
بسم الله الرحمن الرحيم

LACERATIONS OF THE BIRTH CANAL

LACERATION RISKS AND MORBIDITY

- any vaginal delivery
- fetal malpresentation
- Fetal macrosomia
- Precipitious delivery
- Prior cerclage placement
- Duherssen incision
- Shoulder dystocia
- second-stage arrest of labor
- persistent occiput posterior position,
- and Asian race.

PERINEAL LACERATIONS

- the most superficial perineal lacerations are accompanied by varying degrees of injury to the lower portion of the vagina. Such tears may reach sufficient depth to involve the anal sphincter and may extend to varying depths through the vaginal walls.

LACERATIONS OF PERINEA

- Lacerations of the vagina and perineum are classified as first- through fourth-degree lacerations or perineal tears.

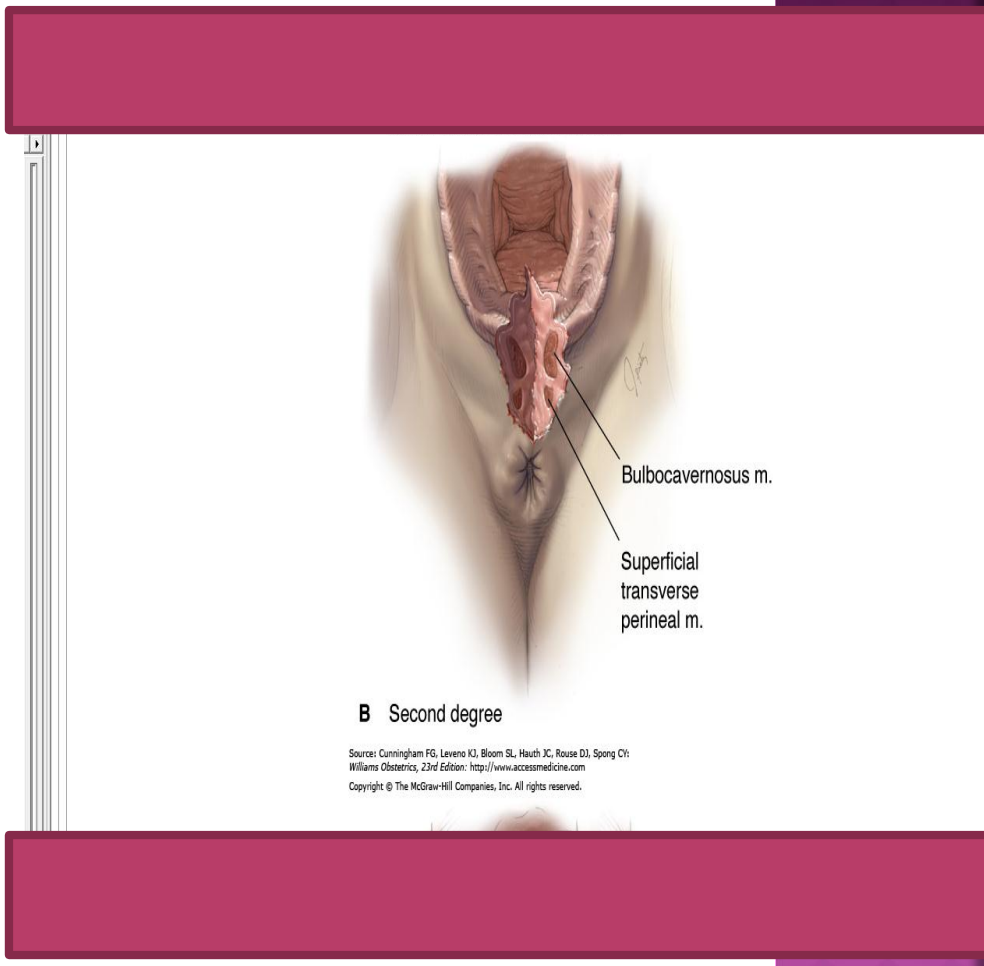
- *First-degree* lacerations involve the fourchette, perineal skin, and vaginal mucous membrane but not the underlying fascia and muscle

- These included periurethral lacerations, which may bleed profusely.

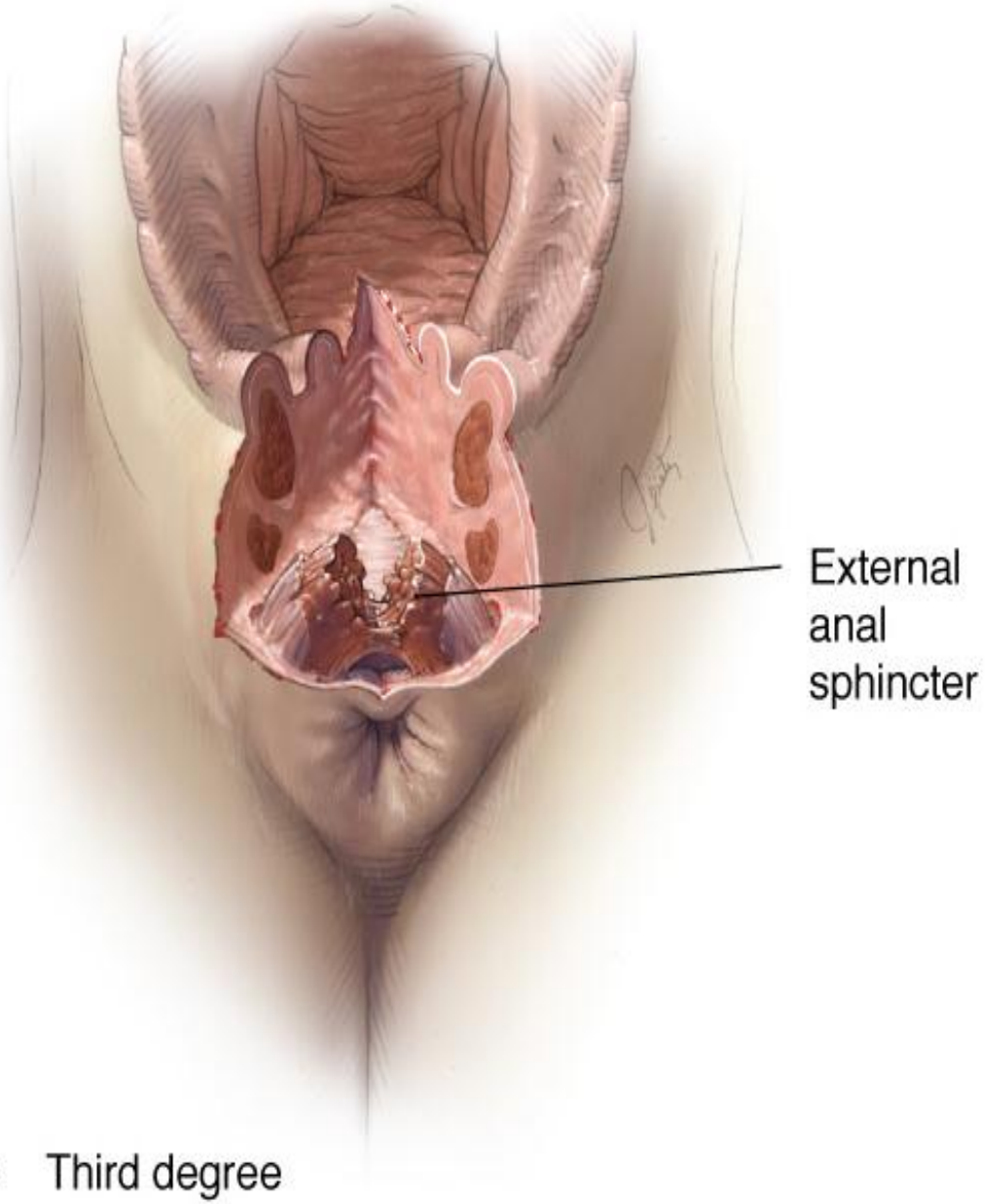
LACERATIONS OF THE BIRTH CANAL

- ***Second-degree*** lacerations involve, in addition the fourchette, perineal skin, and vaginal mucous membrane, the fascia and muscles of the perineal body but not the anal sphincter.

- These tears usually extend upward on one or both sides of the vagina, forming an irregular triangular injury.



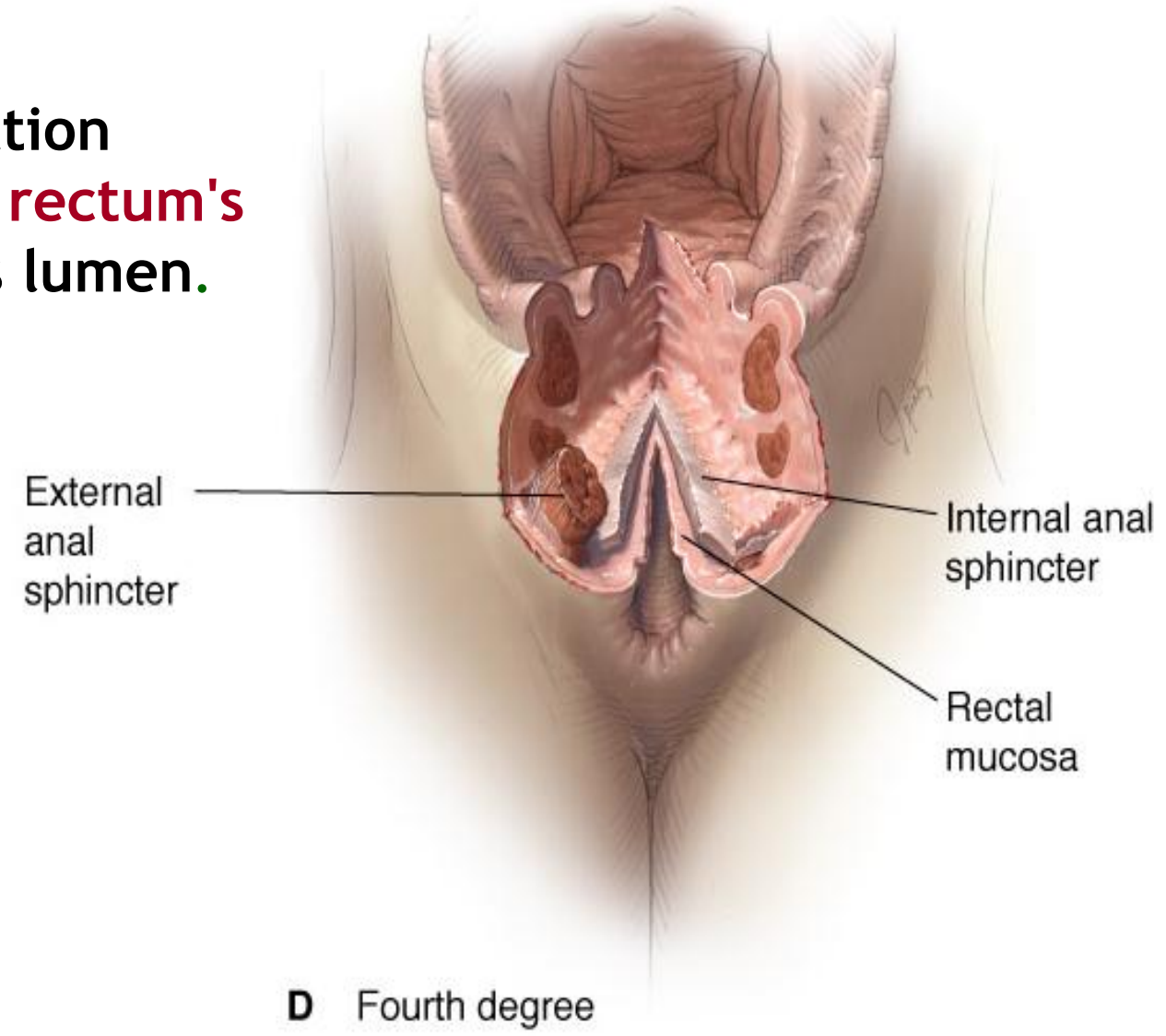
Third-degree **lacerations extend farther anal sphincter**



C Third degree

Source: Cunningham FG, Leveno KJ, Bloom SL, Hauth JC, Rouse DJ, Spong CY: *Williams Obstetrics, 23rd Edition:* http://www.accessmedicine.com

fourth-degree laceration extends through the **rectum's mucosa** to expose its lumen.



Source: Cunningham FG, Leveno KJ, Bloom SL, Hauth JC, Rouse DJ, Spong CY: *Williams Obstetrics, 23rd Edition:* http://www.accessmedicine.com

n of perineal lacerations. **A.** First-degree laceration is a superficial tear that involves the vaginal mucosa and/or perineal skin. **B.** A second-degree **C.** A third-degree laceration extends into or through the external anal sphincter muscle. **D.** A fourth-degree laceration extends into the anorectal lu l sphincters. (Courtesy of Drs. Marlene Corton and Shayzreen Roshanravan.)

- Because repair of perineal lacerations is virtually the same as that of episiotomy incisions, albeit sometimes less satisfactory because of tear irregularities, the technique of laceration repair is discussed with episiotomy repair.

EPISIOTOMY

The incision may be made in the midline, creating a ***median*** or ***midline episiotomy***.

It may also begin in the midline but be directed laterally and downward away from the rectum, termed a ***mediolateral episiotomy***

INDICATIONS

fetal indications

- shoulder dystocia
- breech delivery
- forceps or vacuum extractor deliveries
- occiput posterior positions
- *The final rule is that there is no substitute for surgical judgment and common sense.*

EPISIOTOMY REPAIR

- Typically, episiotomy repair is deferred until the placenta has been delivered.

This policy permits :

- undivided attention to the signs of placental separation and delivery.
- episiotomy repair is not interrupted or disrupted by the obvious necessity of delivering the placenta, especially if manual removal must be performed.
- The major disadvantage is continuing blood loss until the repair is completed.

TECHNIQUE

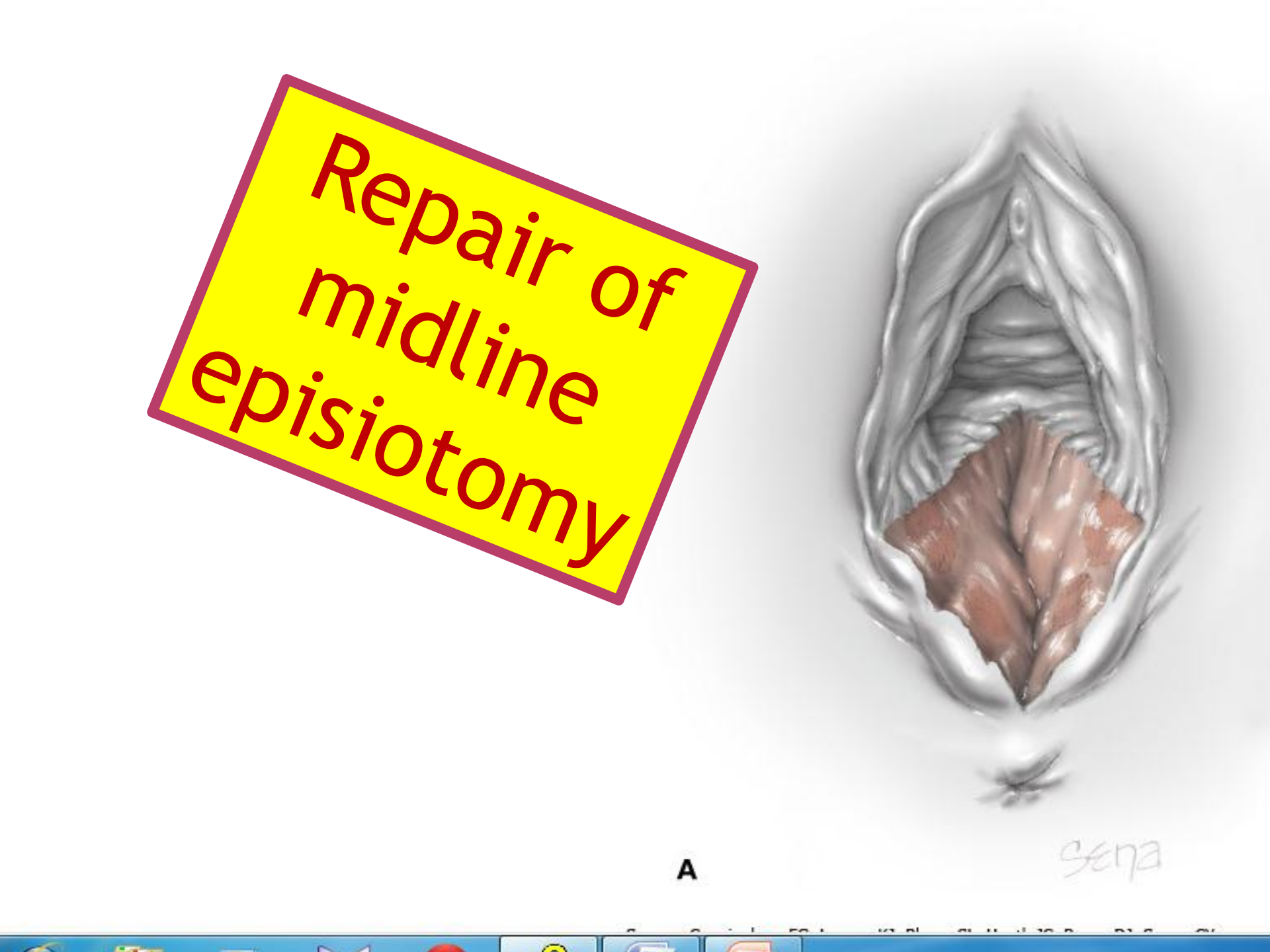
- There are many ways to close an episiotomy incision
- *hemostasis and anatomical restoration without excessive suturing are essential* for success with any method.
- Adequate analgesia.
- The suture material commonly used is 2-0 chromic catgut or polyglycolic acid derivatives

COMPLICATIONS OF EPISIOTOMY

The major complications of episiotomy include

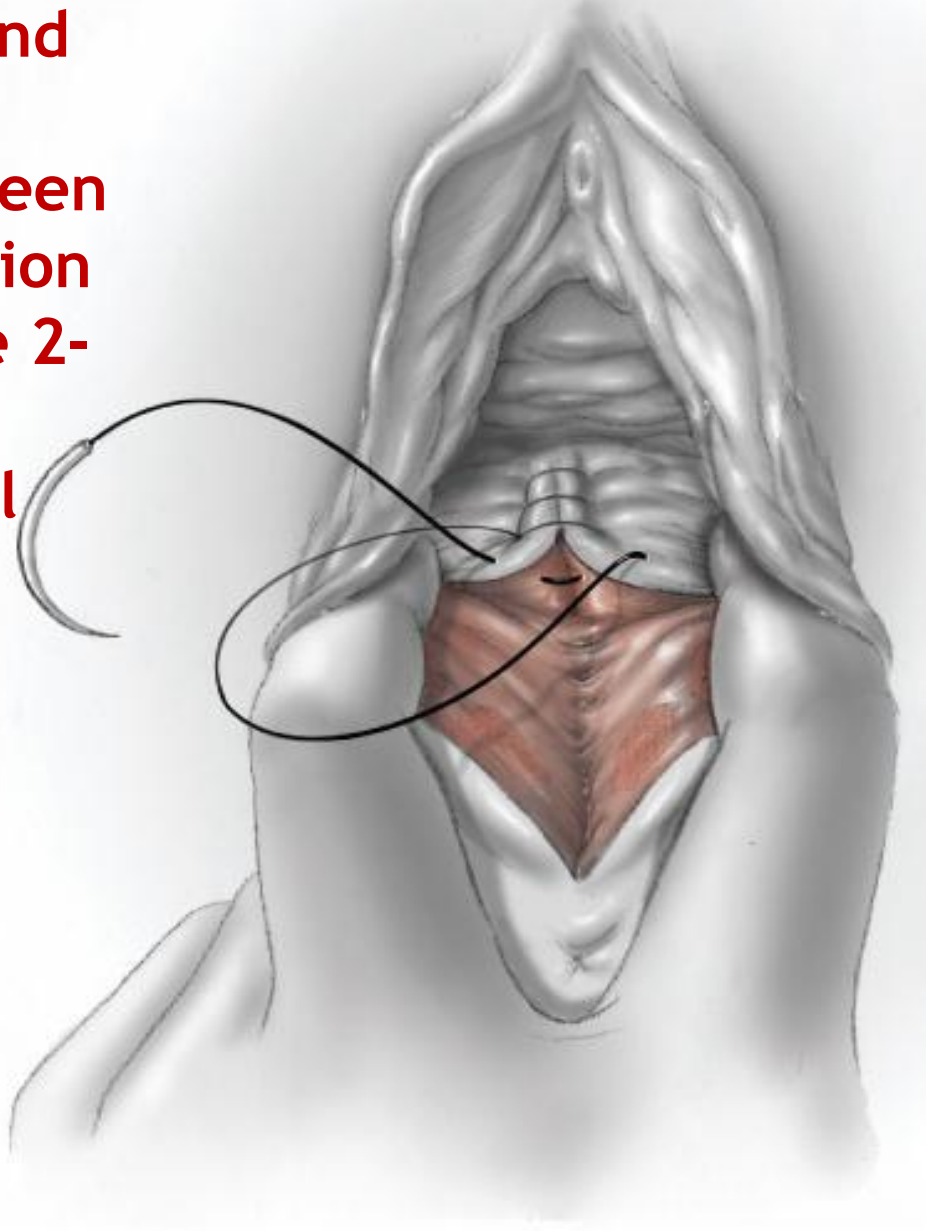
- infection, hematoma, breakdown, and fistula formation.
- Probably the single most common complication is extension (i.e., third- or fourth-degree laceration).
- Extensions in turn can lead to incontinence of flatus and stool, rectovaginal fistula, and infection.

Repair of midline episiotomy



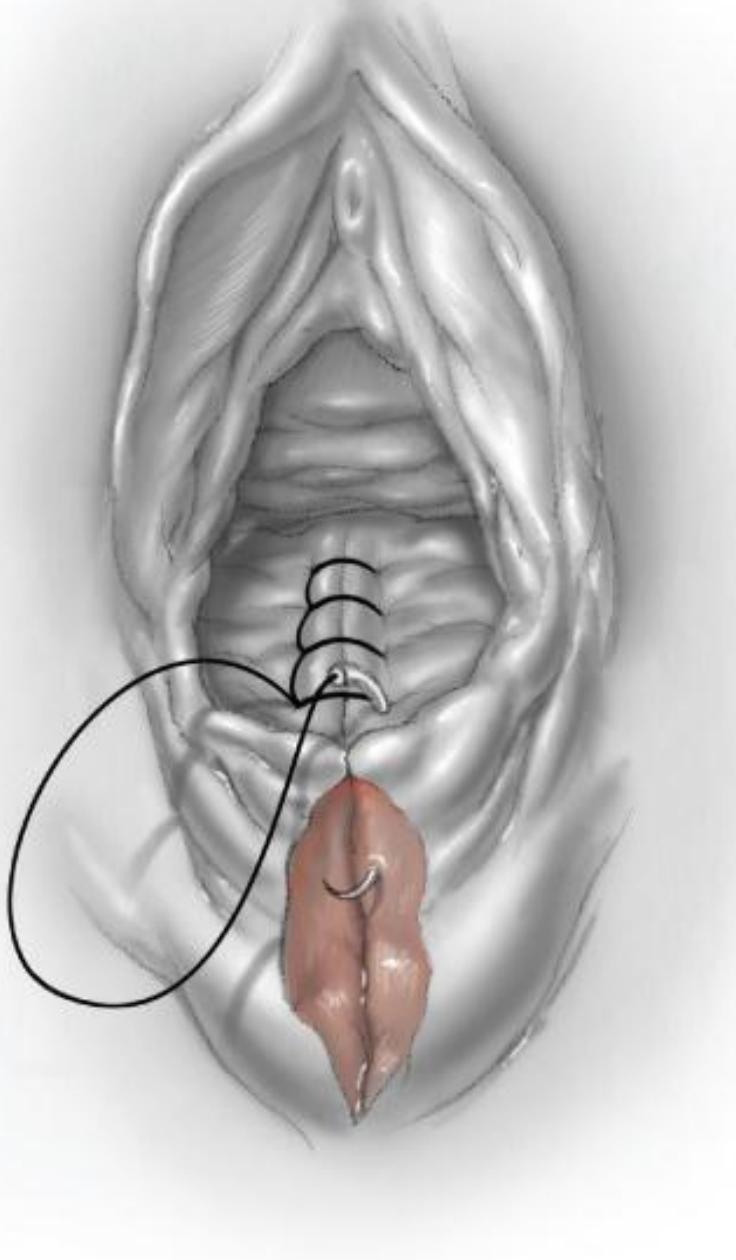
Disruption of the hymenal ring and bulbocavernosus and superficial transverse perineal muscle are seen within the diamond-shaped incision following episiotomy. Absorbable 2-0 or 3-0 suture is used for continuous closure of the vaginal mucosa and submucosa

One popular method is to close the vaginal mucosa and submucosa with a continuous locking suture of 2-0 synthetic delayed absorbable suture or chromic catgut,



B

After closing the vaginal incision and reapproximating the cut margins of the hymenal ring, the needle and suture are positioned to close the perineal incision

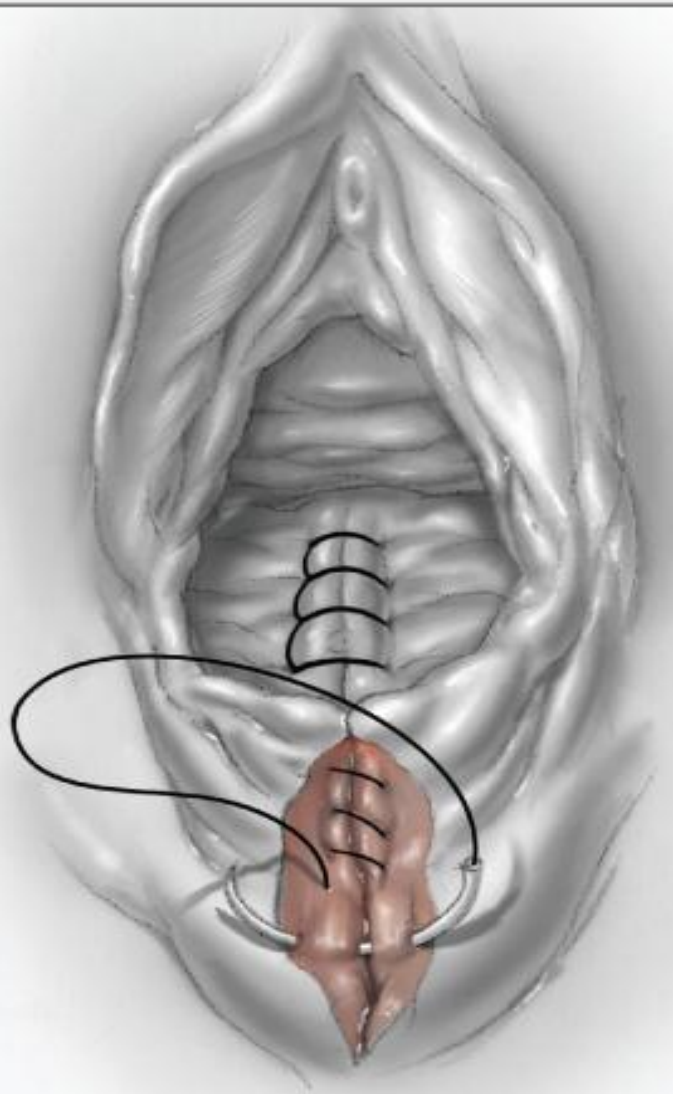


C

Source: Cunningham FG, Leveno KJ, Bloom SL, Hauth JC, Rouse DJ, Spong CY: *Williams Obstetrics, 23rd Edition:* http://www.accessmedicine.com

A continuous closure with absorbable 2-0 or 3-0 suture is used to close the fascia and muscles of the incised perineum.

followed by closure of the fascia and muscle of the perineal body with 3 or 4 interrupted sutures of similar suture material.



D

The continuous suture is then carried upward as a subcuticular stitch. The final knot it, tied proximally to the hymenal ring.

The skin of the perineum can then be closed with a continuous subcuticular stitch or by interrupted sutures of 3-0 or 4-0 synthetic absorbable or chromic suture through the subcutaneous tissue and skin.

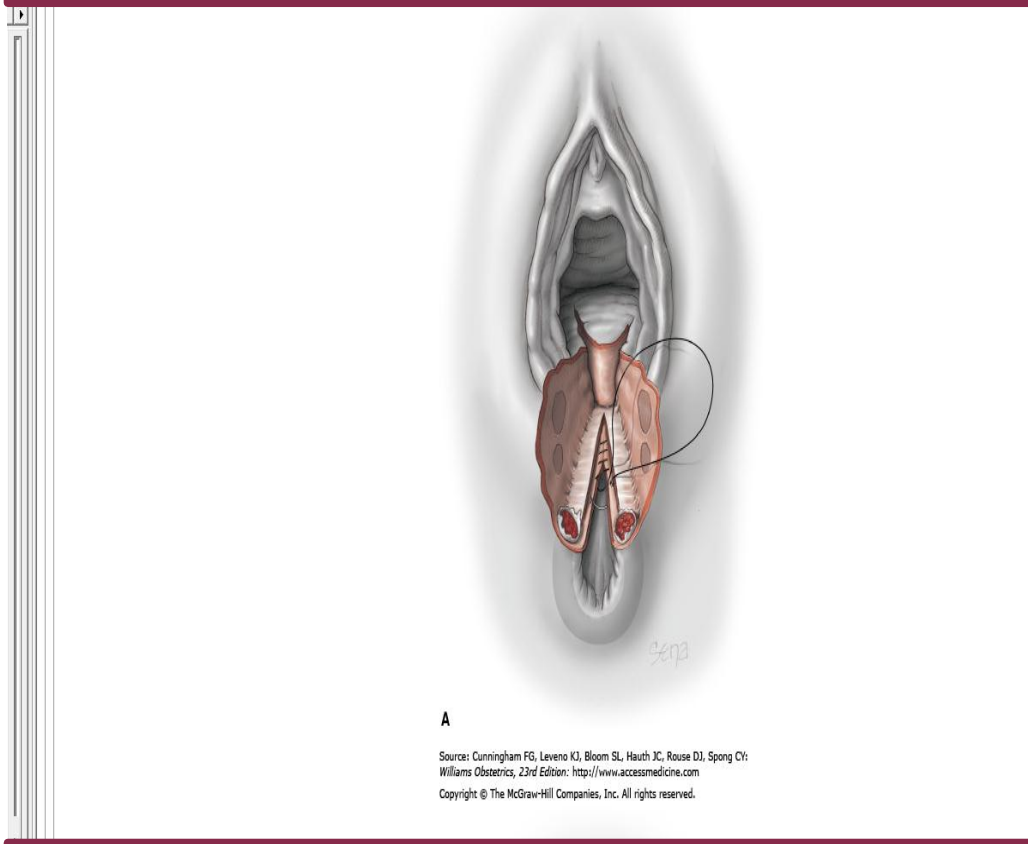
E

Source: Cunningham FG, Leveno KJ, Bloom SL, Hauth JC, Rouse DJ, Spong CY: *Williams Obstetrics, 23rd Edition:* http://www.accessmedicine.com

Layered repair of a fourth-degree perineal laceration

Layered repair of a fourth-degree perineal laceration

- Approximation of the anorectal mucosa and submucosa in a running or interrupted fashion using fine absorbable suture such as 3-0 or 4-0 chromic or Vicryl.
- During this suturing, the superior extent of the anterior anal laceration is identified, and the sutures are placed through the submucosa of the anorectum approximately 0.5 cm apart down to the anal verge.

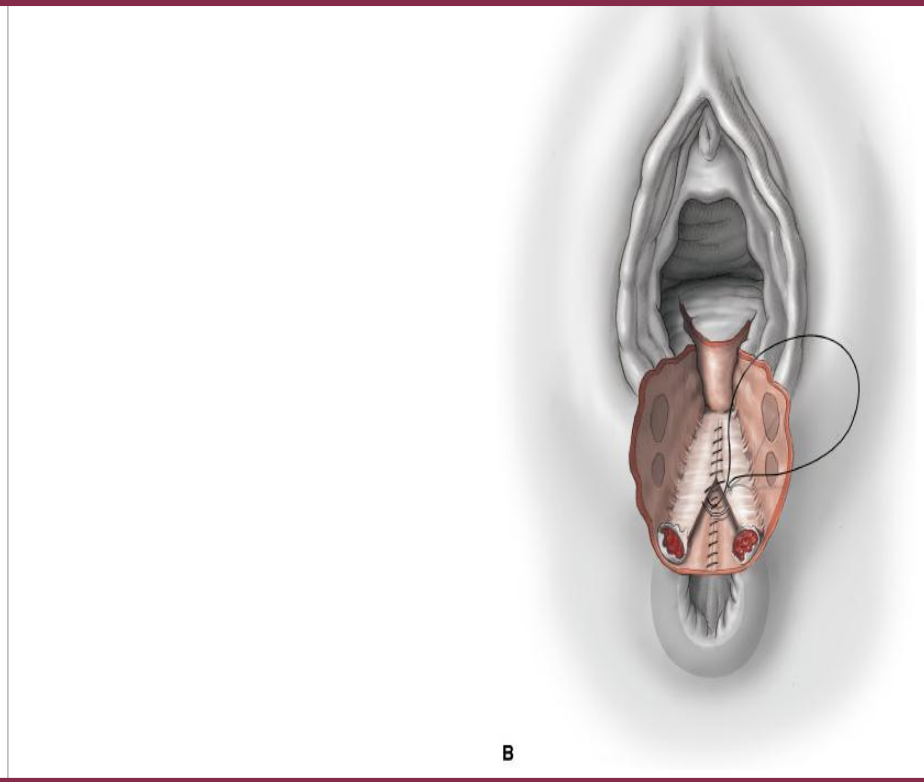


A

Source: Cunningham FG, Leveno KJ, Bloom SL, Hauth JC, Rouse DJ, Spong CY: *Williams Obstetrics, 23rd Edition*: http://www.accessmedicine.com

Layered repair of a fourth-degree perineal laceration

- A second layer is placed through the rectal muscularis using 3-0 Vicryl suture in a running or interrupted fashion.
- This "reinforcing layer" should incorporate the torn ends of the internal anal sphincter, which is identified as the thickening of the circular smooth muscle layer at the distal 2 to 3 cm of the anal canal .
- In many cases, the internal sphincter retracts laterally and must be sought and retrieved for repair.



Layered repair of a fourth-degree perineal laceration

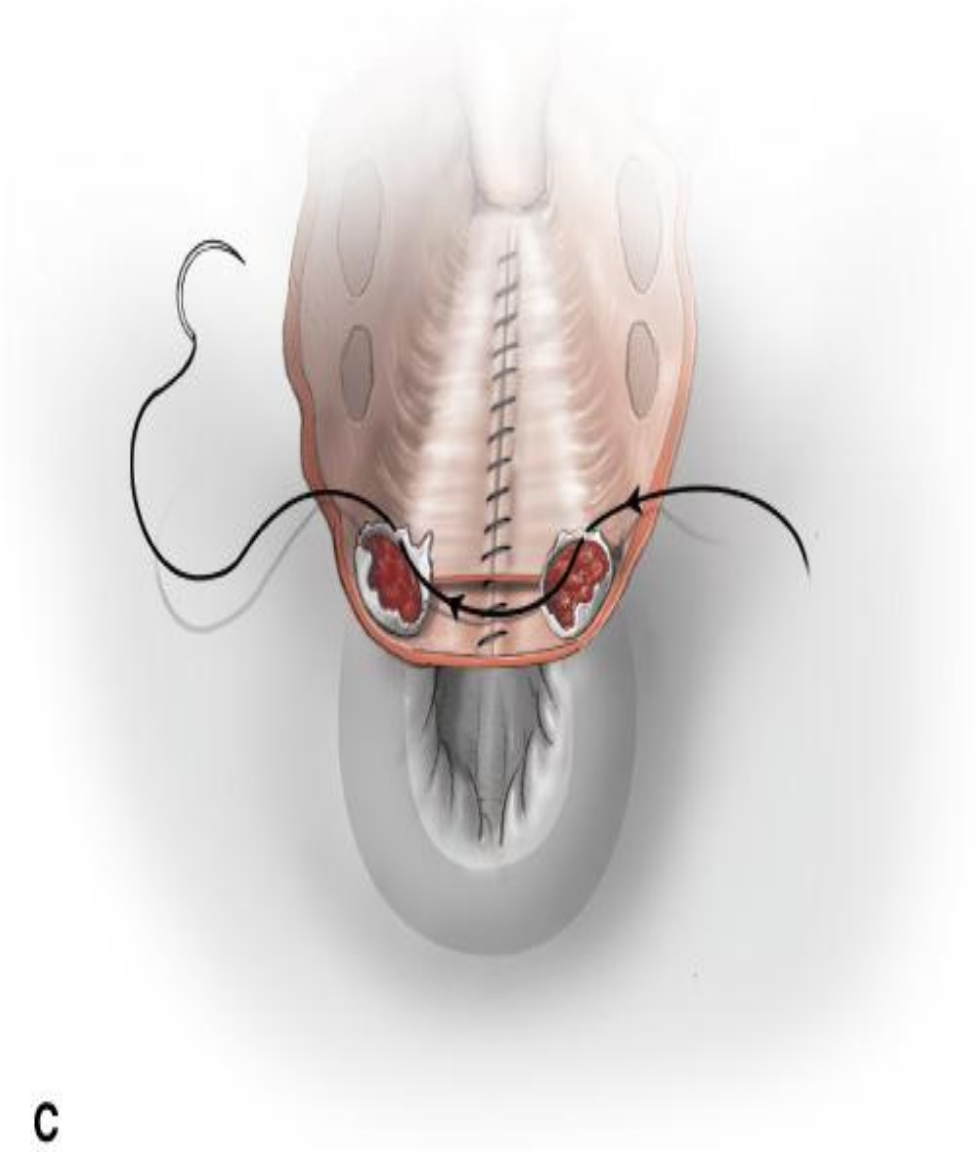
In traditional end-to-end approximation of the EAS:

disrupted ends of the striated external anal sphincter muscle and capsule are identified and grasped with Allis clamps.

a suture is placed through the EAS muscle, and 4 to 6 simple interrupted 2-0 or 3-0 Vicryl sutures are placed at the 3, 6, 9, and 12 o'clock positions through EAS muscle's connective tissue capsule.

sutures through the inferior and posterior portions of the sphincter should be placed first and tied last to aid this part of the repair..

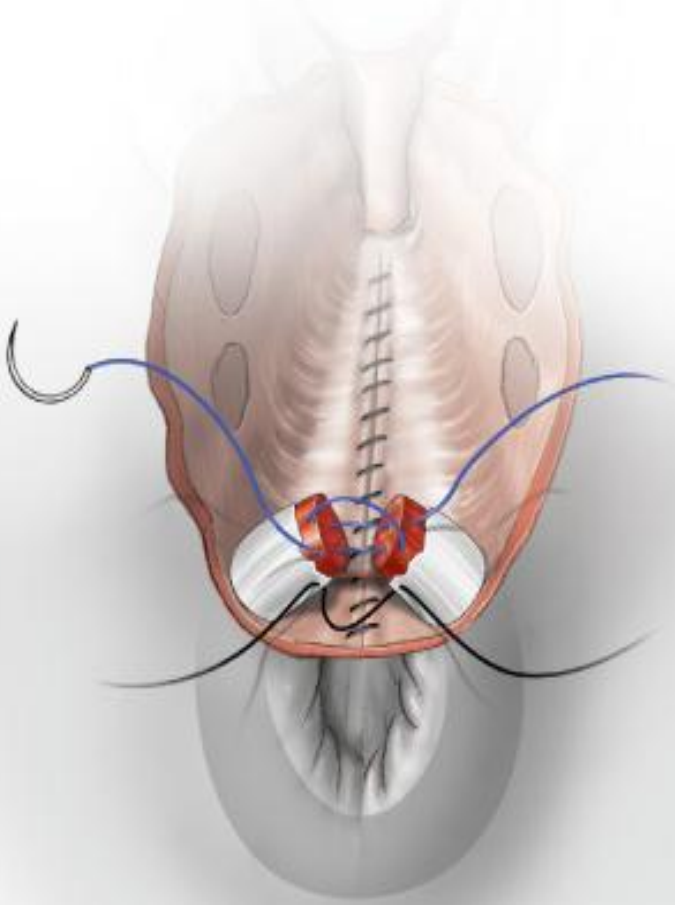
c. Suture through the posterior wall of the external anal sphincter (EAS) capsule.



C

Source: Cunningham FG, Leveno KJ, Bloom SL, Hauth JC, Rouse DJ, Spong CY: *Williams Obstetrics, 23rd Edition*: http://www.accessmedicine.com

D. Sutures through the EAS (*blue suture*) and inferior capsule wall.



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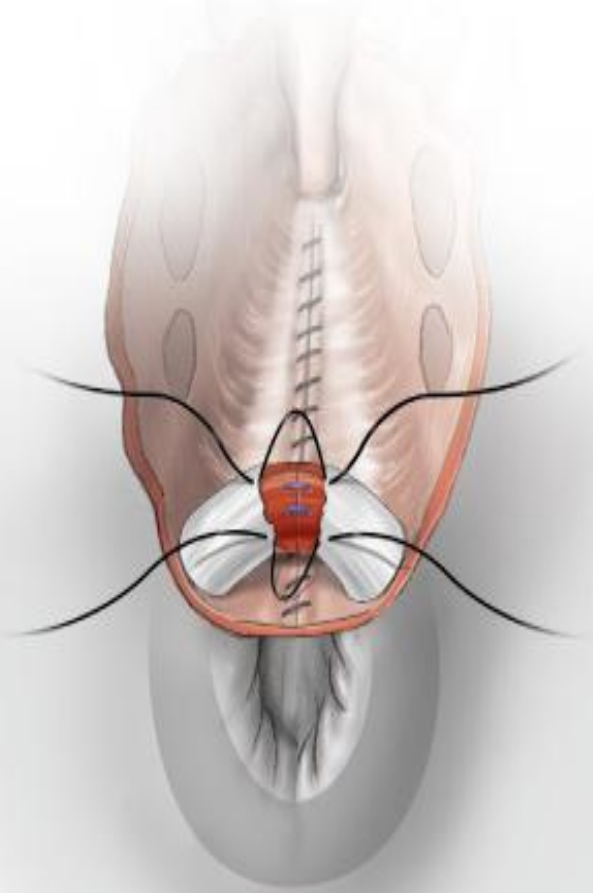
Source: Cunningham FG, Leveno KJ, Bloom SL, Hauth JC, Rouse DJ, Spong CY: *Williams Obstetrics, 23rd Edition:* http://www.accessmedicine.com

E. Sutures to reapproximate the anterior and superior walls of the EAS capsule. The remainder of the repair is similar to that described for a midline episiotomy



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ayered repair of a fourth-degree perineal laceration. **A.** Approximation of the anorectal mucosa and submucosa in a running or interrupted fashion using fine abso

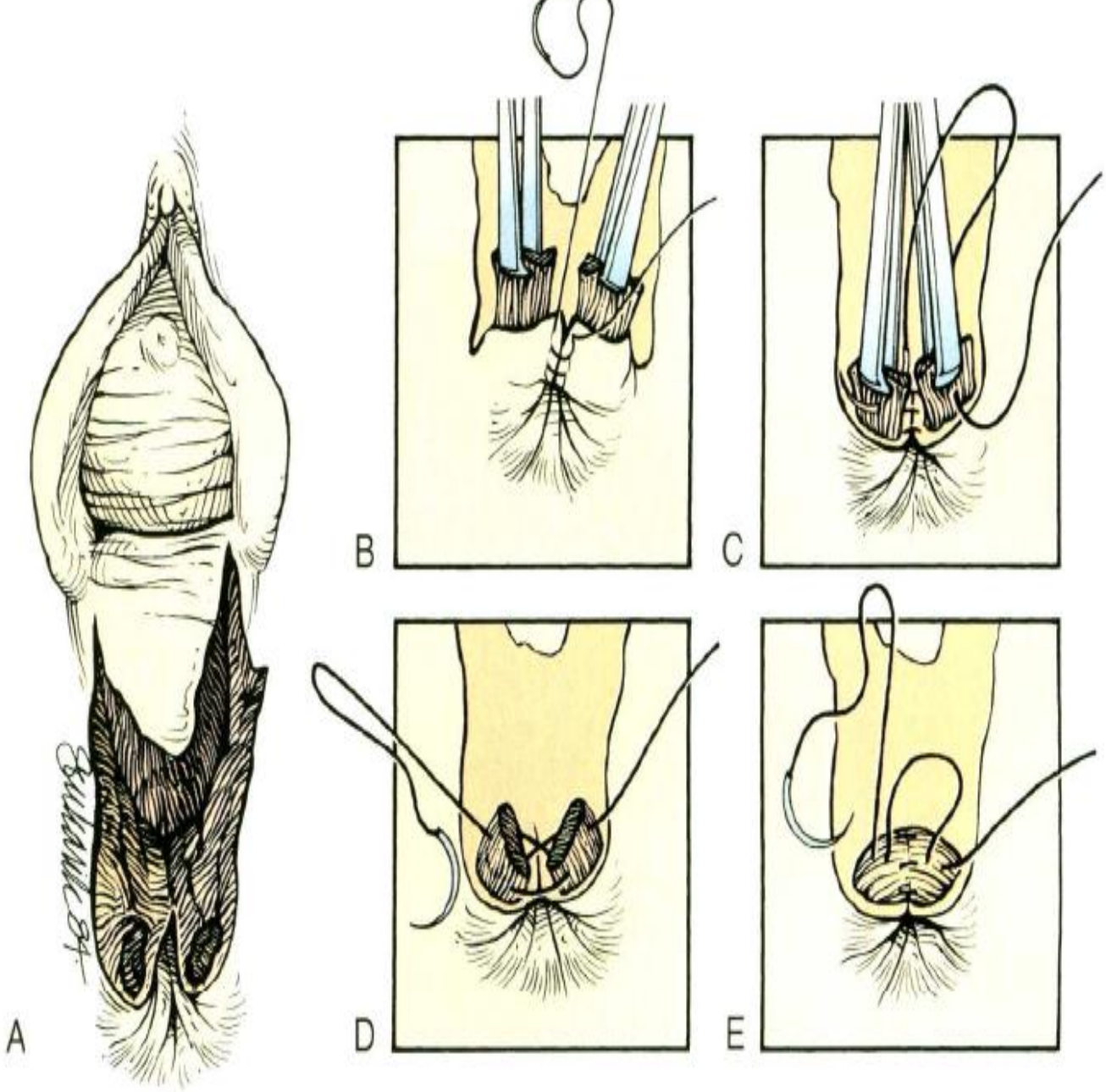

Figure 18-14. Repair of the sphincter after a third-degree laceration. A third-degree laceration extends not only through the skin, mucous membrane, and perineal body but includes the anal sphincter. Interrupted figure-of-eight sutures should be placed in the capsule of the sphincter muscle.

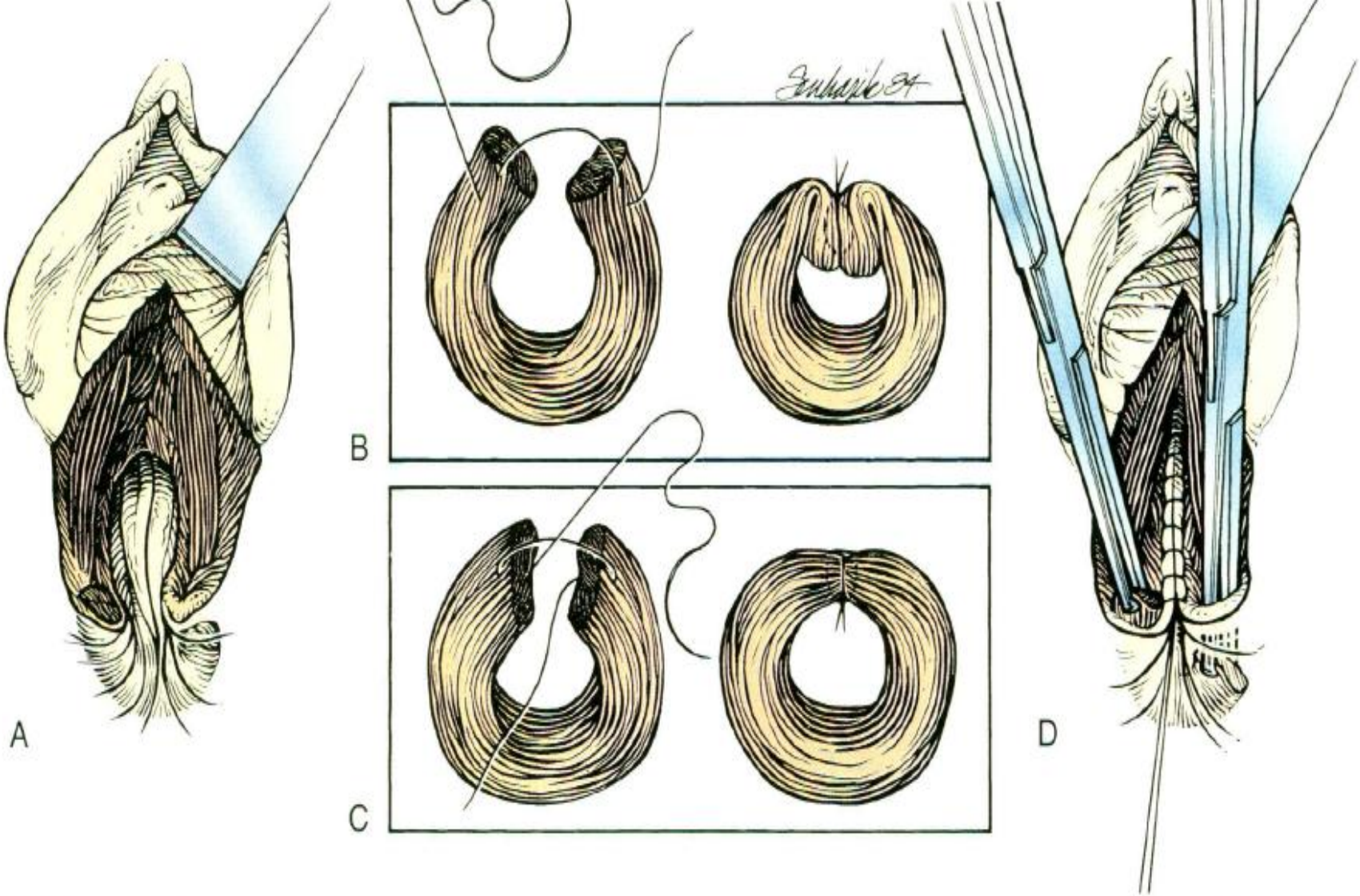

Figure 18-15. Repair of a fourth-degree laceration. This laceration extends through the rectal mucosa. *A*, The extent of this laceration is shown, with a segment of the rectum exposed. *B*, Approximation of the rectal submucosa. This is the most commonly recommended method for repair. *C*, Alternative method of approximating the rectal mucosa in which the knots are actually buried inside the rectal lumen. *D*, After closure of the rectal submucosa, an additional layer of running sutures may be placed. The rectal sphincter is then repaired.

Postoperative care

If the rectal mucosa is involved, a **low-residue diet** should be used for several days and advanced to a regular diet.

- **Stool softeners** may prove useful, but diarrhea should be avoided because of the increased likelihood of infection.
- should also include **sitz baths** and a heat lamp.

VAGINAL LACERATIONS

- Isolated lacerations involving the middle or upper third of the vagina, but unassociated with lacerations of the perineum or cervix, are less common.

- These are usually longitudinal and frequently result from injuries during a forceps or vacuum delivery.
- they may develop with spontaneous delivery.

- Such lacerations frequently extend deep into the underlying tissues and may give rise to significant hemorrhage, which usually is controlled by appropriate suturing.

- They may be missed unless thorough inspection of the upper vagina is performed.

- *Bleeding while the uterus is contracted is strong evidence of genital tract laceration, retained placental fragments, or both.*

VAGINAL LACERATIONS

- Lacerations of the anterior vaginal wall in close proximity to the urethra are relatively common.
- They are often superficial with little to no bleeding,
- repair is usually not indicated. If such lacerations are large enough to require extensive repair, difficulty in voiding can be anticipated, and an indwelling catheter is placed.

INJURIES TO LEVATOR ANI MUSCLES

- These result from overdistension of the birth canal , Muscle fibers are separate, and diminution in their tonicity may be sufficient to interfere with pelvic diaphragm function. In such cases, pelvic relaxation may develop.

- If the injuries involve the pubococcygeus muscle, urinary incontinence also may result

INJURIES TO THE CERVIX

- The cervix is lacerated in more than half of all vaginal deliveries
- Most of these are less than 0.5 cm
- deep cervical tears may extend to the upper third of the vagina.

- the cervix may be entirely or partially avulsed from the vagina. These injuries sometimes follow difficult forceps rotations or deliveries performed through an incompletely dilated cervix with the forceps blades applied over the cervix.

- cervical tears may involve the lower uterine segment and uterine artery and its major branches, and even extend through the peritoneum.

INJURIES TO THE CERVIX

- If there is question of peritoneal perforation or of retroperitoneal or intraperitoneal hemorrhage, laparotomy should be considered. With damage of this severity, intrauterine exploration for possible rupture is also indicated. Surgical repair is usually required, and effective analgesia or anesthesia, vigorous blood replacement, and capable assistance are mandatory.

- Cervical lacerations up to 2 cm heal rapidly and are rarely the source of complications. In healing, they cause a significant change in the round shape of the external os or may be eversion with exposure of the mucus-producing endocervical epithelium

INJURIES TO THE CERVIX

- Occasionally, the edematous anterior lip of the cervix may be caught during labor and compressed between the fetal head and maternal symphysis pubis. If ischemia is severe, the **cervical lip may necrose and separate.**

- Rarely, the entire vaginal portion may be avulsed from the rest of the cervix—termed *annular* or *circular detachment of the cervix.*

DIAGNOSIS

- A deep cervical tear should always be suspected in women with profuse hemorrhage if the uterus is contracted.
- Thorough examination is necessary
- Visualization is best accomplished when an *assistant* applies firm downward pressure on the uterus while the operator exerts traction on the lips of the cervix with ring forceps.
- the cervix should be inspected routinely at the conclusion of the third stage after all difficult deliveries, even if there is no bleeding.

MANAGEMENT

- Deep cervical tears usually require surgical repair.
- Because the hemorrhage usually comes from the upper angle of the wound, the first suture is placed proximal to the angle. Suturing proceeds outward toward the operator.
- Associated vaginal lacerations may be tamponaded with gauze packs to retard hemorrhage while cervical lacerations are repaired.
- Either interrupted or running absorbable sutures are suitable.
- use of angiographic embolization for treatment of a high cervical tear after failed surgical repair.

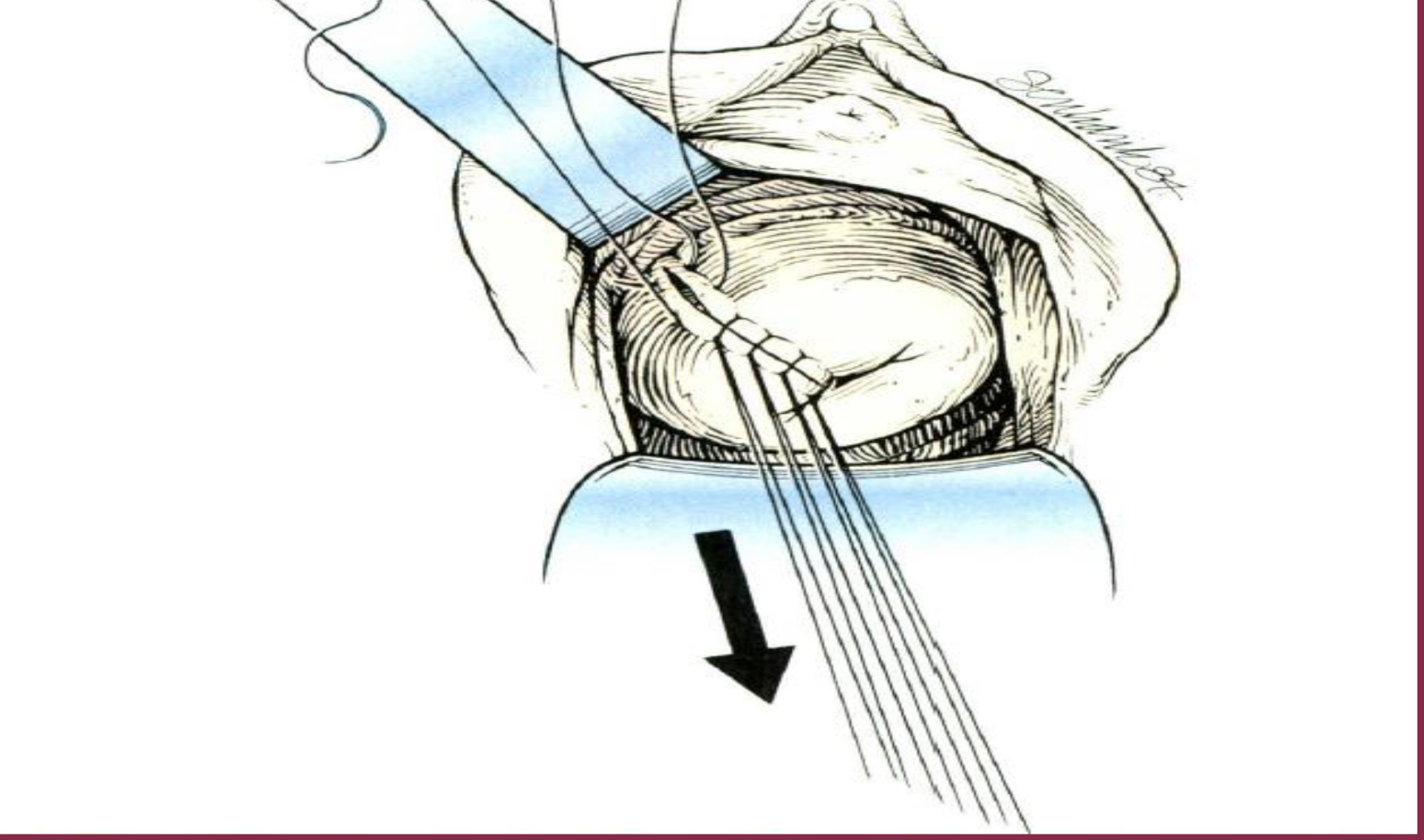

Figure 18-16. Repair of a cervical laceration, which begins at the proximal part of the laceration, using traction on the previous sutures to aid in exposing the distal portion of the defect.

PUERPERAL HEMATOMAS

- incidence : 1 in 300 to 1 in 1000 deliveries

risk factors

- episiotomy,
- forceps delivery
- hematomas may develop following rupture of a blood vessel without laceration of superficial tissues. These may occur with spontaneous or operative delivery, and hemorrhage may be delayed.
- coagulopathies, such as von Willebrand

PUERPERAL HEMATOMAS

CLASSIFICATION:

- Vulvar
- Vulvovaginal
- paravaginal
- retroperitoneal.

VULVAR HEMATOMAS

Vulvar hematomas most often involve branches of pudendal artery, (posterior rectal, transverse perineal, or, posterior labial artery).

- may develop rapidly.
- may cause severe pain. This often is the first symptom noticed.
- usually there is a rapid appearance of a tense, fluctuant, and sensitive swelling of varying size covered by discolored skin.
- When the mass develops adjacent to vagina, it may escape detection temporarily.

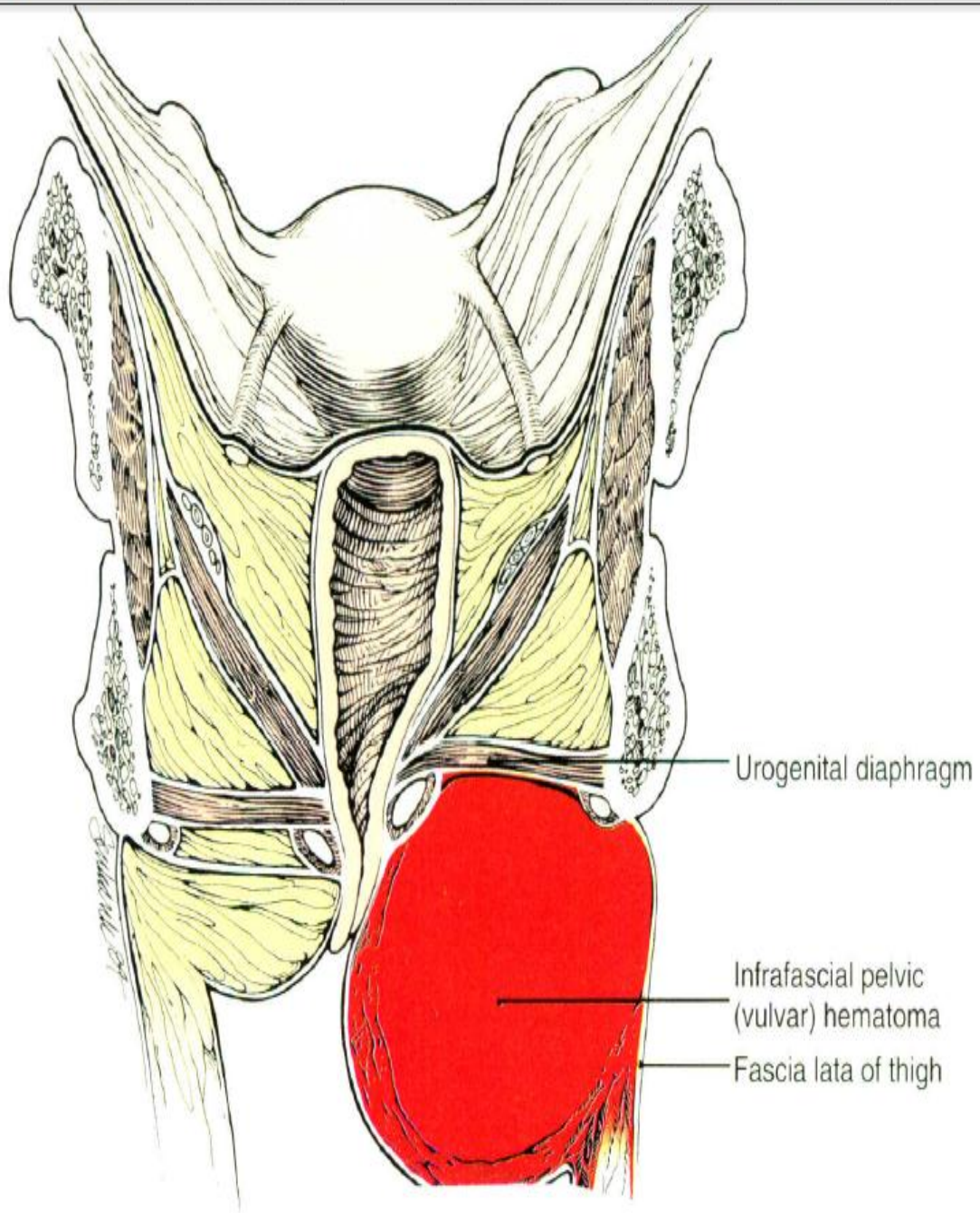

Figure 18-17. Vulvar hematoma fascial boundaries.

VULVAR HEMATOMAS

- Moderate-sized hematomas may be absorbed spontaneously.
- The tissues overlying the hematoma may rupture as a result of pressure necrosis, and profuse hemorrhage may follow.
- if pain is severe or the hematoma continues to enlarge, the best treatment is prompt incision and drainage. This is done at the point of maximal distension along with evacuation of blood and clots and ligation of bleeding points. The cavity may then be obliterated with mattress sutures. Often, no sites of bleeding are identified after the hematoma has been drained

PARAVAGINAL HEMATOMAS

- may involve the descending branch of uterine artery
- Infrequently, a torn vessel lies above the pelvic fascia. In that event, the hematoma develops above it. In its early stages, the hematoma forms a rounded swelling that projects into the upper portion of the vaginal canal and may almost occlude its lumen.
- If the bleeding continues, it dissects retroperitoneally, even dissect upward, eventually reaching the lower margin of the diaphragm.

DIAGNOSIS

- Symptoms of pressure, if not pain or inability to void, should prompt a vaginal examination with discovery of a round, fluctuant mass encroaching on the lumen.
- If hematoma extends upward between the folds of the broad ligament, it may escape detection unless a portion of the hematoma can be felt on abdominal palpation or unless hypovolemia develops. These are worrisome because they can be fatal.
- Sonographic or CT imaging may be helpful to assess the location and extent of these hematomas.

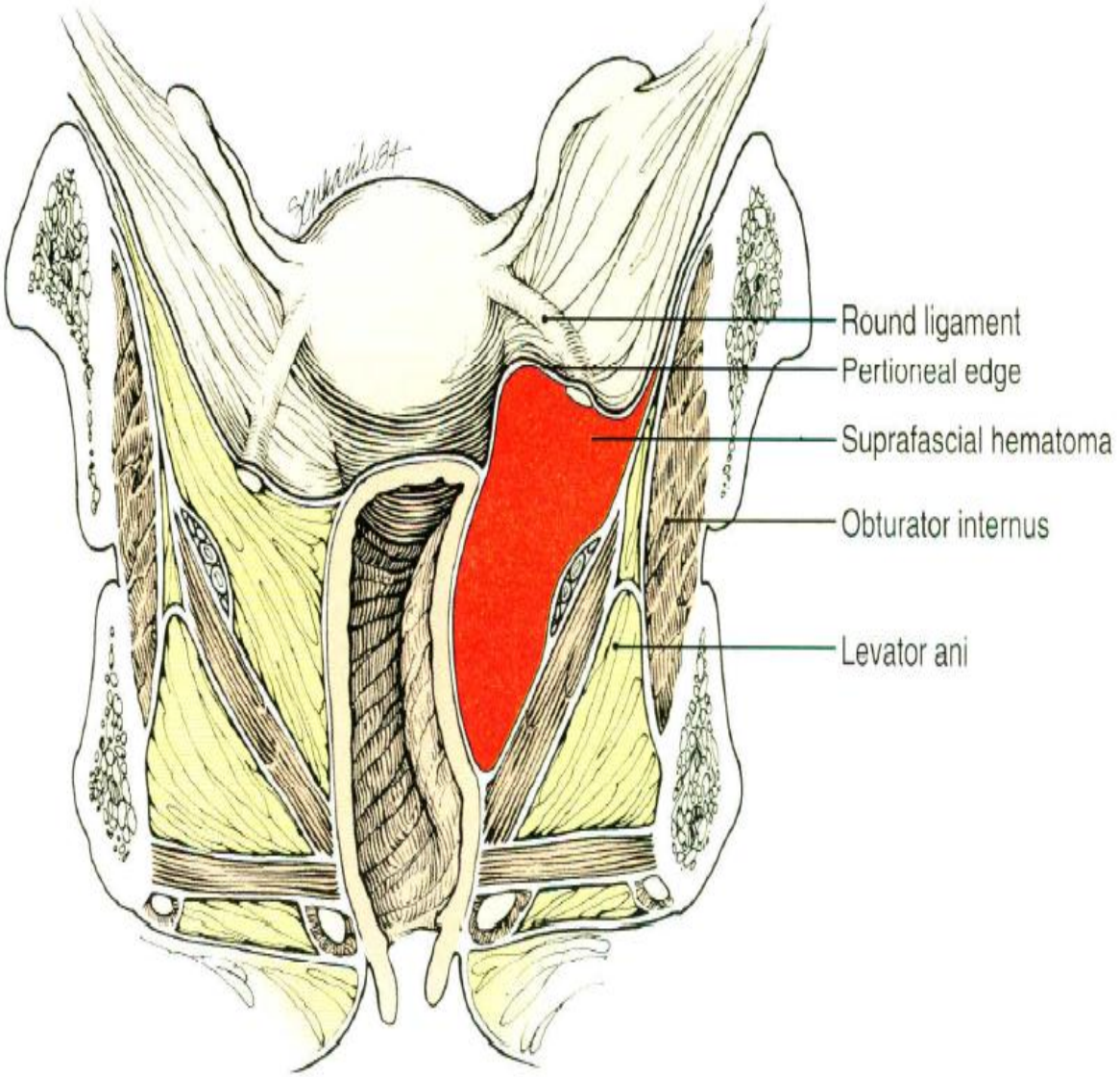

Figure 18-19. Vaginal hematoma.

TREATMENT

- if pain is severe or hematoma continues to enlarge, the best treatment is prompt incision and drainage. This is done at the point of maximal distension along with evacuation of blood and clots and ligation of bleeding points. The cavity may then be obliterated with mattress sutures. Often, no sites of bleeding are identified after the hematoma has been drained. In such cases, the cavity is surgically closed, and the vagina is packed for 12 to 24 hours.
- With hematomas of the genital tract, blood loss is nearly always considerably more than the clinical estimate.
- Hypovolemia and severe anemia should be prevented by adequate blood replacement.
- Subperitoneal and supravaginal hematomas are more difficult to treat because of difficult surgical access. Some can be evacuated by vaginal incision, but there is not complete hemostasis, laparotomy is advisable.

ANGIOGRAPHIC EMBOLIZATION

- This technique has become popular for management of intractable puerperal hematomas.

- Embolization can be used primarily or most often when hemostasis is not obtained by surgical methods.


THANKS