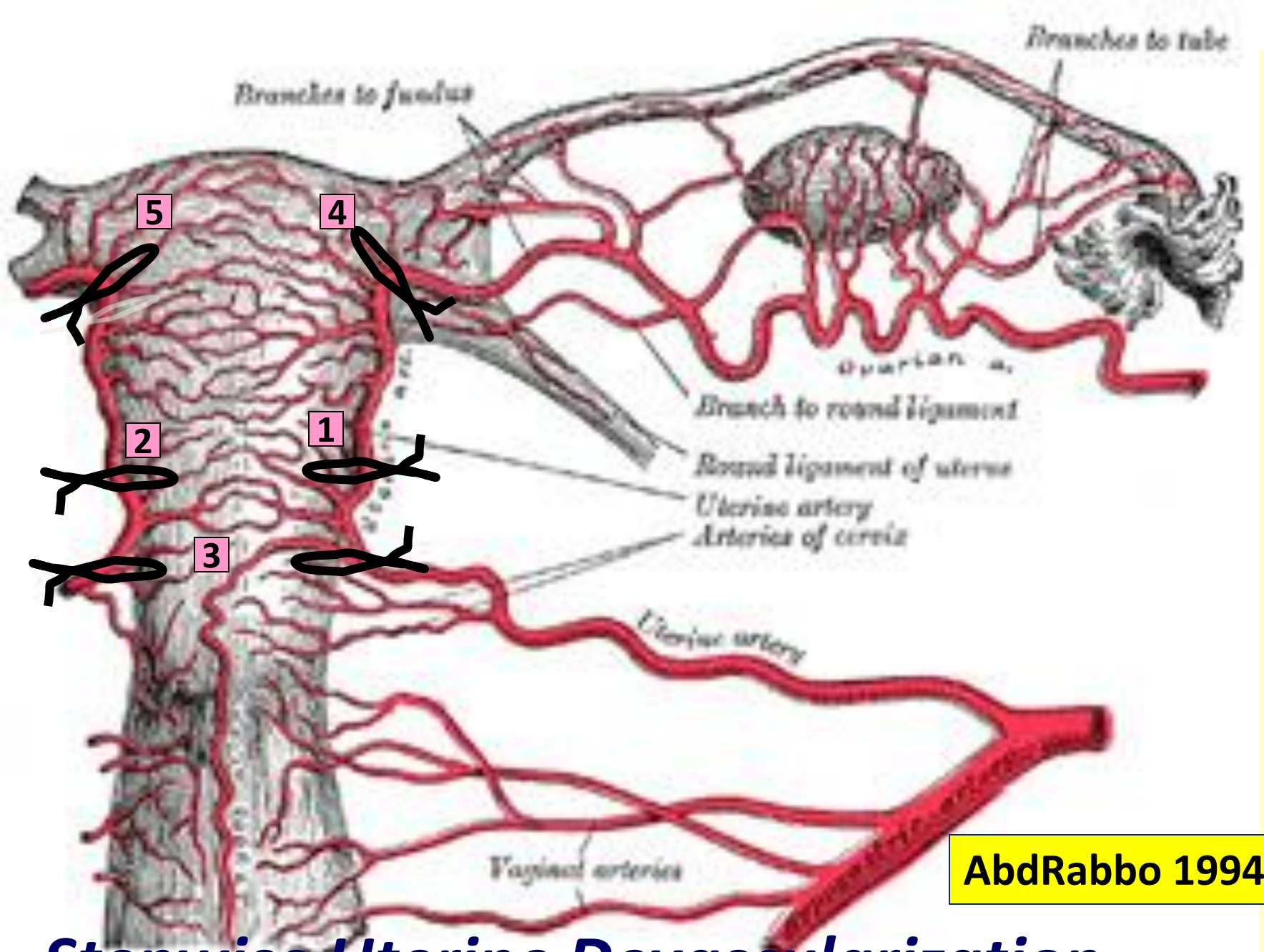
Stepwise Uterine Devascularization

Stepwise Uterine Devascularization

This technique entails five successive steps, so if bleeding is not controlled by one step the next step is taken until bleeding stops. The steps are
(1)unilateral uterine vessel ligation,
(2) bilateral uterine vessel ligation
(3) low uterine vessel ligation
(4) unilateral ovarian vessel ligation
(5) bilateral ovarian vessel ligation.

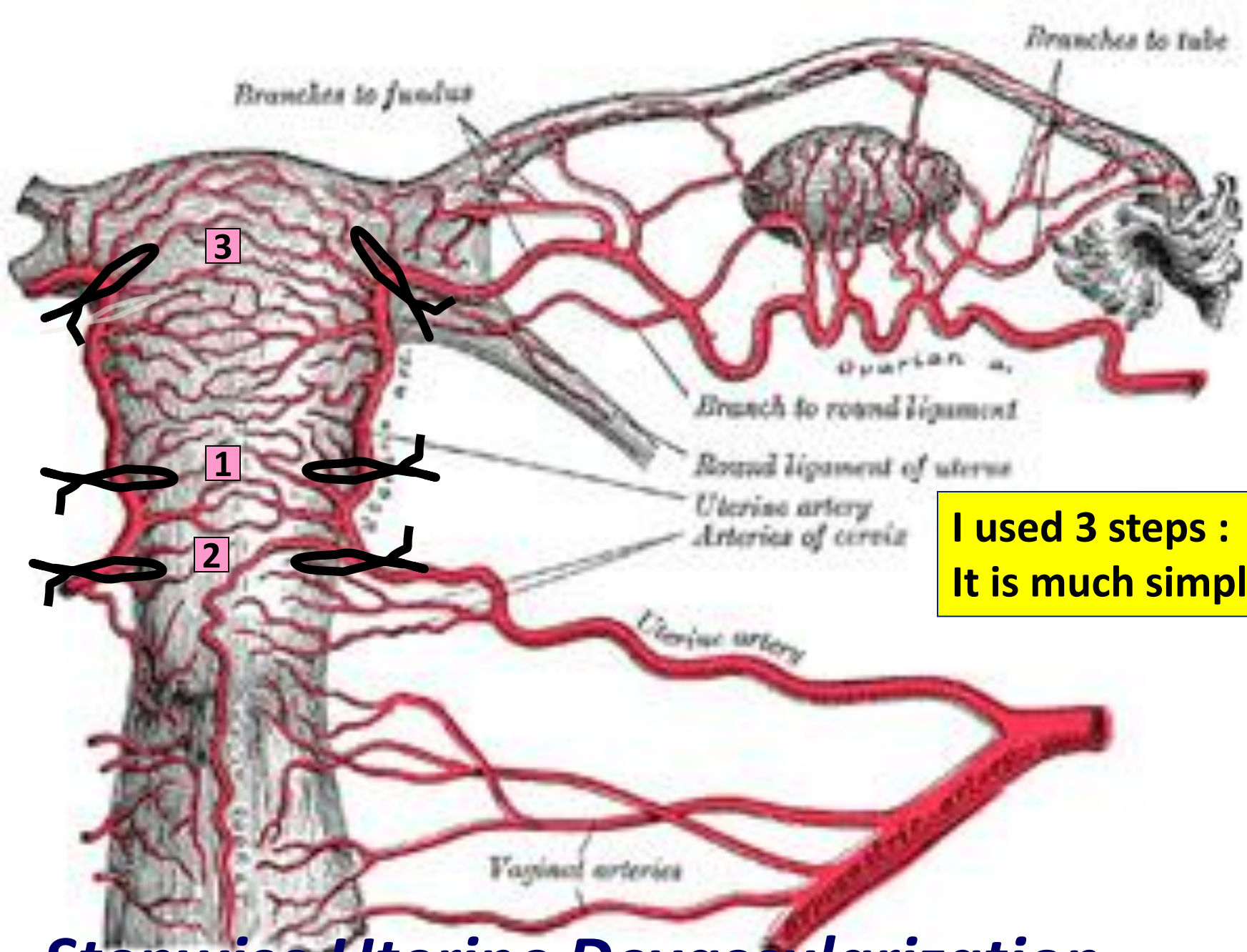
AbdRabbo ,Am J Obstet Gynecol. 1994 Sep;171(3):694-700 (103 patients intractable PPHg result 100%)

Each suture: Starts in a vascular area just lateral to the outer margin of the uterus, then encompasses 2cm of uterine walls medially encircling the blood vessels within it.



AbdRabbo 1994

Stepwise Uterine Devascularization

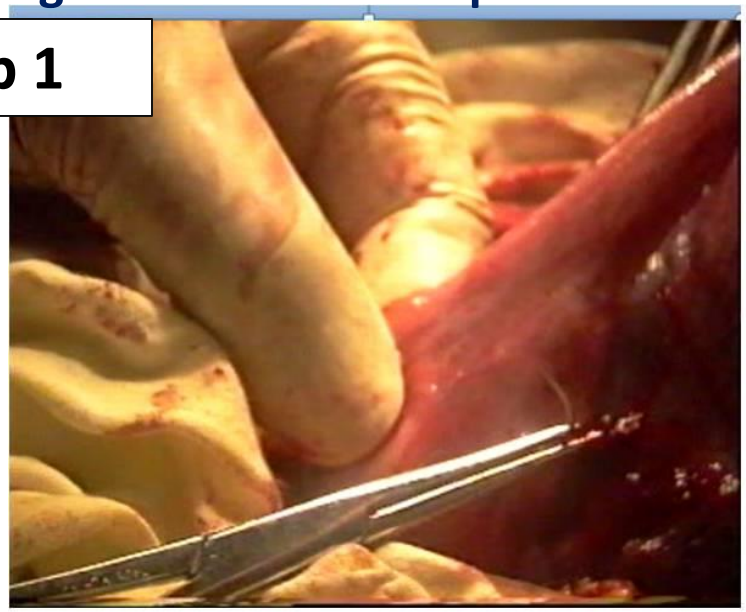


I used 3 steps :
It is much simpler

Stepwise Uterine Devascularization

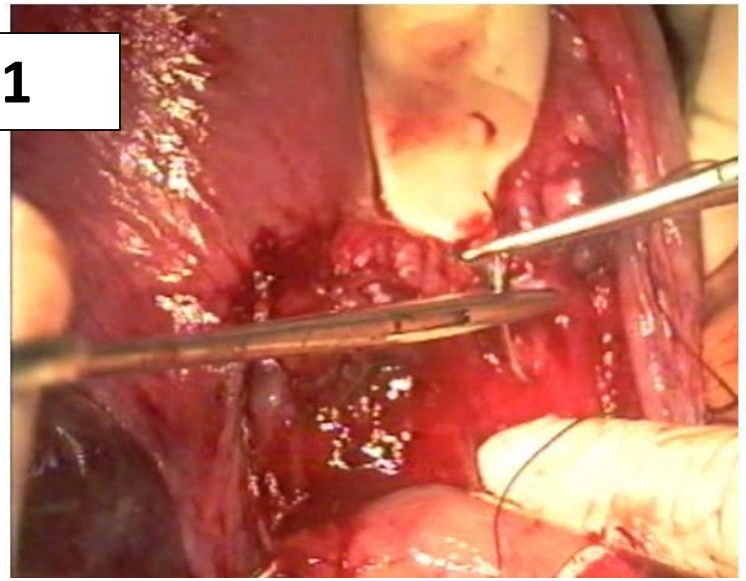
Uterine vessel ligation :1- Needle passing from anterior to posterior

Step 1



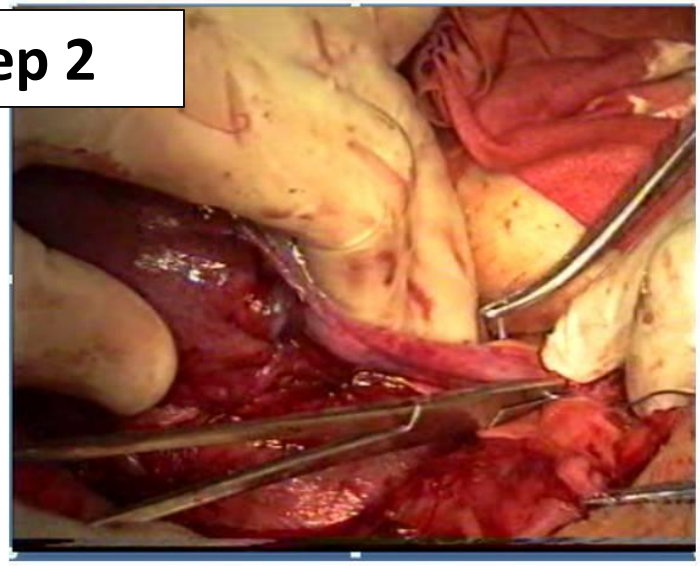
Uterine vessel ligation :1- Needle passing from posterior to anterior

Step 1



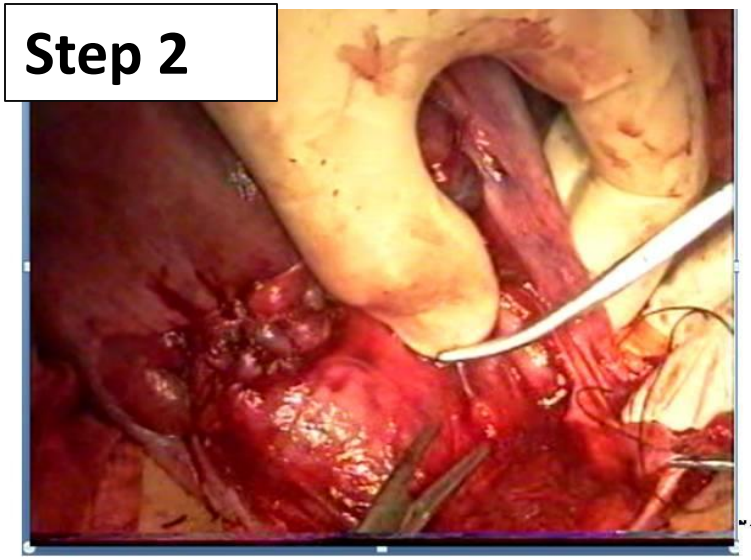
Low uterine vessel ligation :1- Needle passing from anterior to posterior

Step 2

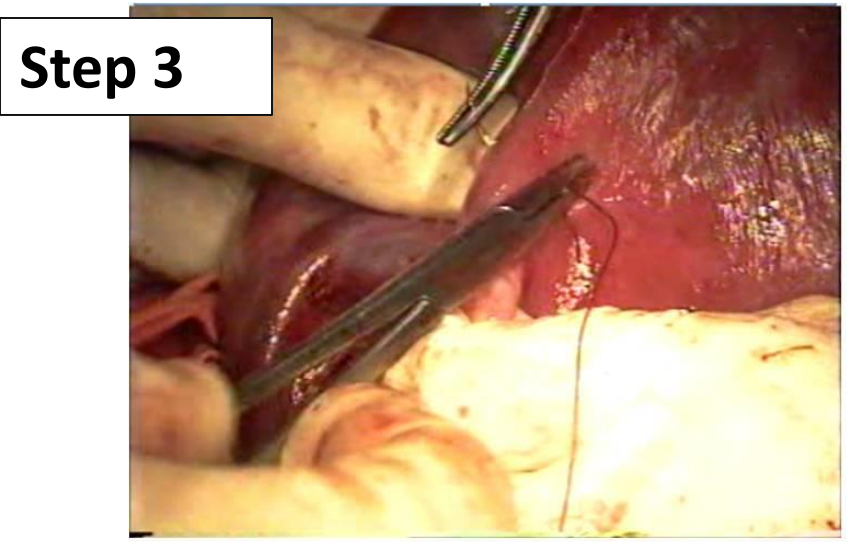


Low uterine vessel ligation :1- Needle passing from posterior to anterior

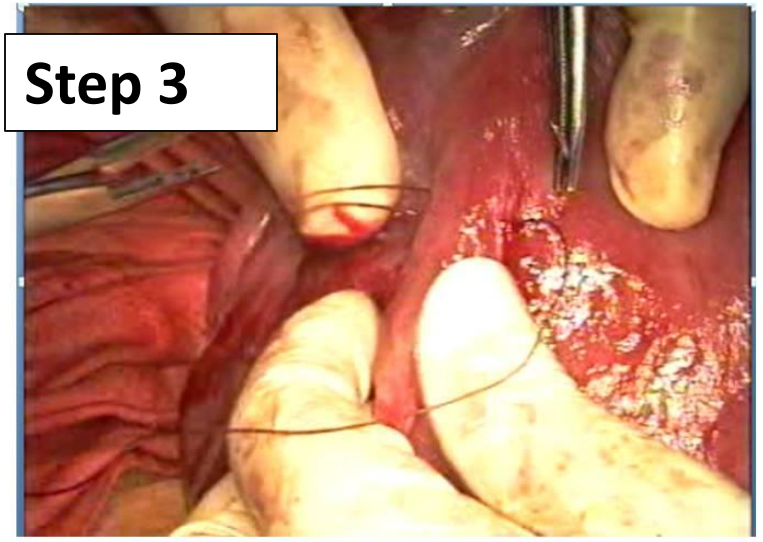
Step 2

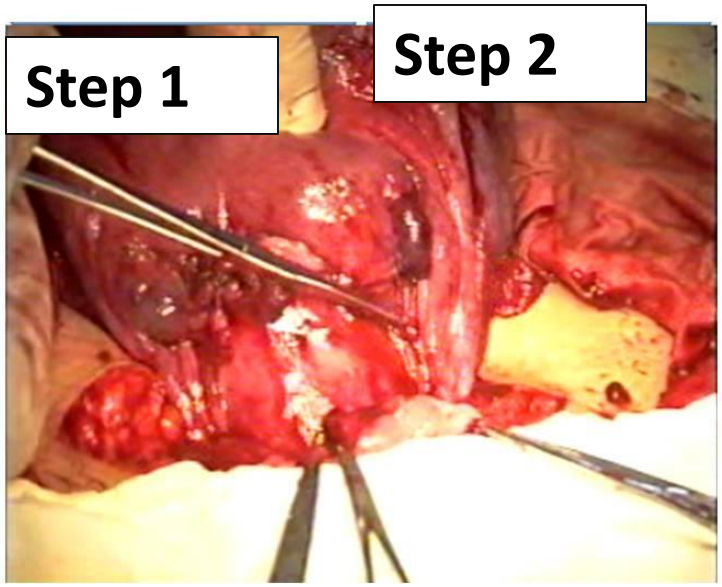


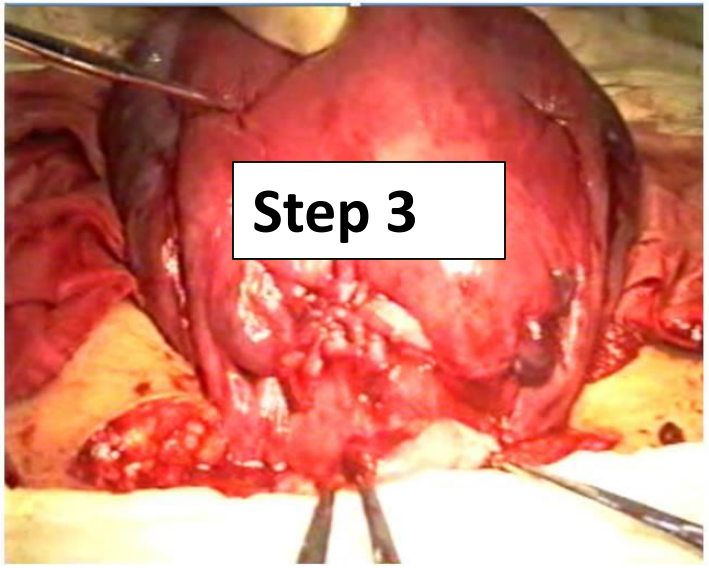
Ovarian vessel ligation :1- Needle passing from anterior to posterior



Ovarian vessel ligation :1- Needle passing from posterior to anterior







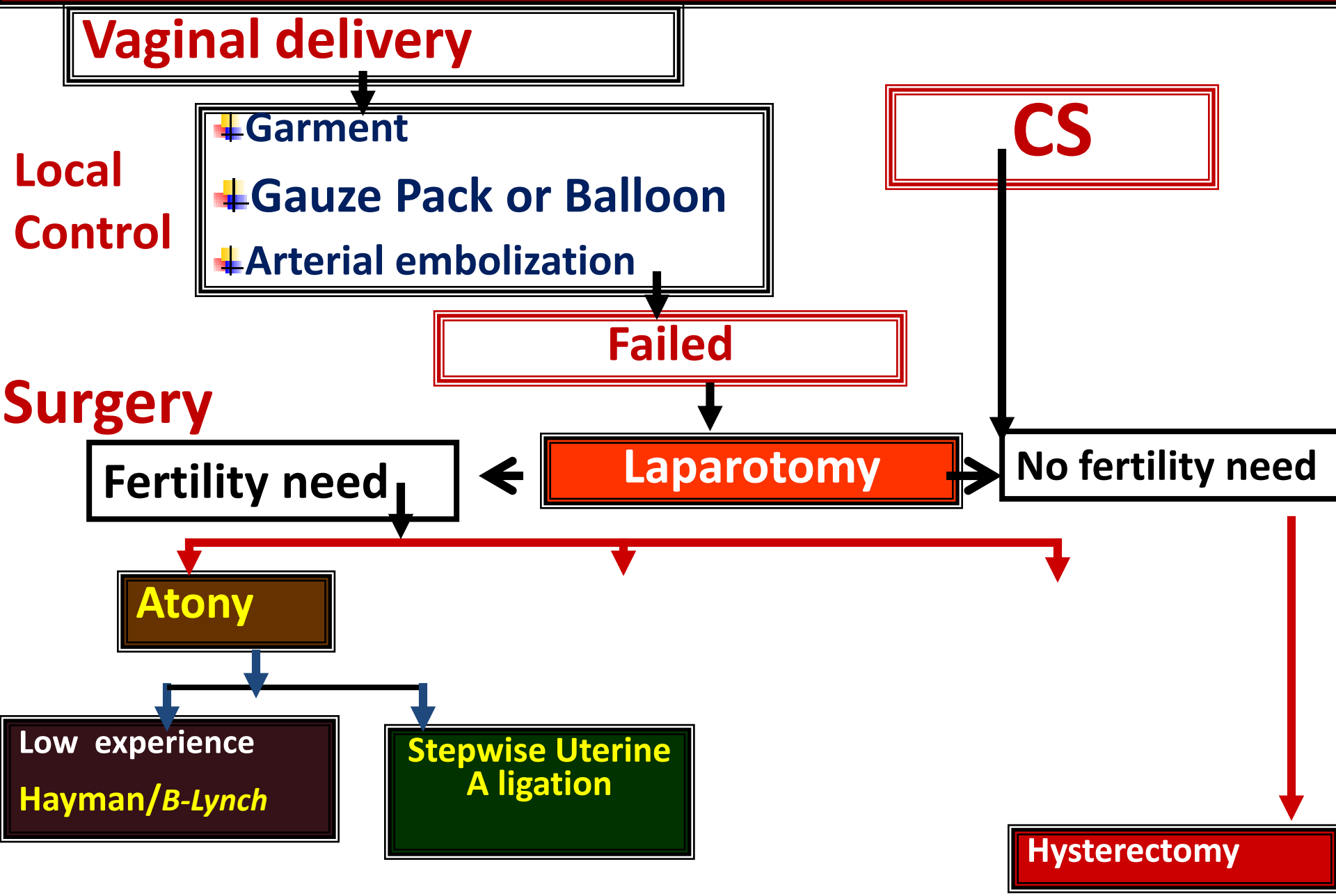
Stepwise Uterine Devascularization

Advantages over internal iliac ligation:

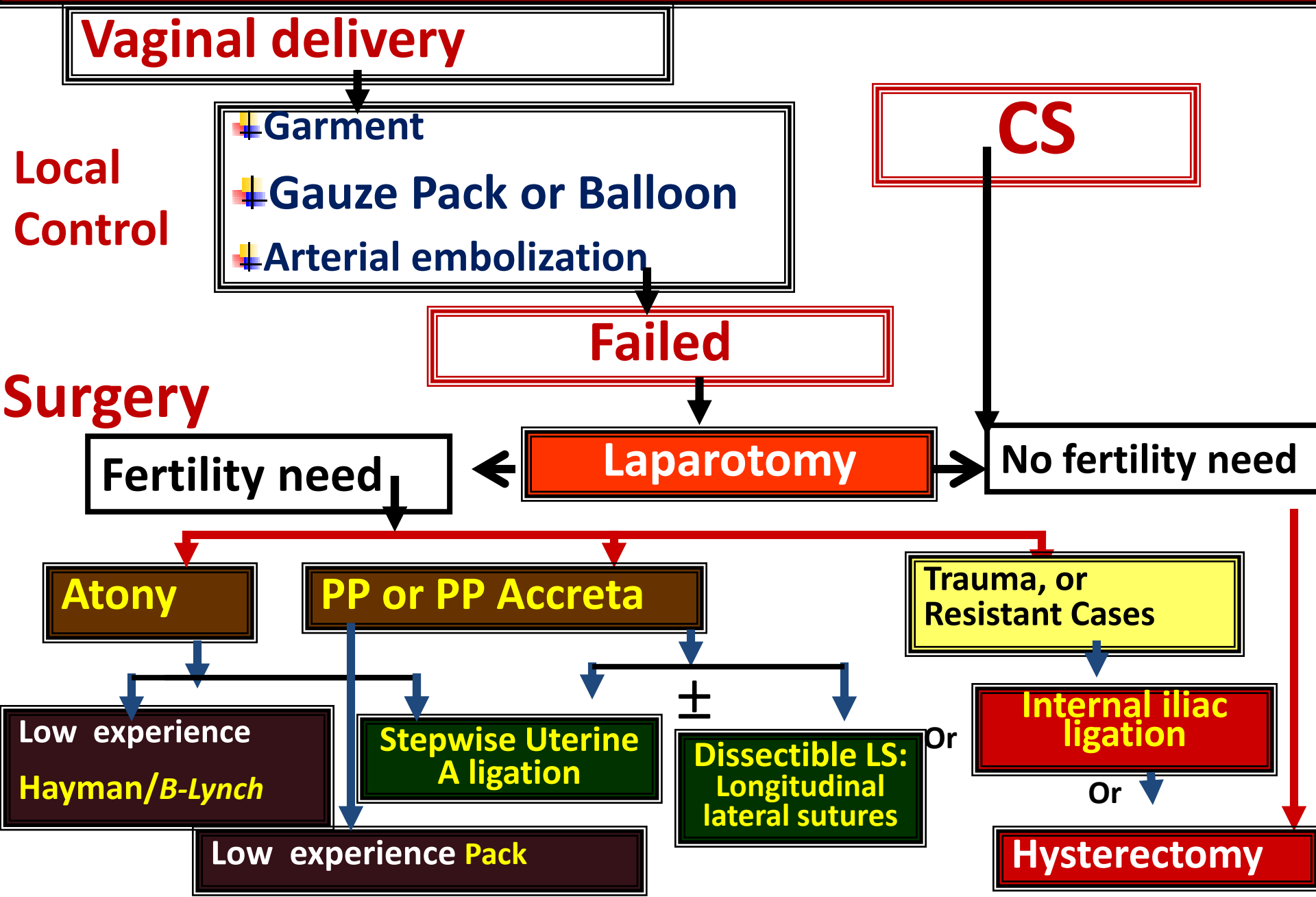
- **Easier dissection.**
- **Lower complication rates.**
- **More distal occlusion of arterial supply with less potential for rebleeding because of collaterals**
- **High reported rates of success in controlling haemorrhaging.**

(SOGC) Clinical Practice Guidelines 2000

Intractable Postpartum Hemorrhage Algorithm

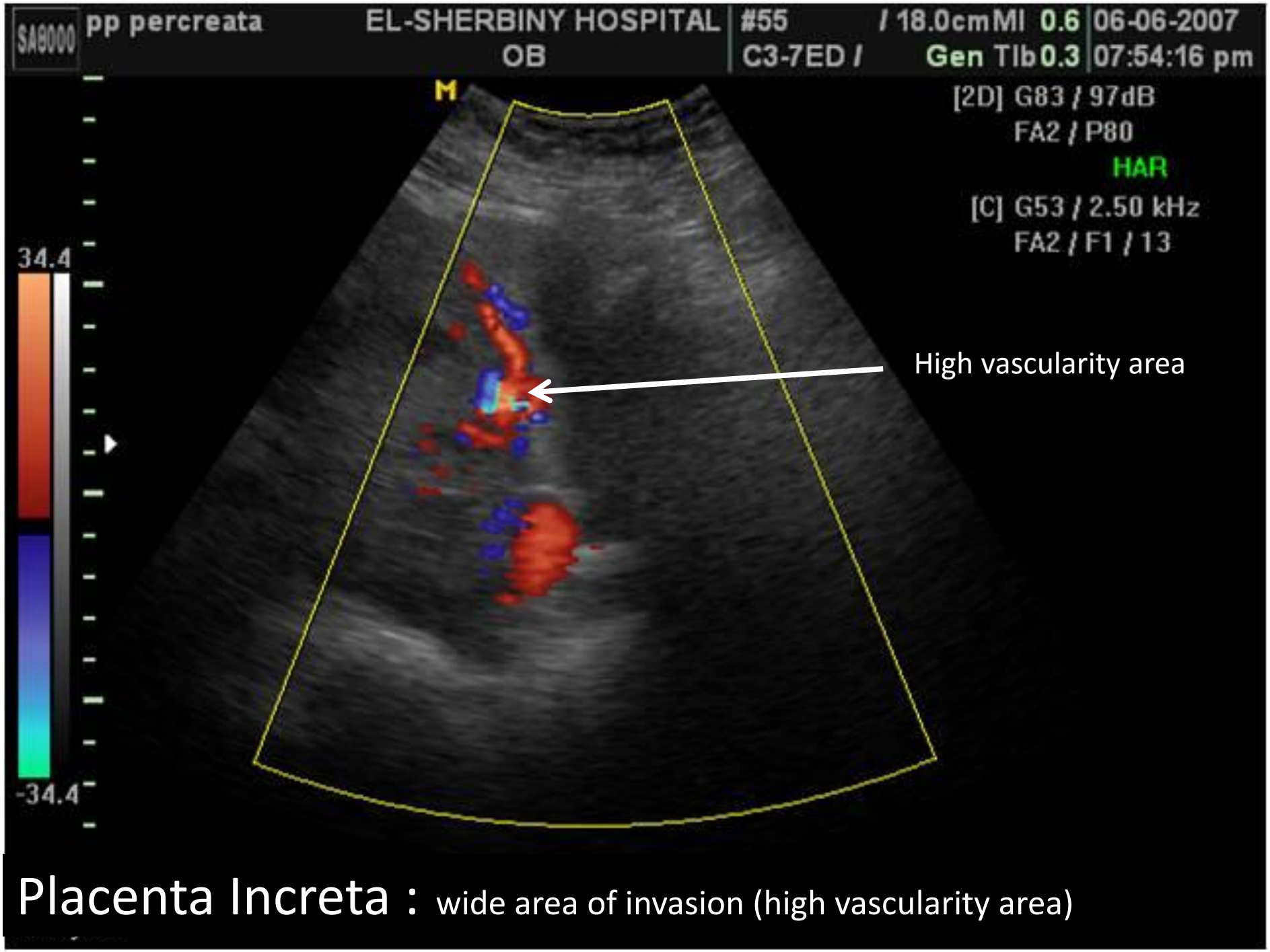


Intractable Postpartum Hemorrhage Algorithm



A Morbidly Adherent Placenta (PP Accreta

Vascular lacunae"swiss chess appearance”+ve Pred.v :95%



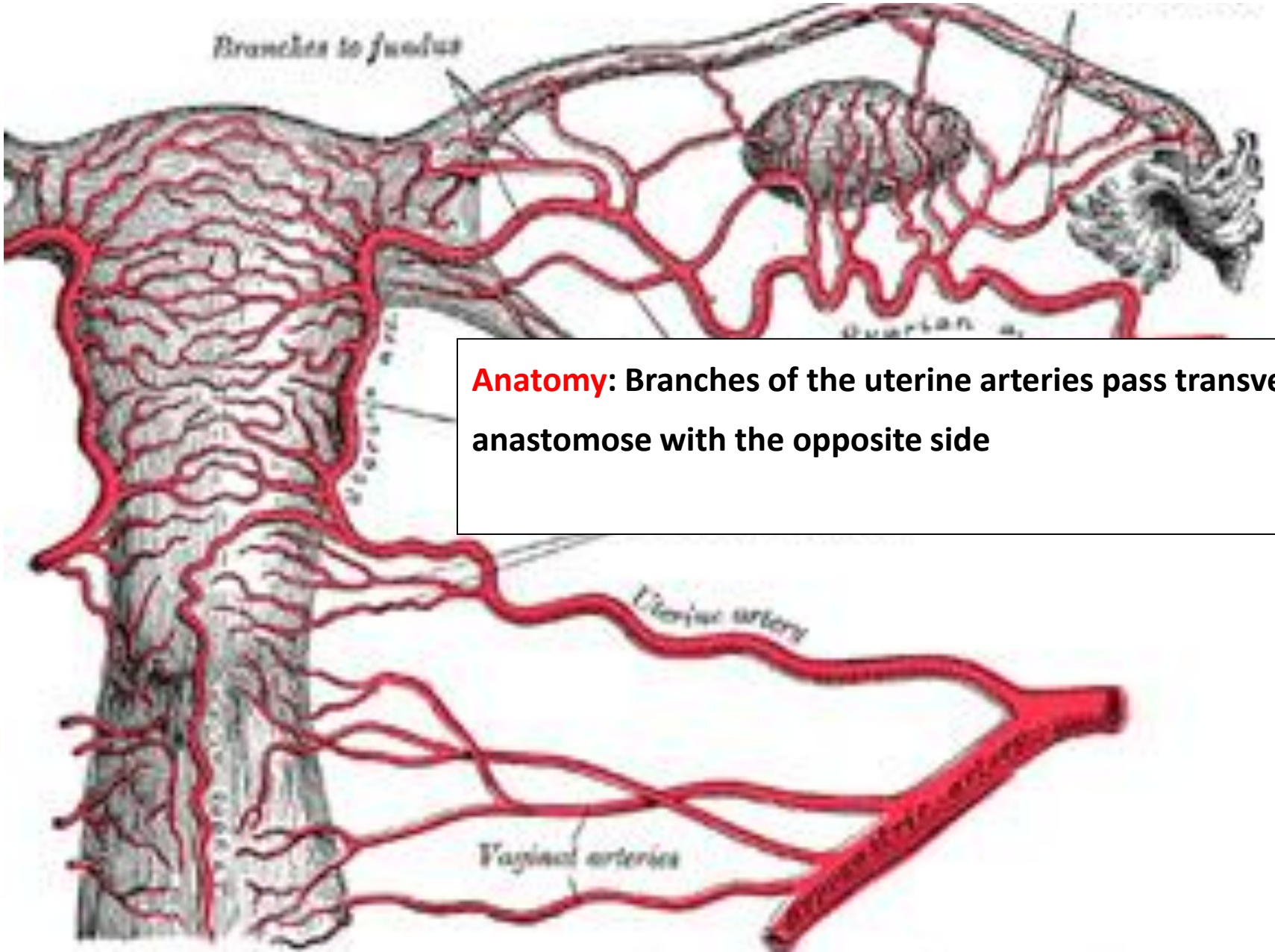
Placenta Increta : wide area of invasion (high vascularity area)

Stepwise Longitudinal

Lateral Uterine Sutures:

For severe bleeding from placenta previa or placenta previa accreta

Stepwise Longitudinal Lateral Sutures

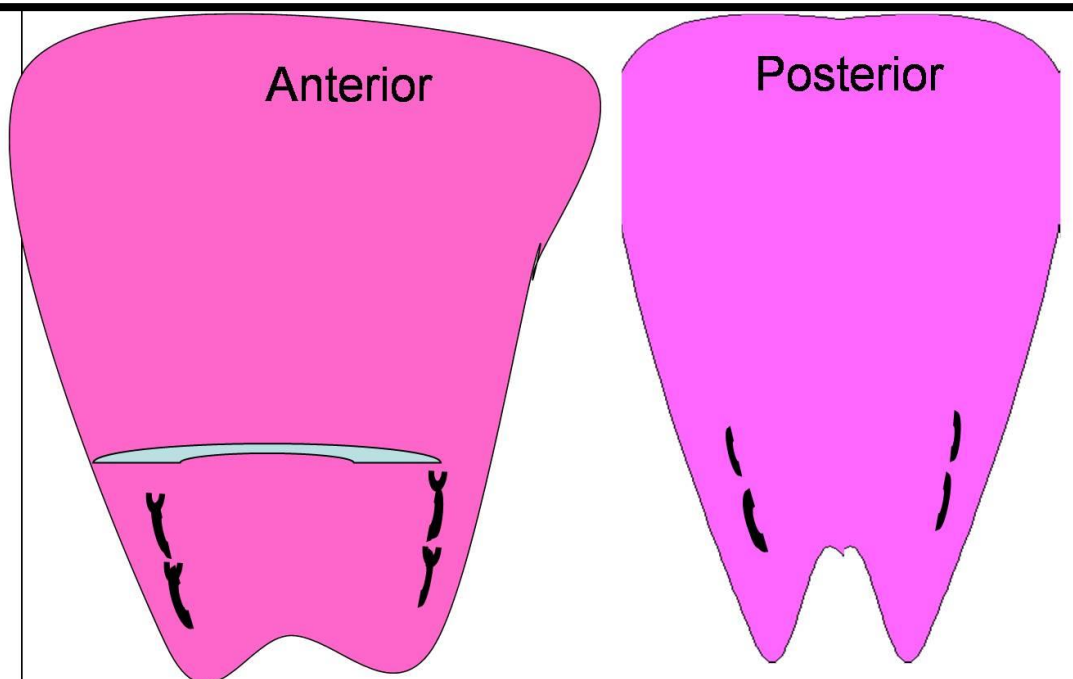


Anatomy: Branches of the uterine arteries pass transversely to anastomose with the opposite side

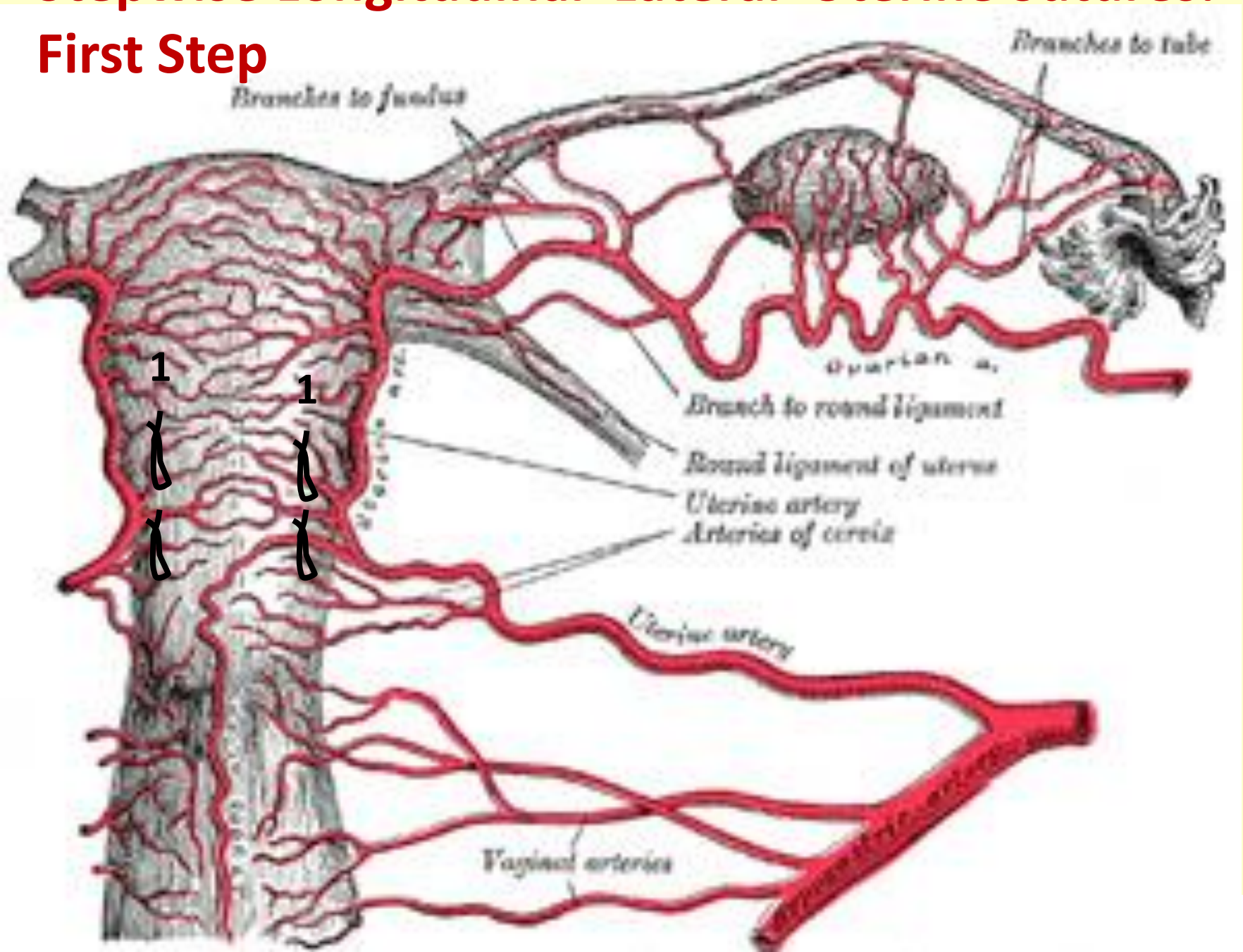
Stepwise Longitudinal Lateral Uterine Sutures: First Step

Tow lines of longitudinal number 1 chromic catgut sutures are taken through anterior and posterior uterine wall perpendicular to the vessels and 2 cm medial to the outer borders of the lower uterine segment .

El Sherbiny 2011



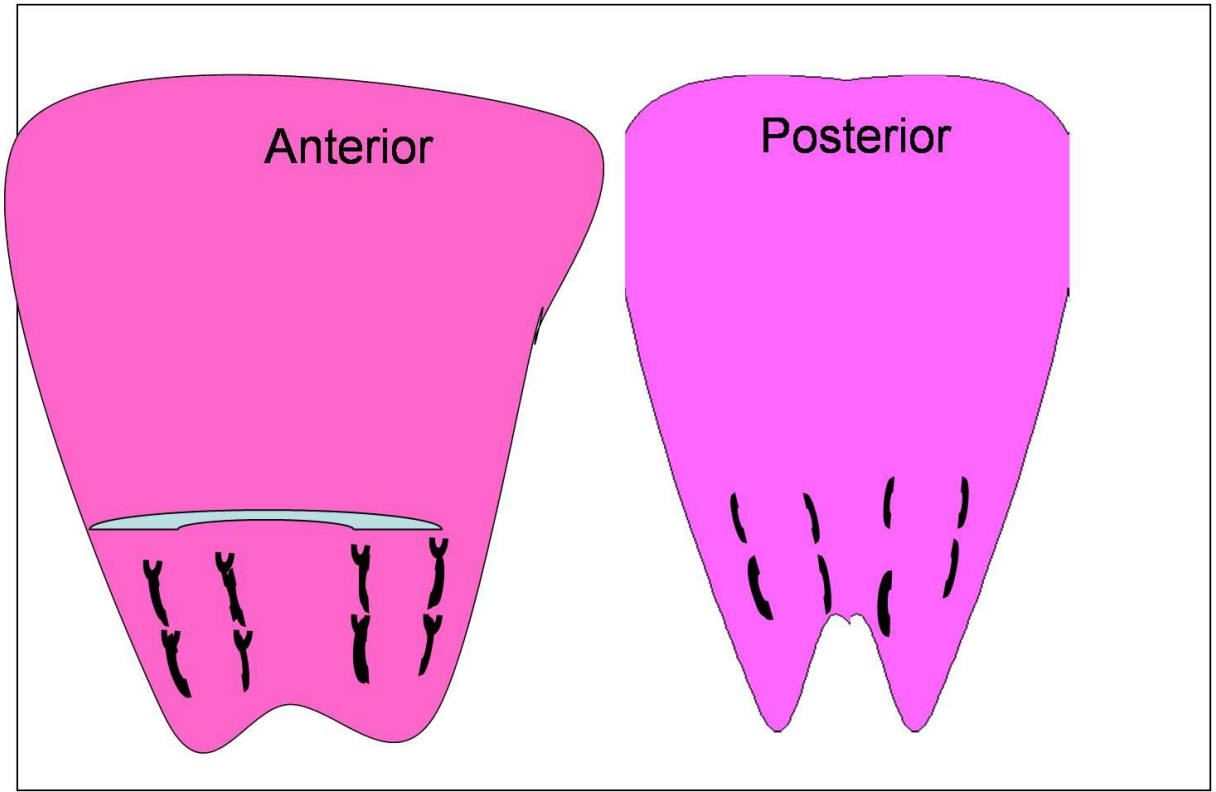
Stepwise Longitudinal Lateral Uterine Sutures: First Step



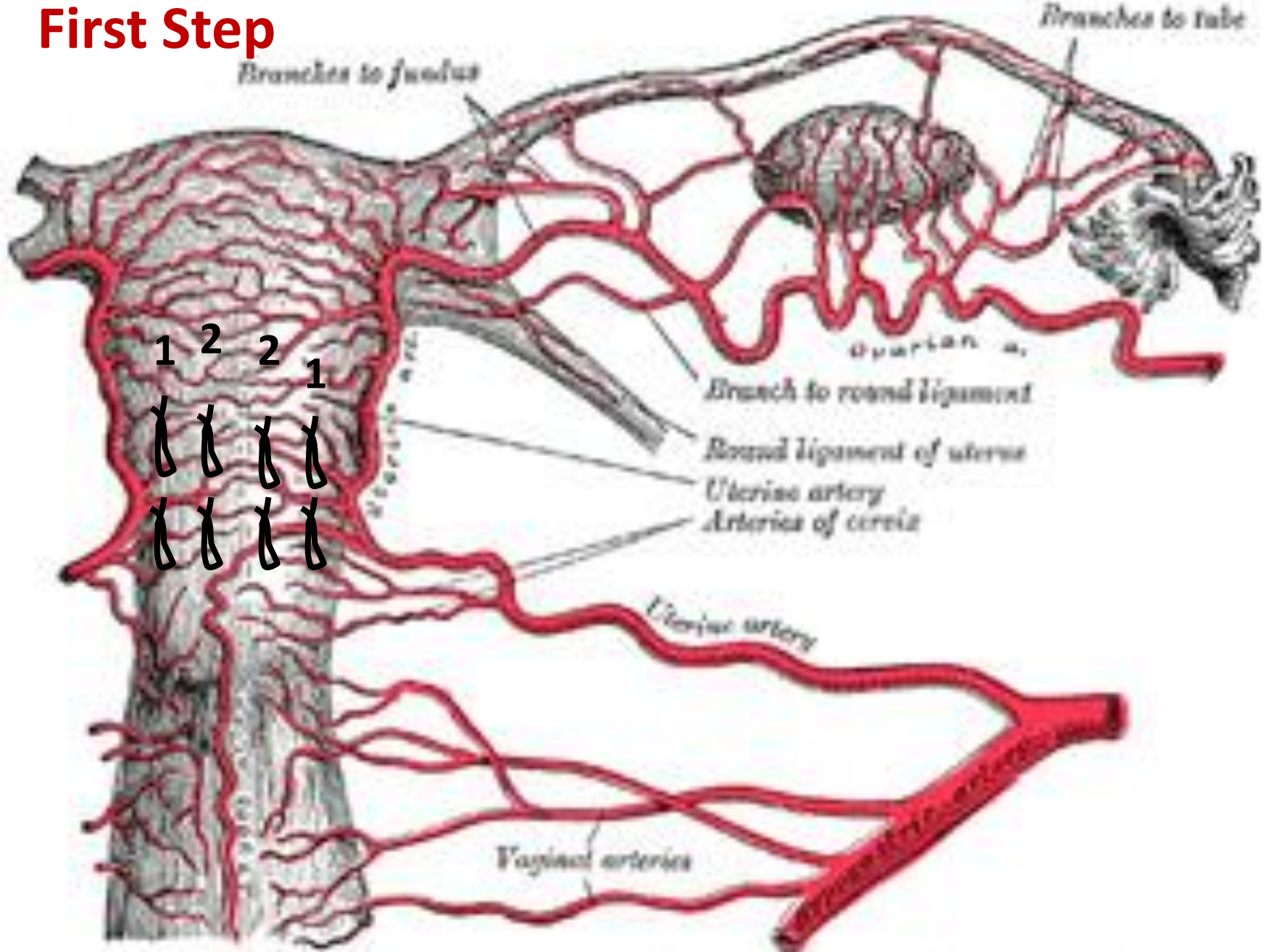
Stepwise Longitudinal Lateral Uterine Sutures: Second Step

If still there is bleeding, other 2 medial similar lines of catgut sutures are taken leaving free central area.

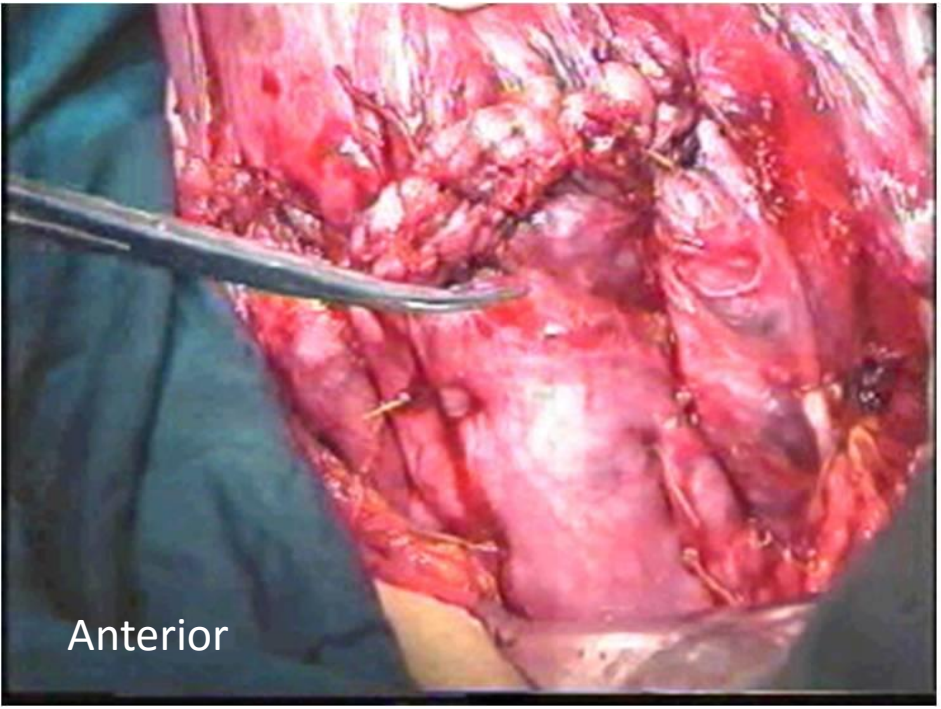
El Sherbiny 2011

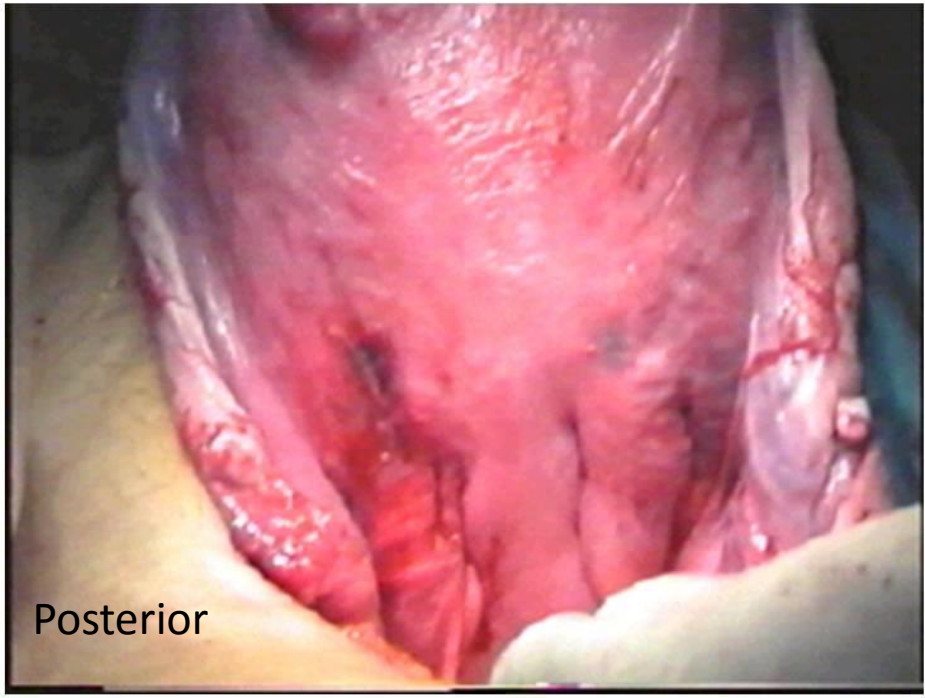


Stepwise Longitudinal Lateral Uterine Sutures: First Step



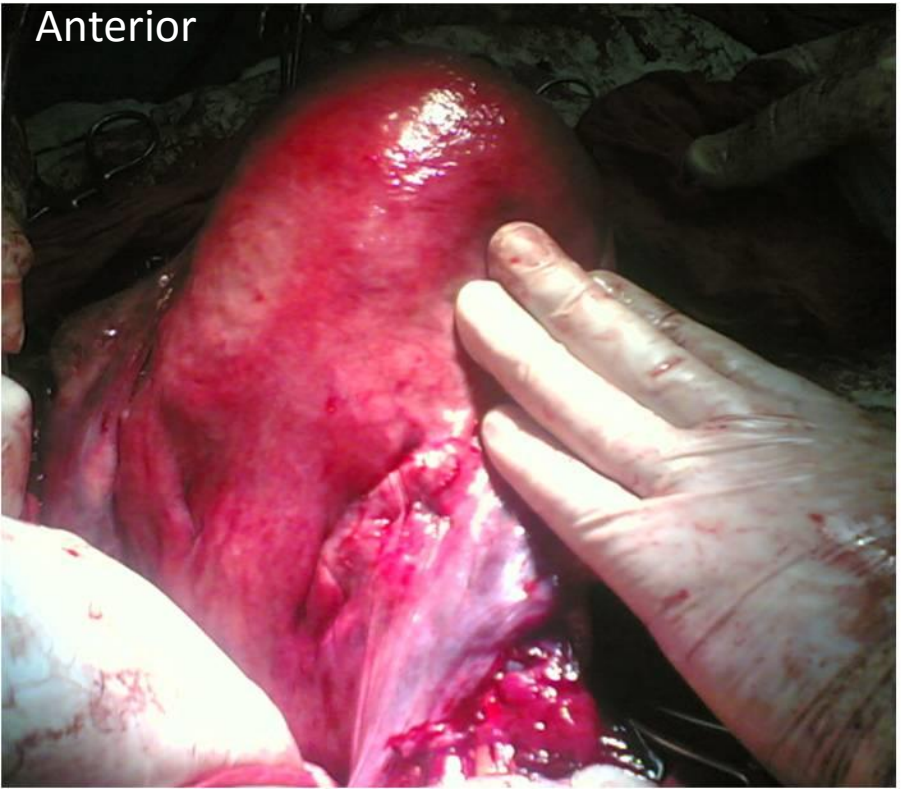
Stepwise Longitudinal Lateral Uterine Sutures: Second Step

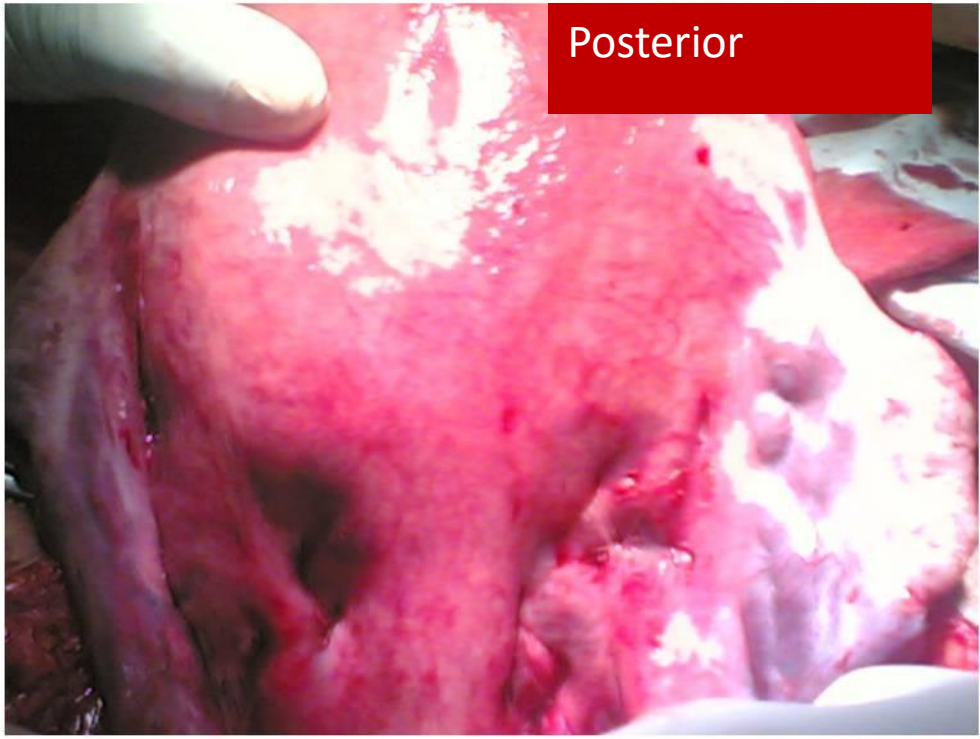




El Sherbiny 2011

Stepwise Longitudinal Lateral Uterine Sutures: Second Step





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Stepwise Longitudinal Lateral Uterine Sutures: Reproductive Outcome

15 case:

- **8 Localized PP Accreta**
- **7 PP Centeralis with Severe Bleeding**

- **Return to normal menses : 15 (100%)**
- **Hysteroscopy :13 out of 14 (93%): Normal**

- **2 years fertility outcome: 9 cases**

➢ **6 full term pregnancy 67%**
(one recurrent accreta)

➢ **1 abortion 11%**

➢ **2 Infertility 22%**

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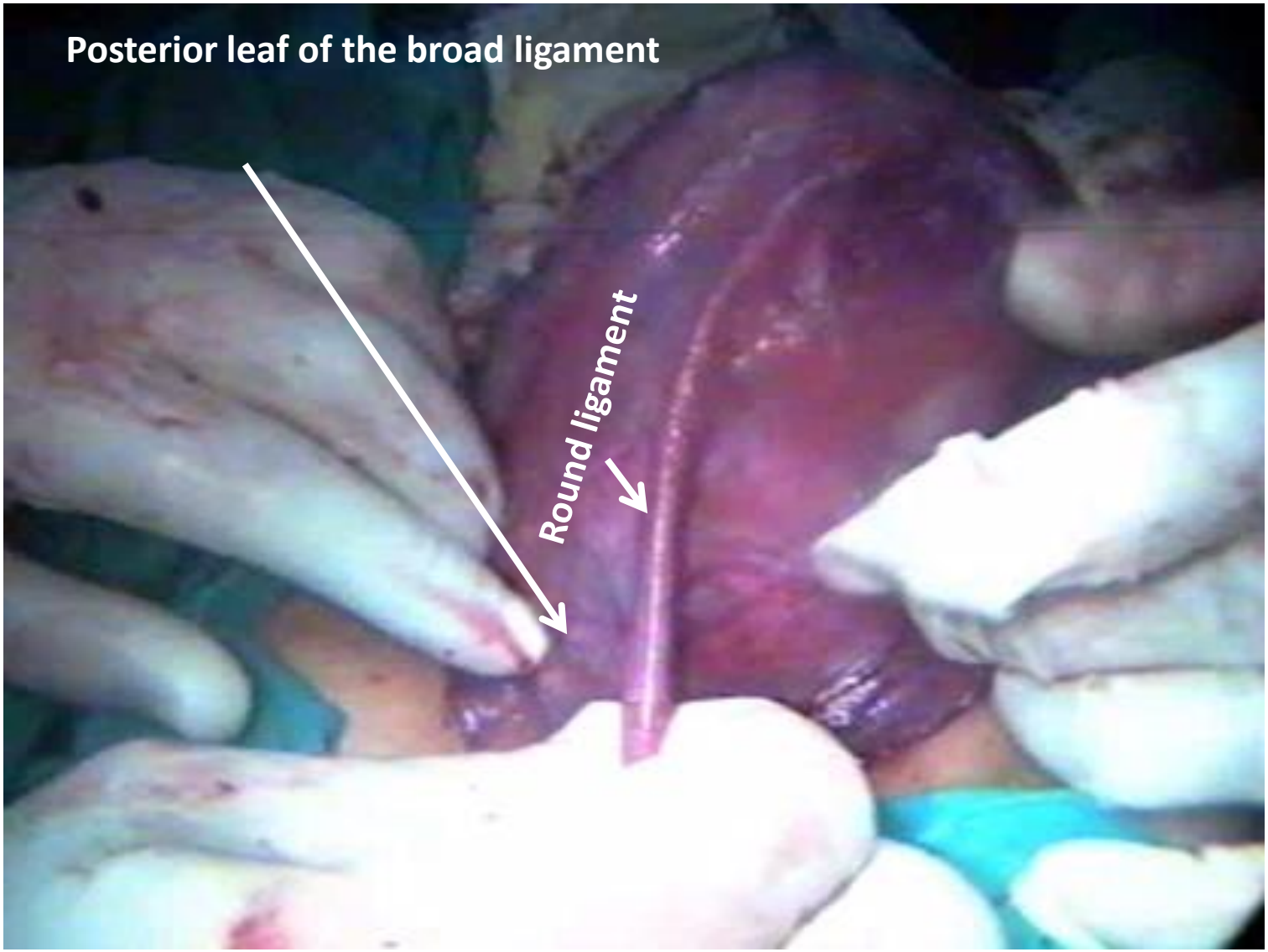
Internal Iliac Arteries Ligation



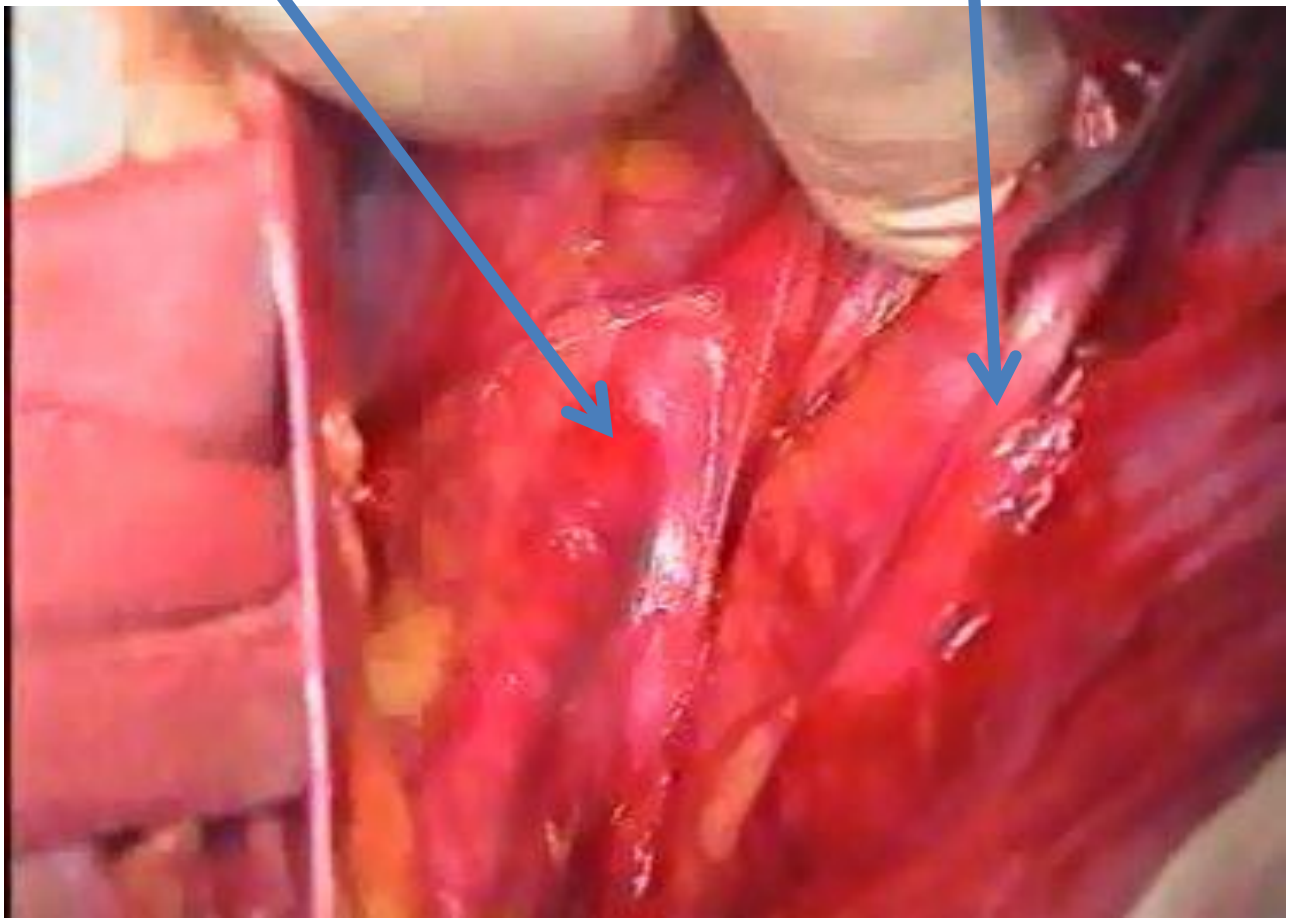
A vertical incision is done at the posterior leaf of the broad ligament medial to the round ligament. The incision can be done at the anterior leaf (if not adherent due to previous CS)

A vertical incision is done at the posterior leaf of the broad ligament medial to the round ligament

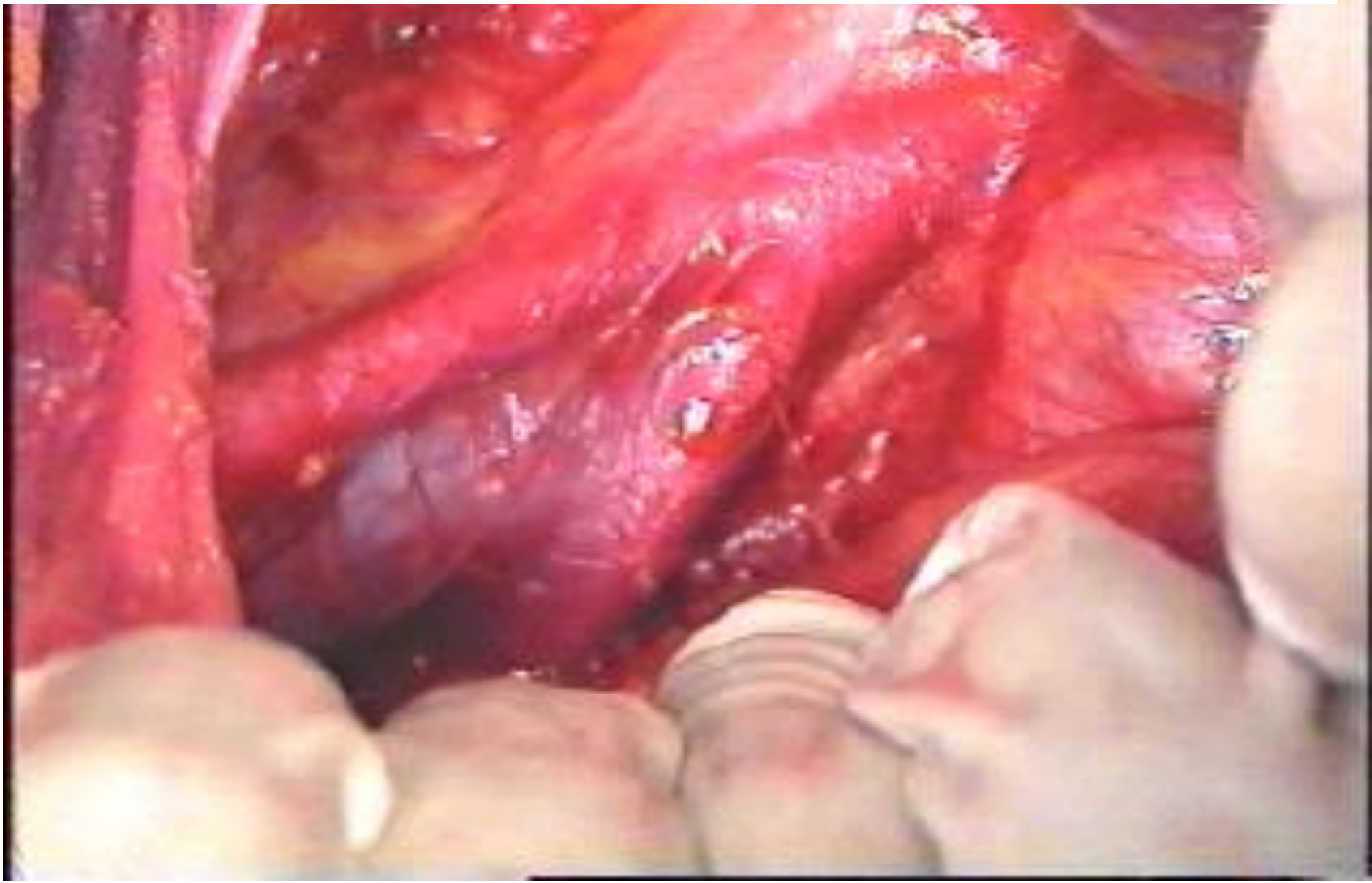
A blunt dissection is done along the felt illic arteries

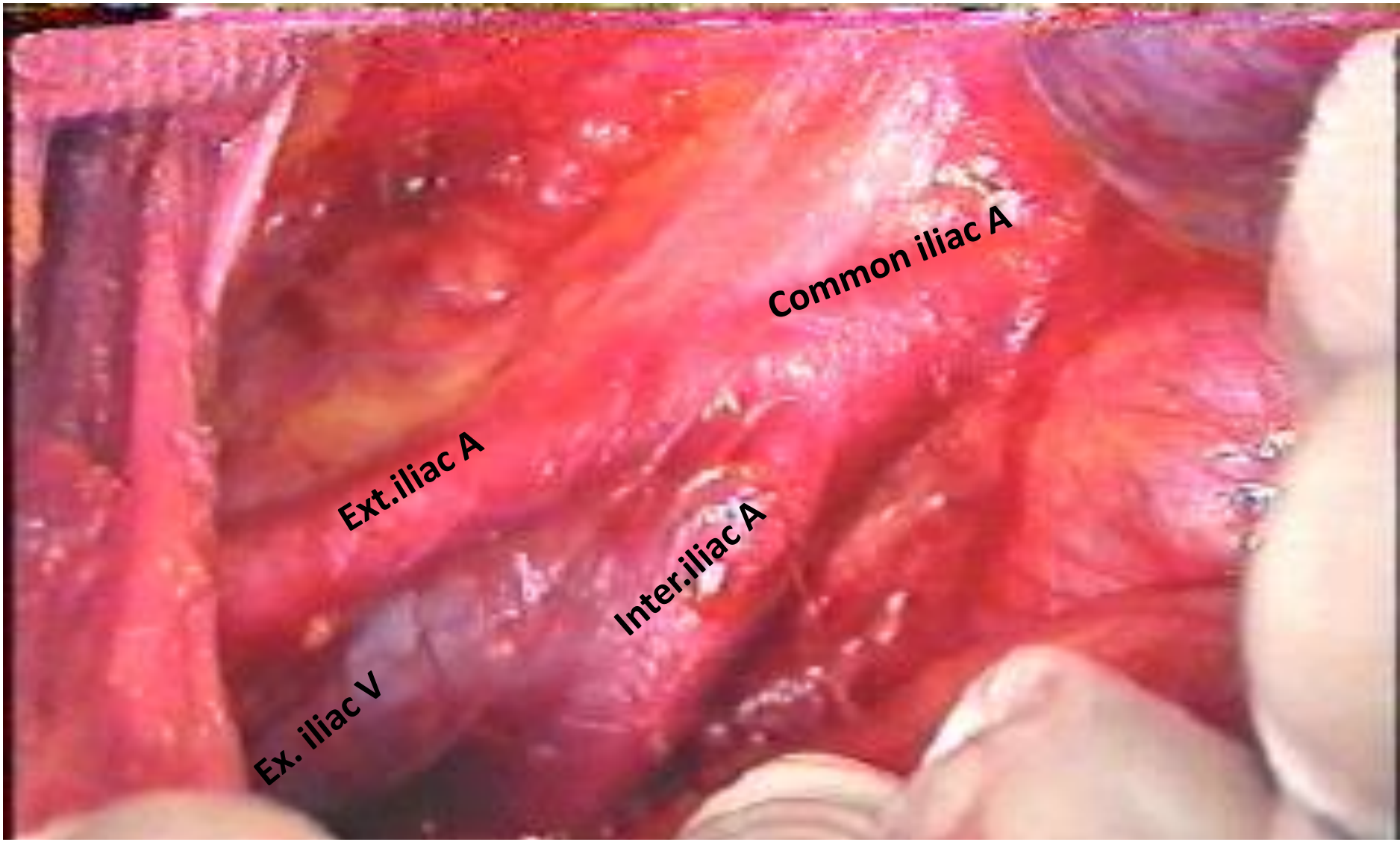
The ureter is explored then retracted medially

Common Iliac Artery



The common, external and internal iliac arteries are explored

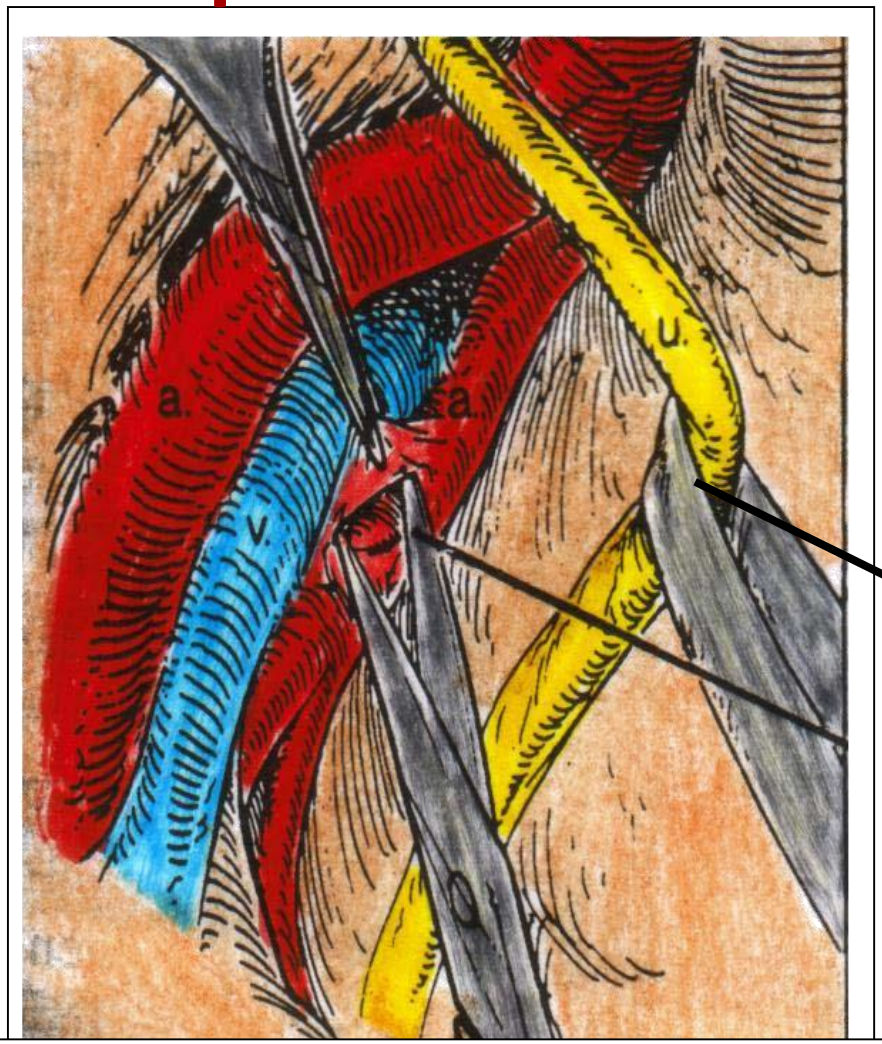




The common, external and internal iliac arteries are explored . The external iliac vein is just posterolateral to the internal iliac artery in one sheath

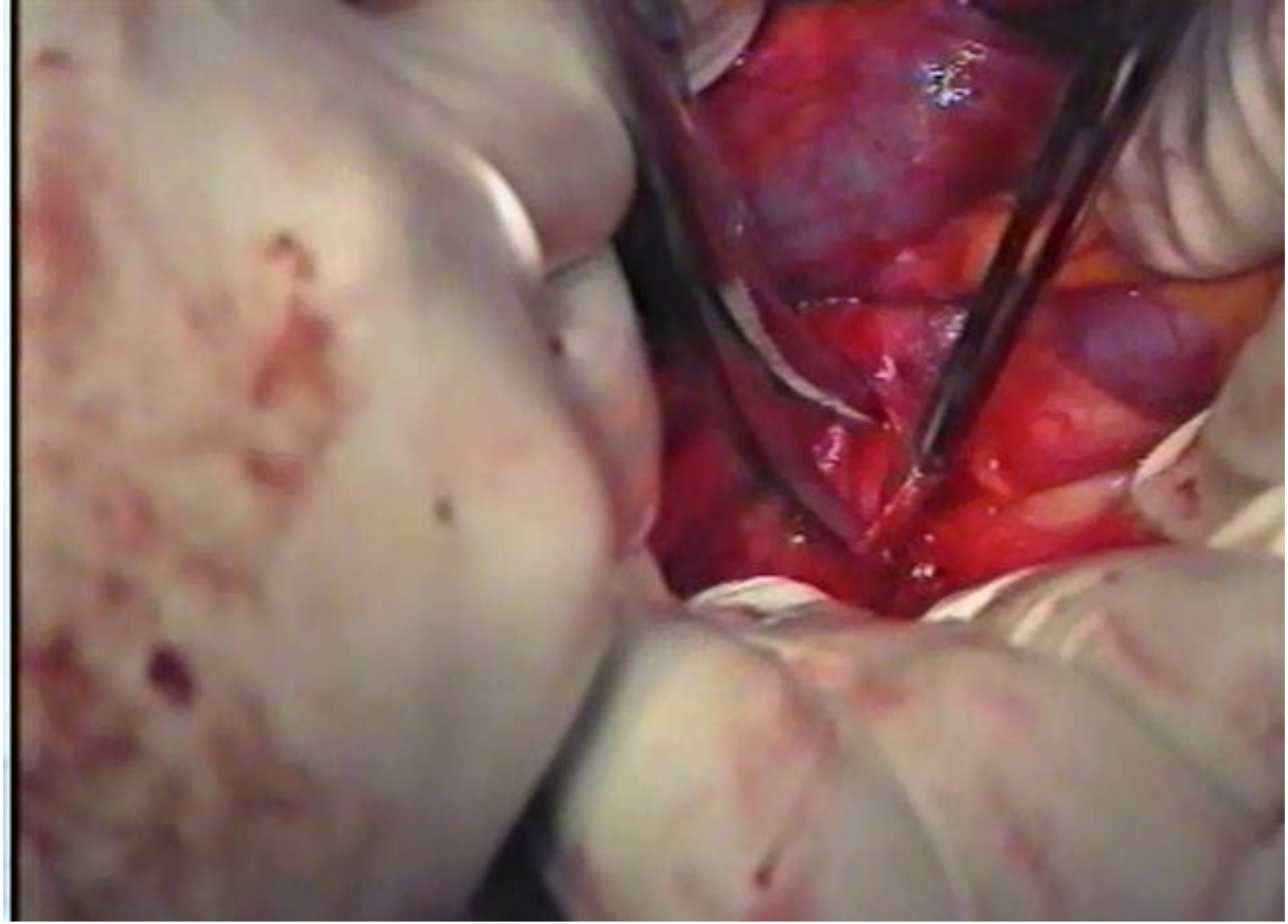
Injuries to the underlying veins is hazardous.

How to prevent ?

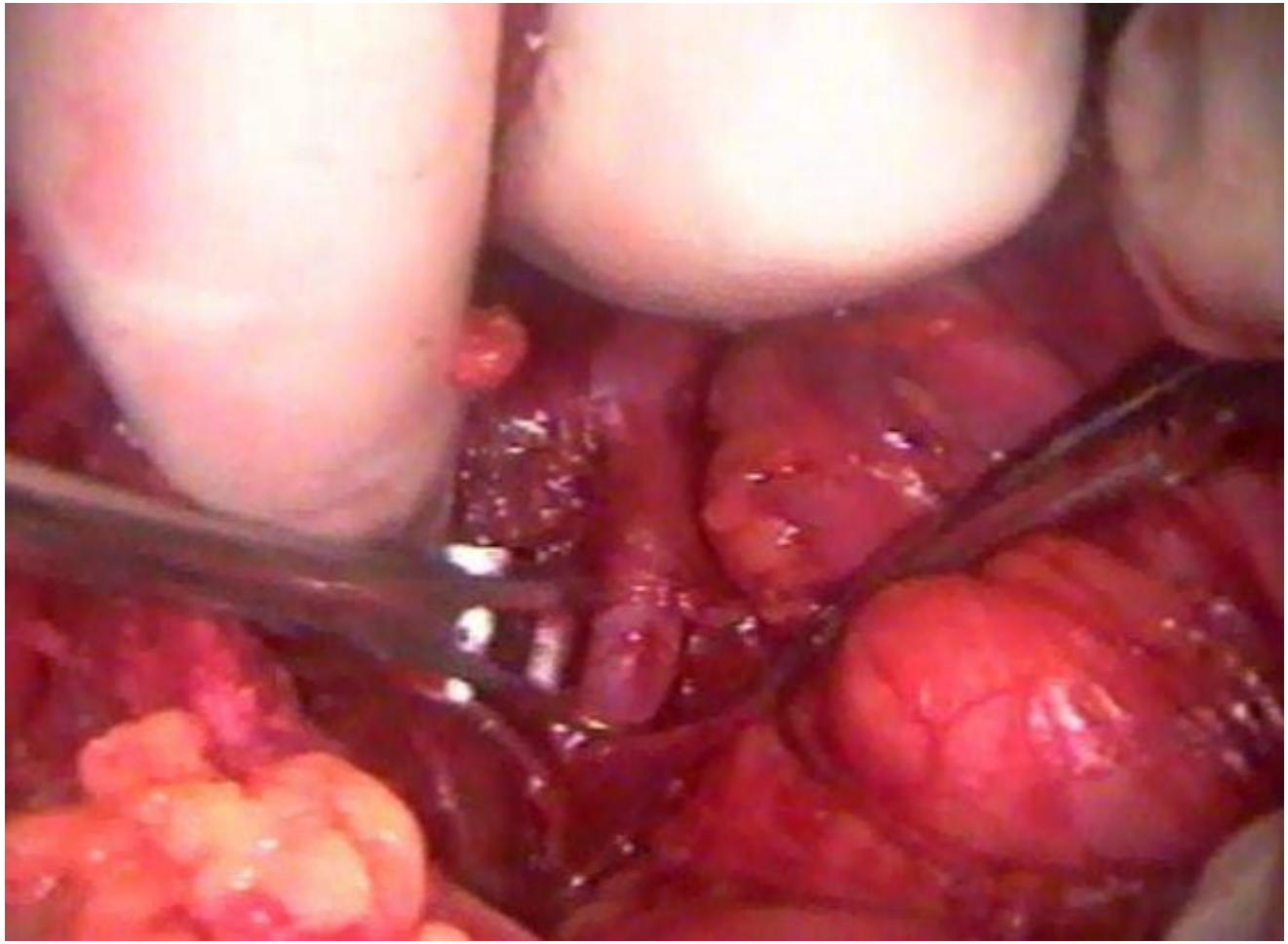


1-The areolar sheath covering the artery &the veins should be opened.

Ligation of the right internal iliac artery.

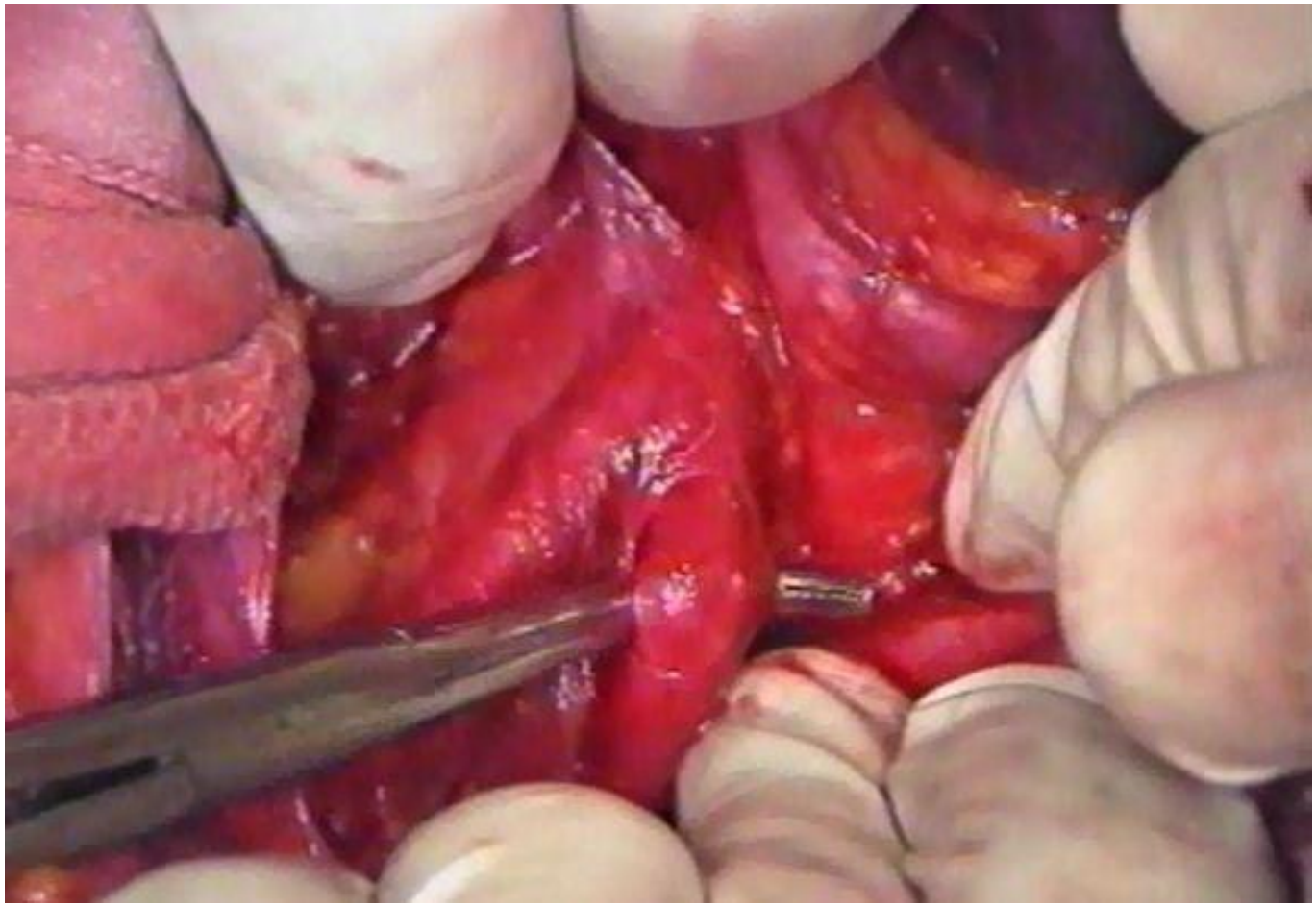


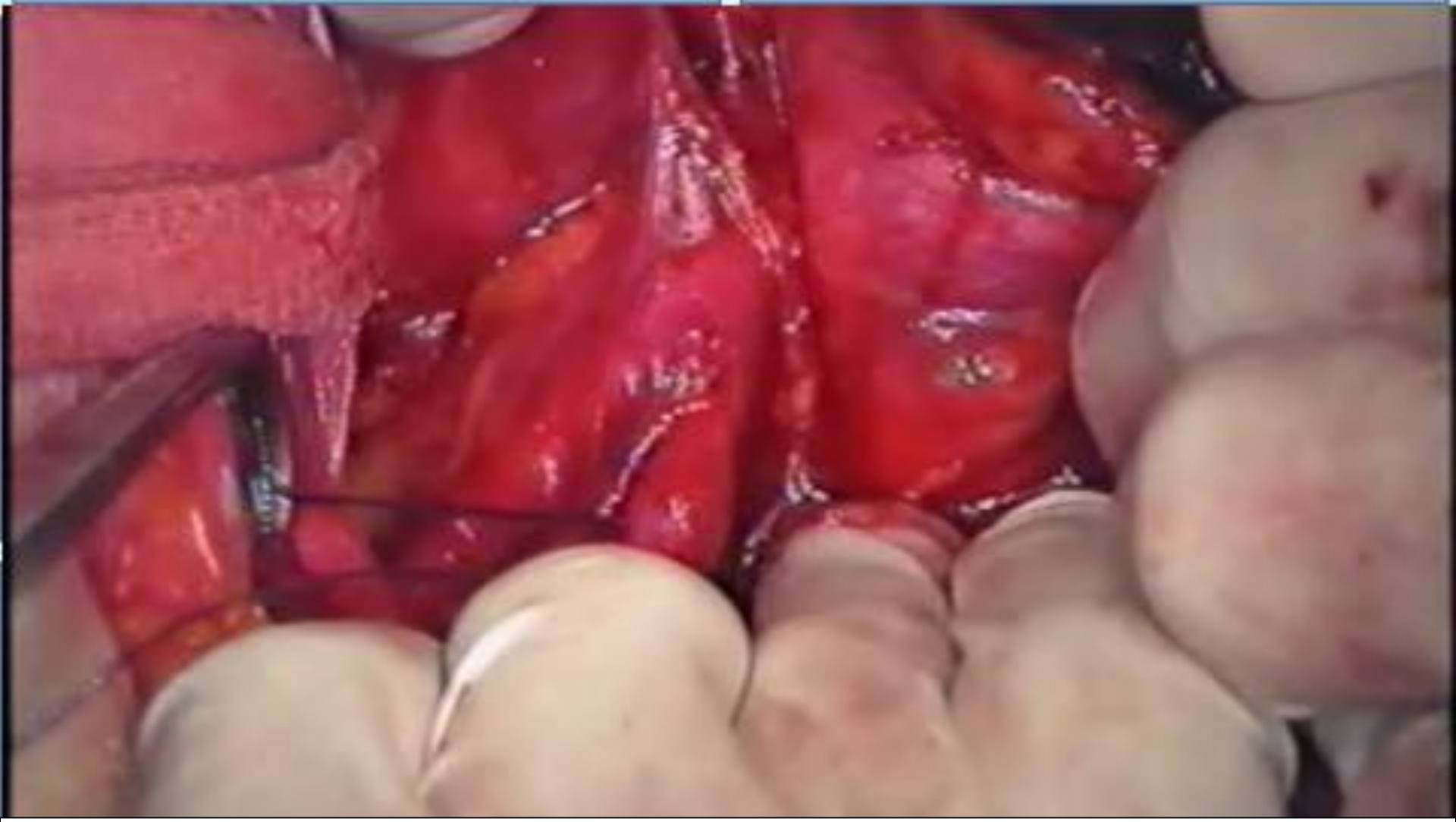
1-The areolar sheath covering the artery and the veins is opened.



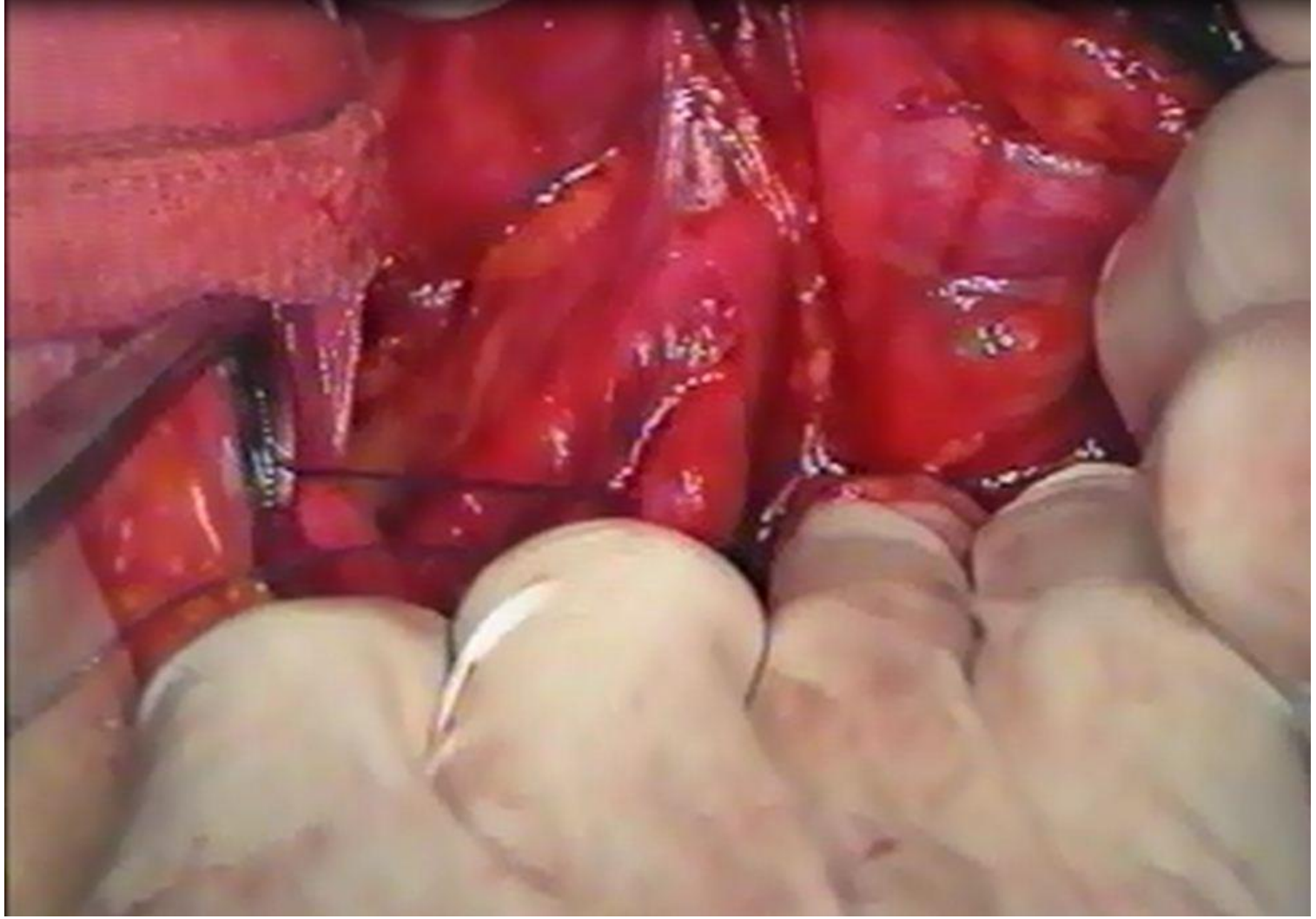
1-The areolar sheath covering the artery and the veins is completely dissected. The internal iliac artery is now separable .

2- Passing the tips of the clamp from lateral to medial to avoid vein injuries.



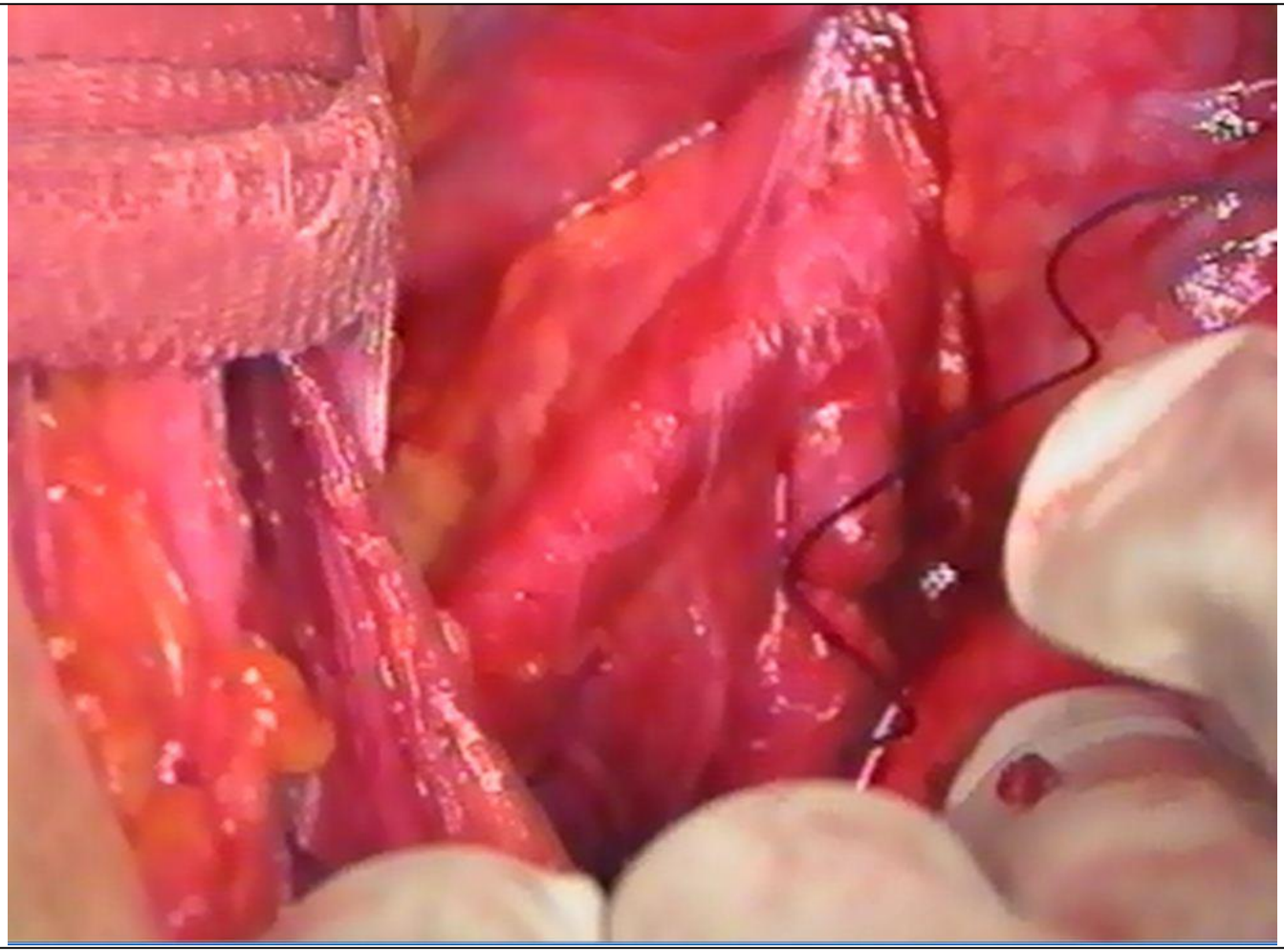


Feeding the tips of the clamp with vacryl NoI then slow lateral pull of the clamp will result in a loop around the internal iliac artery



Feeding the tips of the clamp with vacryl No1 then slow lateral pull of the clamp will result in a loop around the internal iliac artery

Tying the internal iliac artery 2 cm below the bifurcation of the common iliac artery .



The external iliac artery pulsation should be confirmed before completing the surgical knots.

Hysterectomy

Resort To Hysterectomy

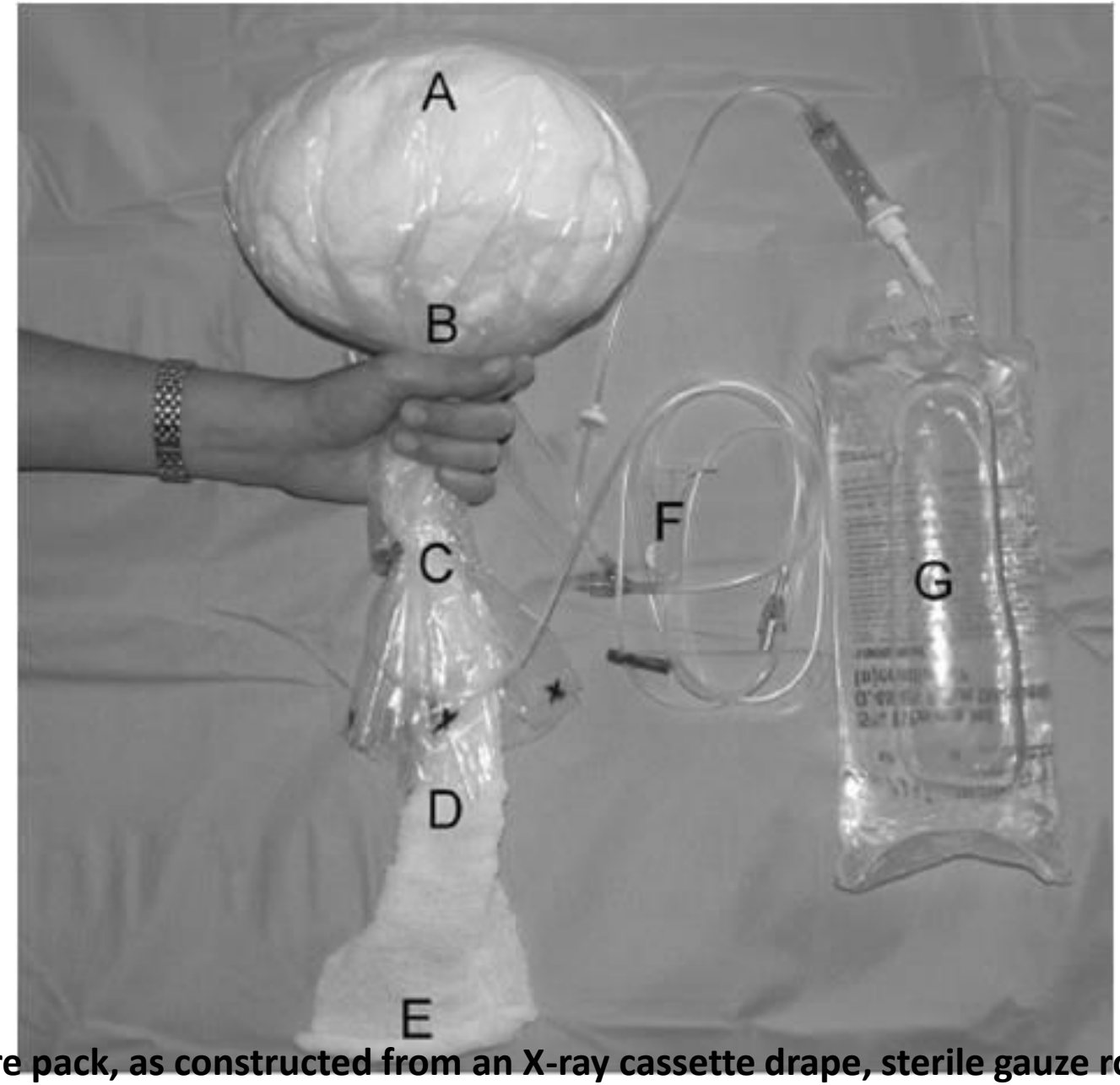
Sooner Rather Than Later

Post Hysterectomy Bleeding

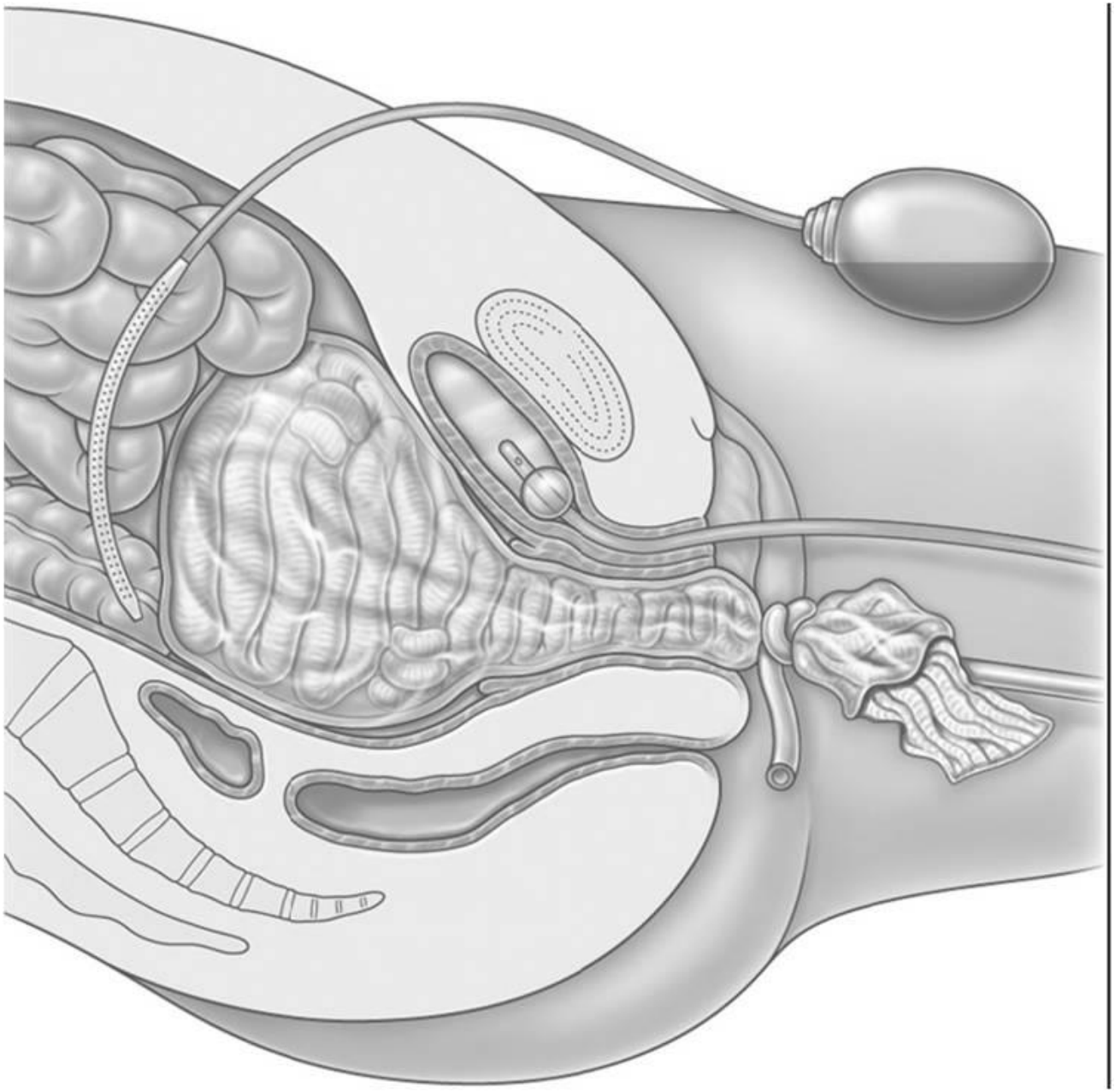
- Diffuse post hysterectomy bleeding may be controlled by abdominal packing to allow time for normalization of the woman's haemodynamic and coagulation status. (II-3)
- The pack composed of gauze in a sterile plastic bag brought out through the vagina and placed under tension. This pack is also known as a parachute, mushroom, or umbrella pack.

SOGC CLINICAL PRACTICE GUIDELINES 2000 II

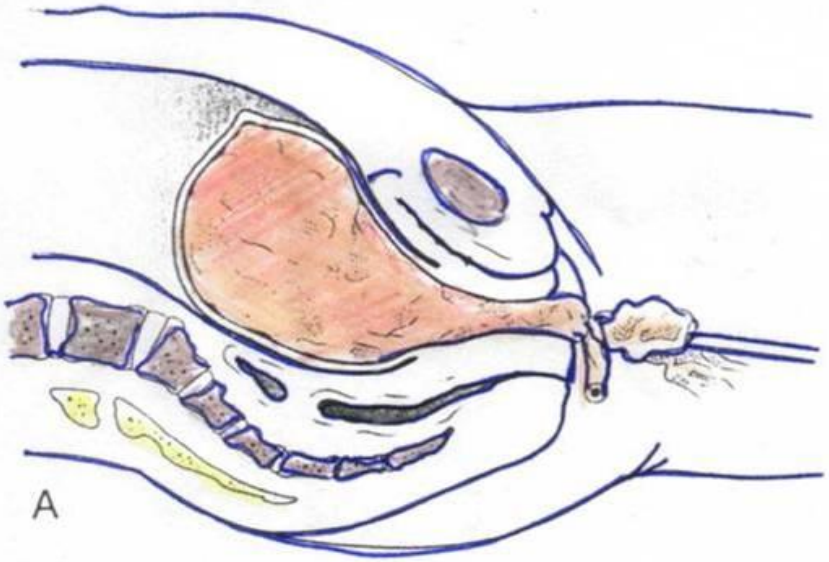
Assembly of a pelvic pressure pack to control hemorrhage. A sterile x-ray cassette cover drape (plastic bag) is filled with gauze rolls tied end-to-end. The length of gauze is then folded into a ball **(A)** and placed within the cassette bag in such a way that the gauze can be unwound eventually with traction on the tail **(D)**. Intravenous tubing **(E)** is tied to the exiting part of the neck **(C)** and connected to a 1-liter bag **(G)**. Once in place, the gauze pack **(A)** fills the pelvis to tamponade vessels and the narrow upper neck **(B)** passes to exit the vagina **(C)**. The IV bag is suspended off the foot of the bed to sustain pressure of the gauze pack on bleeding sites.



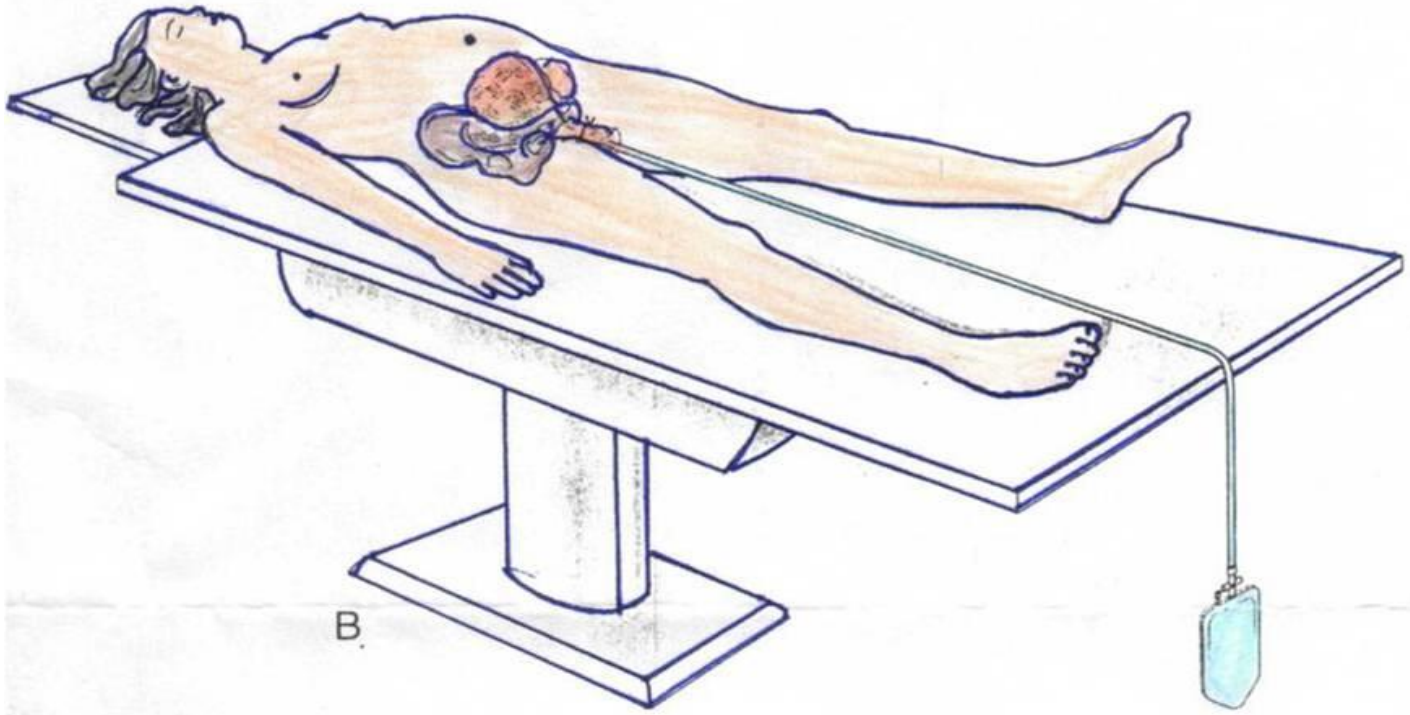
pelvic pressure pack, as constructed from an X-ray cassette drape, sterile gauze rolls, and an intravenous infusion set-up



The pelvic pressure pack *in situ*



A



B

Secondary PPH

Secondary PPH

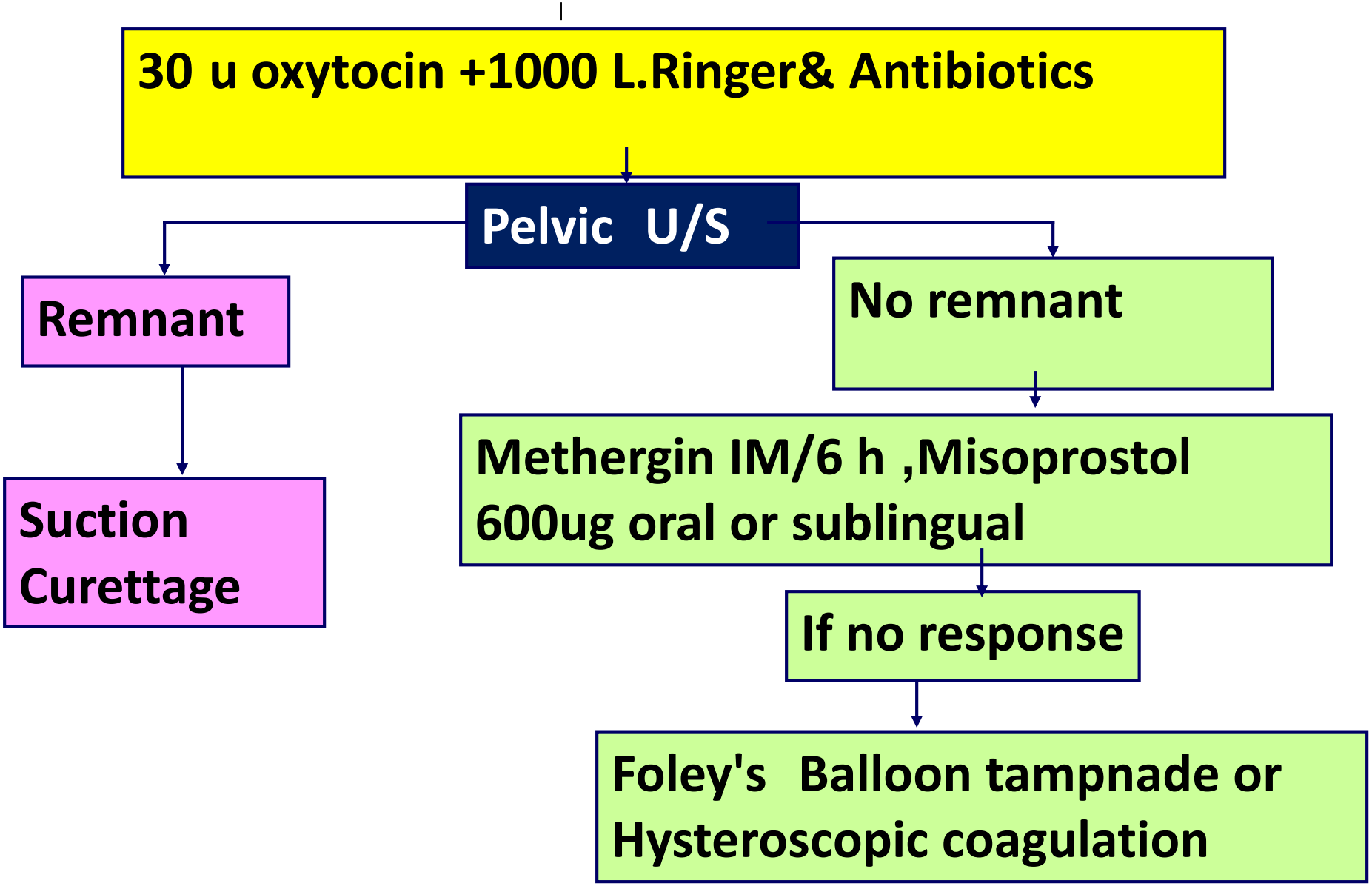
It is often associated with endometritis.

A combination of ampicillin (clindamycin if penicillin allergic) and metronidazole is appropriate.

In cases of endomyometritis (tender uterus) or overt sepsis, then the addition of gentamicin is recommended.

RCOG Guideline No xx 2008 (Grade A)

Management of Secondary PPH



Thank You

Egypt