LAPAROSCOPIC REPAIR OF PELVIC FLOOR

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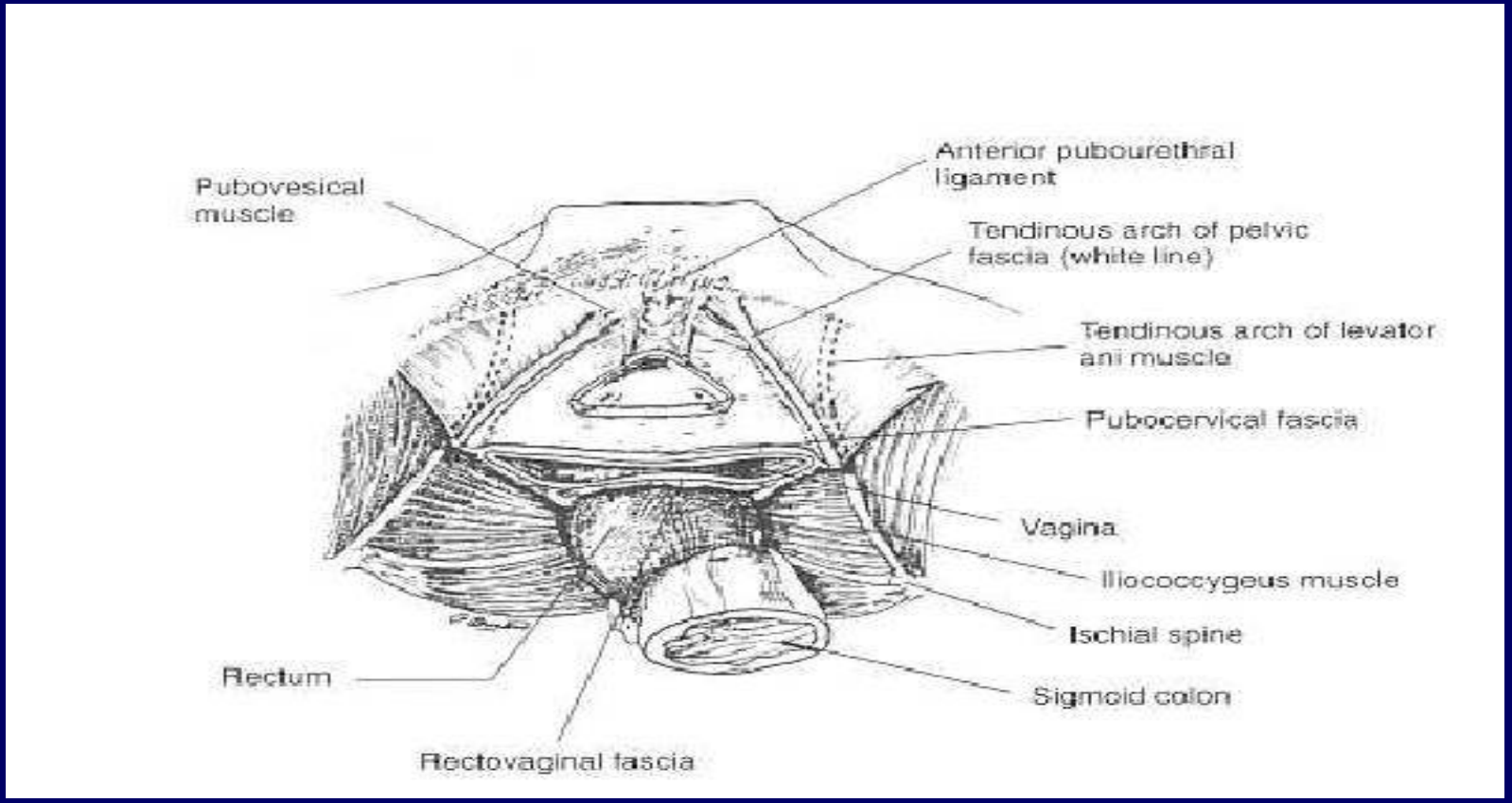
Elements comprising the Pelvis

- Bones
  - Ilium, ischium and pubis fusion
- Ligaments
- Muscles
  - Obturator internis muscle
  - Arcus tendineus levator ani or white line
  - Levator ani muscles
  - Urethral and anal sphincter muscles

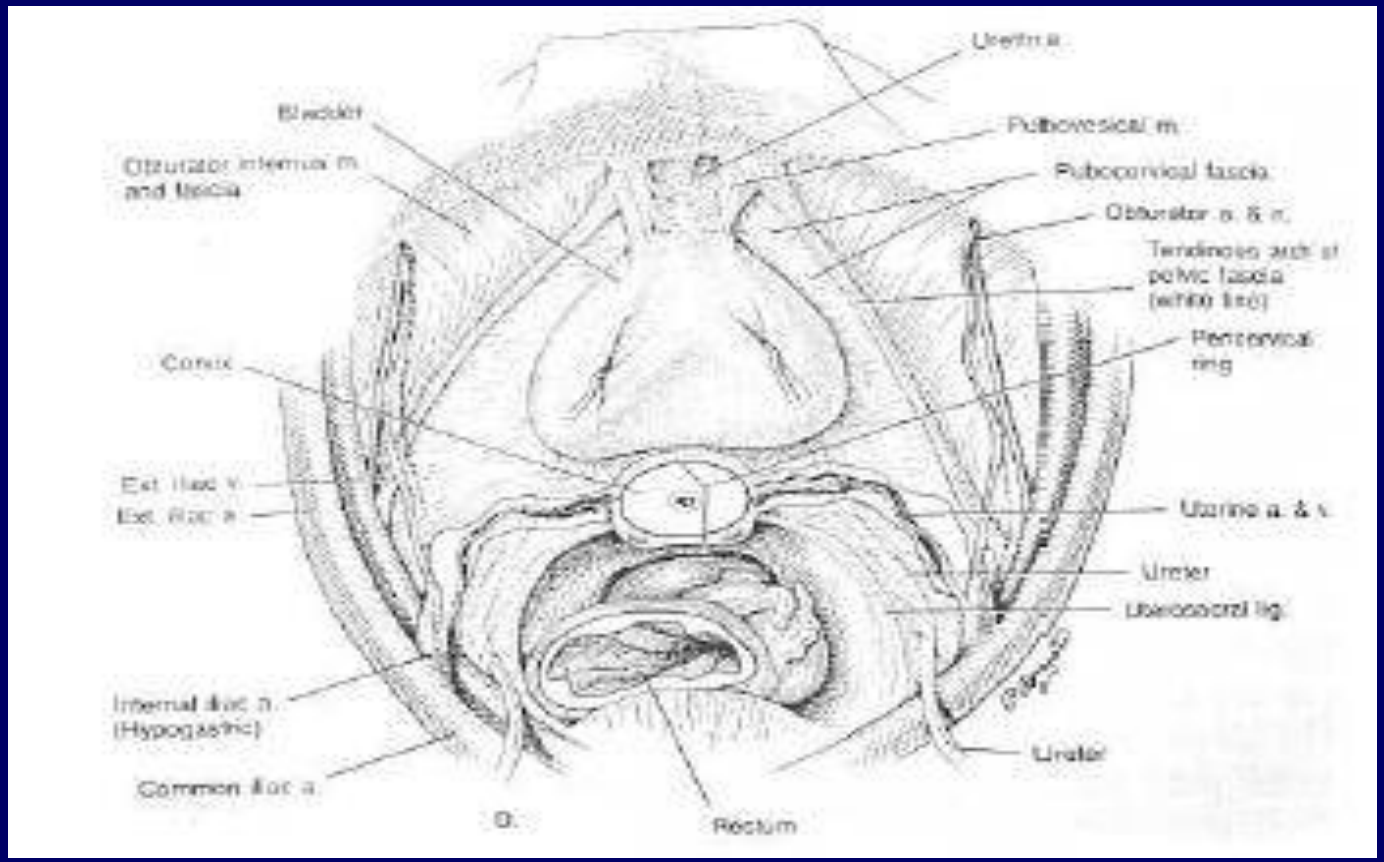
Endopelvic fascia

- Meshwork of collagen, elastin and smooth muscle
- Extends from the level of uterine artery to the fusion of the vagina and levator ani
- Attached to uterus is parametrium – cardinal-uterosacral ligament complex
- Attached to vagina is paracolpium – pubocervical and rectovaginal fasciae

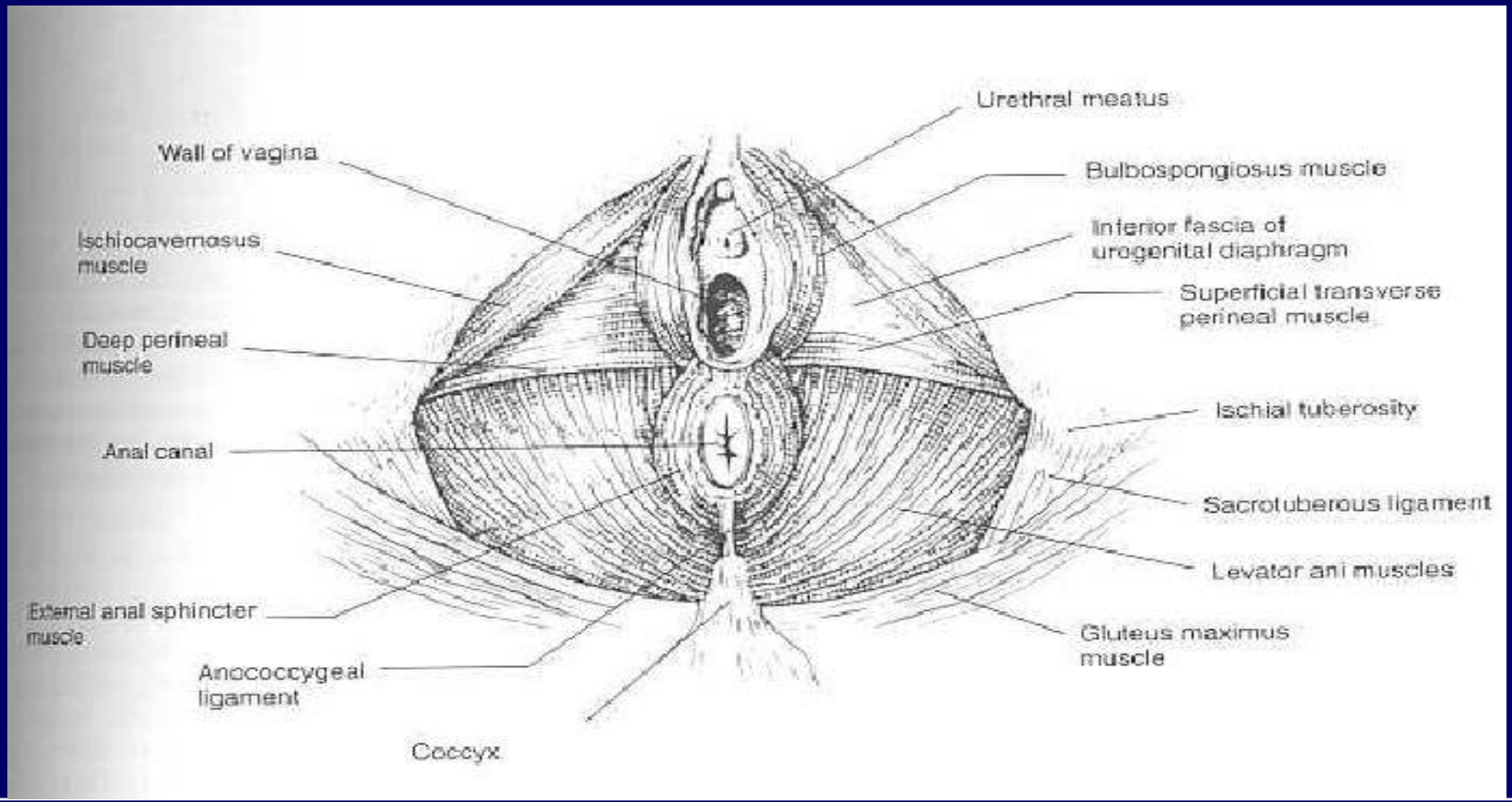
Fascial and Muscular layers of the Pelvic Floor



Attachments of cardinal/uterosacral ligaments



External genital muscles and the Urogenital diaphragm



Pelvic Relaxation

- Cystocele
- Stress urinary incontinence
- Rectocele
- Enterocele
- Uterine and vaginal prolapse

  - Result of weakness or defect in supporting tissues - endopelvic fascia and neuromuscular damage

Boat in Dock Analogy

- Boat- pelvic organs
- Water- levator muscles
- Moorings- Endopelvic fascial ligaments
- Problem is with the water or moorings or both
- Result is sinking of the boat
- Really the boat itself is fine

PROLAPSE

- Mutifactorial involving both neuromuscular and endopelvic fascial damage
- Relaxation of the tissues supporting the pelvic organs may cause downward displacement of one or more of these organs into the vagina, which may result in their protrusion through the vaginal introitus.

Factors promoting prolapse

- Erect posture causes increased stress on muscles, nerves and connective tissue
- Acute and chronic trauma of vaginal delivery
- Aging
- Estrogen deprivation
- Intrinsic collagen abnormalities
- Chronic increase in intraabdominal pressure
  - heavy lifting
  - coughing
  - constipation

Clinical Evaluation

- Hormonal and neurologic evaluation
  - Level of estrogenization
  - Sensory and sacral reflex activity
- Quantitative site-specific assessment of pelvic floor components
  - in lithotomy position, patient sitting
  - at rest and with valsalva
  - ability to contract levator and anal sphincter muscles

Anterior compartment defects

- Urethral hypermobility
  - Distal 4 cm of anterior vaginal wall
  - Cotton swab test
  - If describes an arc greater than 30 degrees from horizontal with valsalva
  - Results in genuine stress incontinence
- Cystocele

Cystocele

- Main support of urethra and bladder is the pubo-vesical-cervical fascia
- Essentially a hernia in the anterior vaginal wall due to weakness or defect in this fascia
  - Midline weakness allows bladder to descend causing central cystocele
  - Tearing of endopelvic fascial connections from lateral sulci to arcus tendinii causes lateral or displacement cystocele
  - Detachment of pubocervical fascia from pericervical ring causes a transverse or apical cystocele
- Symptoms include pelvic pressure and bulge or mass in the vagina

Cystocele

- Classified as Grade I, II, or III
- Grade III is prolapse outside the introitus
- Surgical repair is treatment of choice
  - Anterior Colporrhaphy
  - Paravaginal repair
  - Colpocleisis
    - Vaginal pessary

Evaluation of a cystourethrocele

Posterior compartment defects

- Rectocele
- Perineal deficiency
  - Bulbocavernous and superficial transverse muscle heads retracted
- Perineal descent
  - Sagging and funneling of the levator ani around the perineum such that anus becomes most dependent
  - Difficulty with defecation

Rectocele

- Chiefly a hernia in the posterior vaginal wall secondary to weakness or defect in the rectovaginal septum or fascia of Denonvilliers
- Symptoms include difficulty evacuating stool, a vaginal mass, and fullness sensation
- Rectovaginal exam confirms diagnosis

Rectocele

- Damage generally due to excessive pushing in childbirth or chronic constipation
- Surgical treatment if symptomatic
  - Posterior Colporrhaphy
  - Laxatives and stool softeners
    - Temporary relief
    - Pessary not helpful

Evaluation of a rectocele

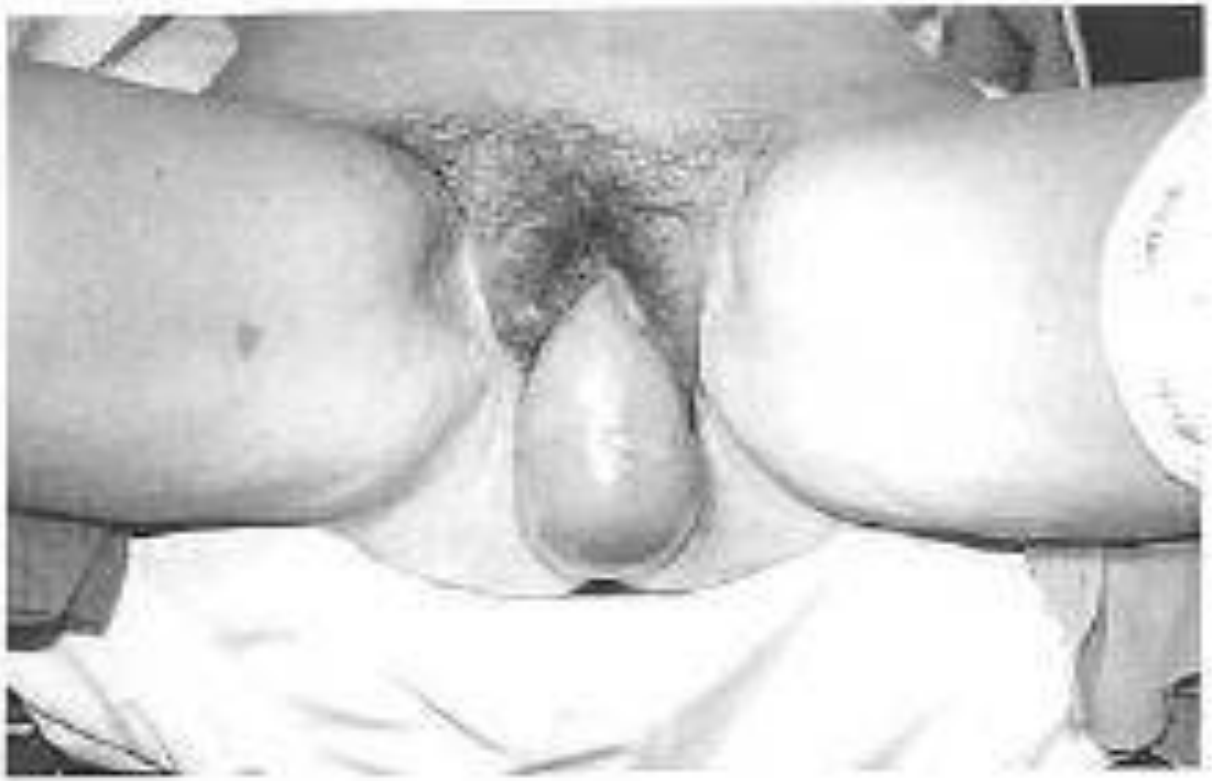
Apical defects

- Uterine prolapse
  - Normal cervix located in upper third of vagina
  - Degree of prolapse measured by position of cervix at maximum intraabdominal pressure, without traction
  - Complete uterovaginal prolapse is called procidentia
- Vault prolapse
- Enterocele

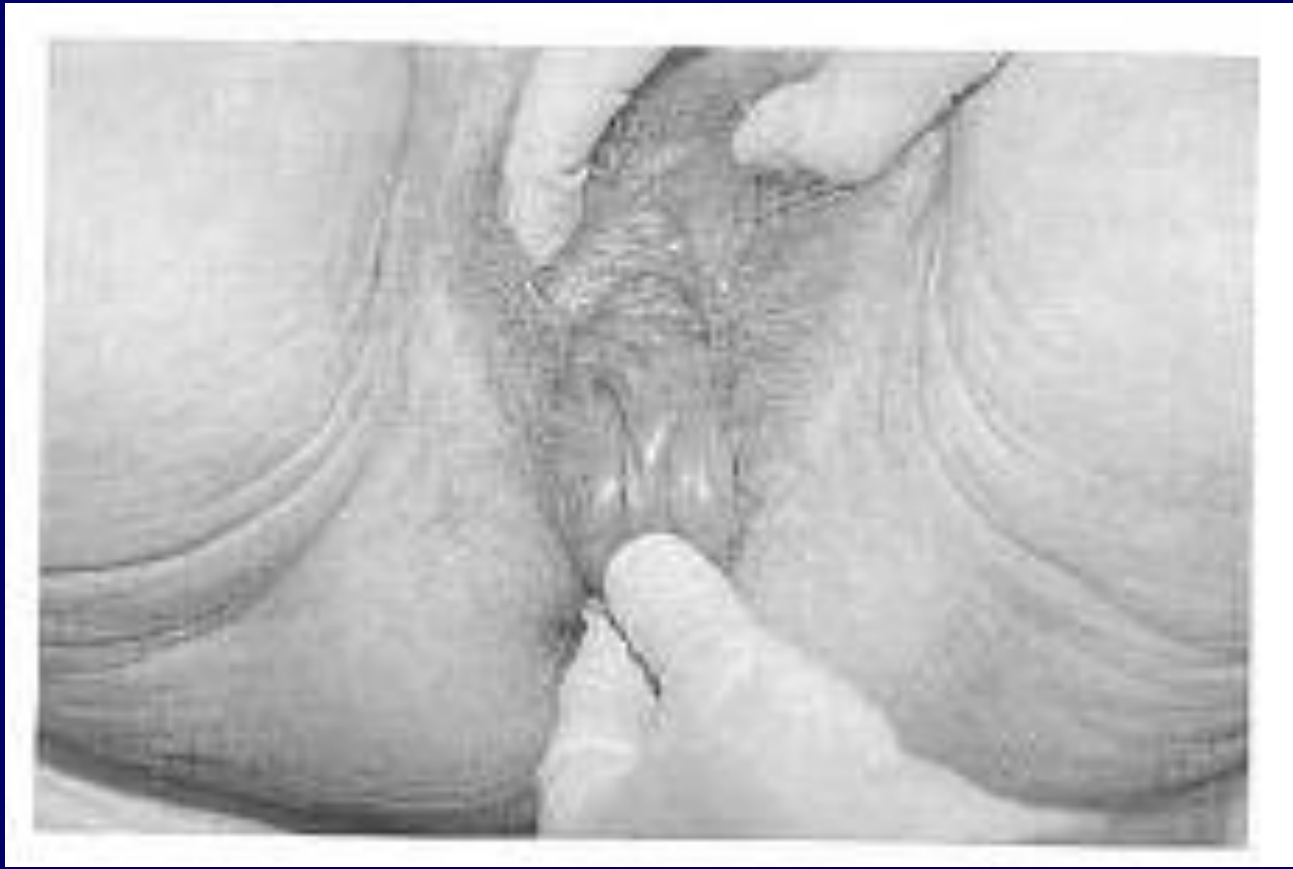
Uterine prolapse

- Weakness of endopelvic fascia and detachment of cardinal and uterosacral ligaments
- Complains of severe pelvic or abdominal pressure, bulge or mass, and low back pain
- Surgical management includes hysterectomy and vaginal cuff or apex suspension
  - Estrogen replacement important

Complete Uterovaginal procidentia



Complete genital procidentia



Enterocele

- A true hernia of the rectouterine or cul-de-sac pouch (pouch of Douglas) into the rectovaginal septum
- Descent of bowel in a peritoneum-lined sac between posterior vaginal apex and anterior rectum
  - Pulsion enterocele is filled with bowel and distended by abdominal pressure
- Can occur anteriorly as well
  - Generally after a surgical change in vaginal axis
- Symptoms of fullness and vaginal pressure or palpable mass
- Bowel peristalsis confirms diagnosis

Enterocele

- Commonly found in association with other defects
- Surgical approach
  - Vaginal
  - Abdominal
    - Laparoscopic
- Ligation of hernia sac and obliteration of the pouch of Douglas

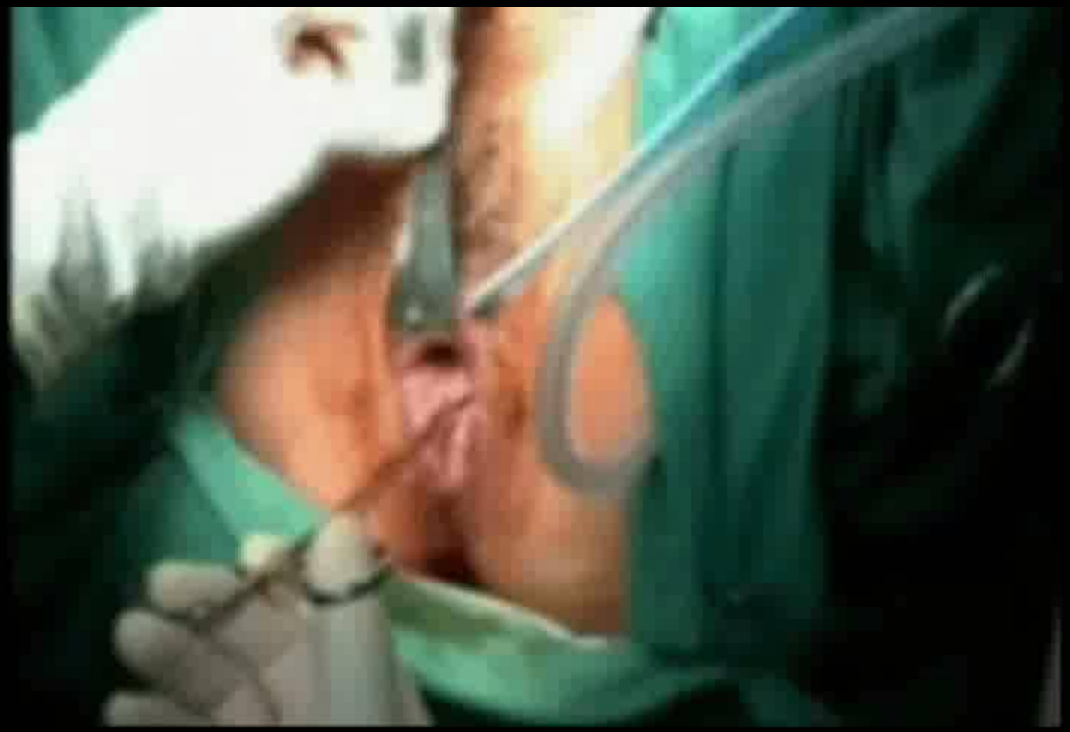
Conservative treatments

- Obstetric care to protect pelvic floor
  - Decreased pushing times
  - Avoid forceps, major lacerations
  - Permit passive descent
- General lifestyle changes
  - Smoking cessation and cough cessation
  - Routine use of Kegel pelvic floor exercises
  - Regular physical activity
  - Proper nutrition
  - Weight loss
  - Avoid constipation and repetitive heavy lifting
  - Hormone replacement therapy

Principles of reconstructive pelvic surgery

- Site-specific repair
- Rebuild weakened endopelvic fascia, repair fascial tears, and reattach prolapsed tissues to stronger sites
- Goal is a vagina of normal depth, width and axis
- Denervation or muscle trauma cannot be corrected surgically

Procedure



Complication

- Infection
- Inflammation
- Adhesion formation
- Fistula formation
- Erosion
- Extrusion, and scarring
- Punctures or lacerations of vessels, nerves, bladder, urethra, or bowel

Contraindication

- Infant
- Children
- pregnant women
- women planning future pregnancies

THANKS