КРАСНОЯРСКИЙ МЕДИЦИНСКИЙ УНИВЕРСИТЕТ
1942/2022

Federal State Budgetary Educational Institution of Higher Education «Prof. V.F. Voino-Yasenetsky Krasnoyarsk State Medical University» of the Ministry of Healthcare of the Russian Federation department of Operative Surgery and Topographic Anatomy; head Doctor of Medical Sciences, Associate Professor of Russkikh A.N.

SURGICAL ANATOMY OF THE PELVIS. THE BASIC PRINCIPLES OF SURGICAL INTERVENTIONS ON THE PELVIC ORGANS.

Lecturer: PhD, Associate Professor Anna D. Shabokha

LECTURE PLAN:

1. The bone-ligaments base of the pelvis.
2. Pelvic muscles (parietal, visceral).
3. Ways of spreading inflammatory process along the pelvic muscles.
4. Pelvic fascia. Cellular spaces of the pelvis.
5. The spread of inflammatory process from the cellular spaces of the pelvis.
6. Floors of the pelvis.
7. Pelvic organs: bladder, uterus, rectum. Blood supply, venous outflow, innervation, lymphatic outflow.
8. Operative access to the cellular spaces of the pelvis.
9. Novocaine blockade by Shkolnikov-Selivanov.
10. Operations on the bladder.
11. Operations for cryptorchidism.
12. Operations for hydrocele of the testicle.
13. Operations for varicocele.

BONE-LIGAMENTOUS BASE OF THE PELVIS

iliac bone

sacrum

sacroiliac ligament

ischiosacral ligament

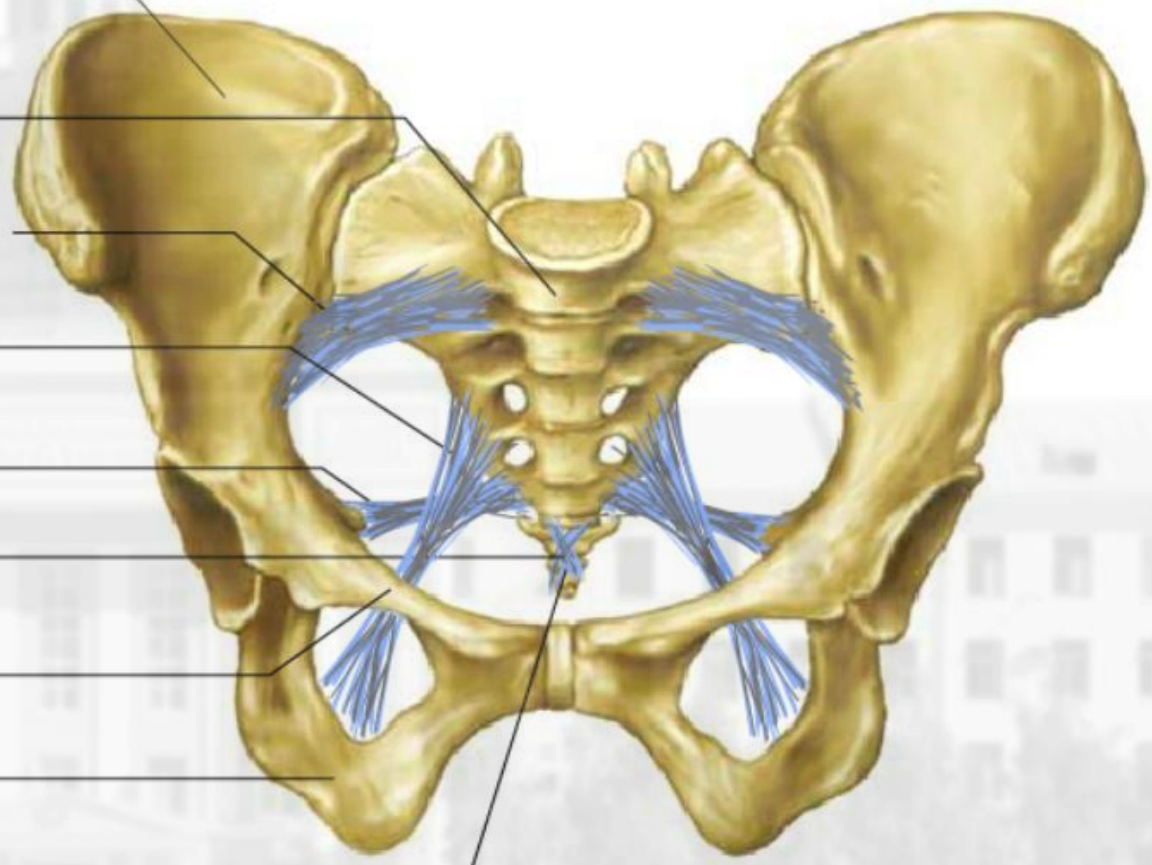
sacrospinous ligament

coccyx

pubic bone

sciatic bone

sacrococcygeal ligament



PELVIC MUSCLES

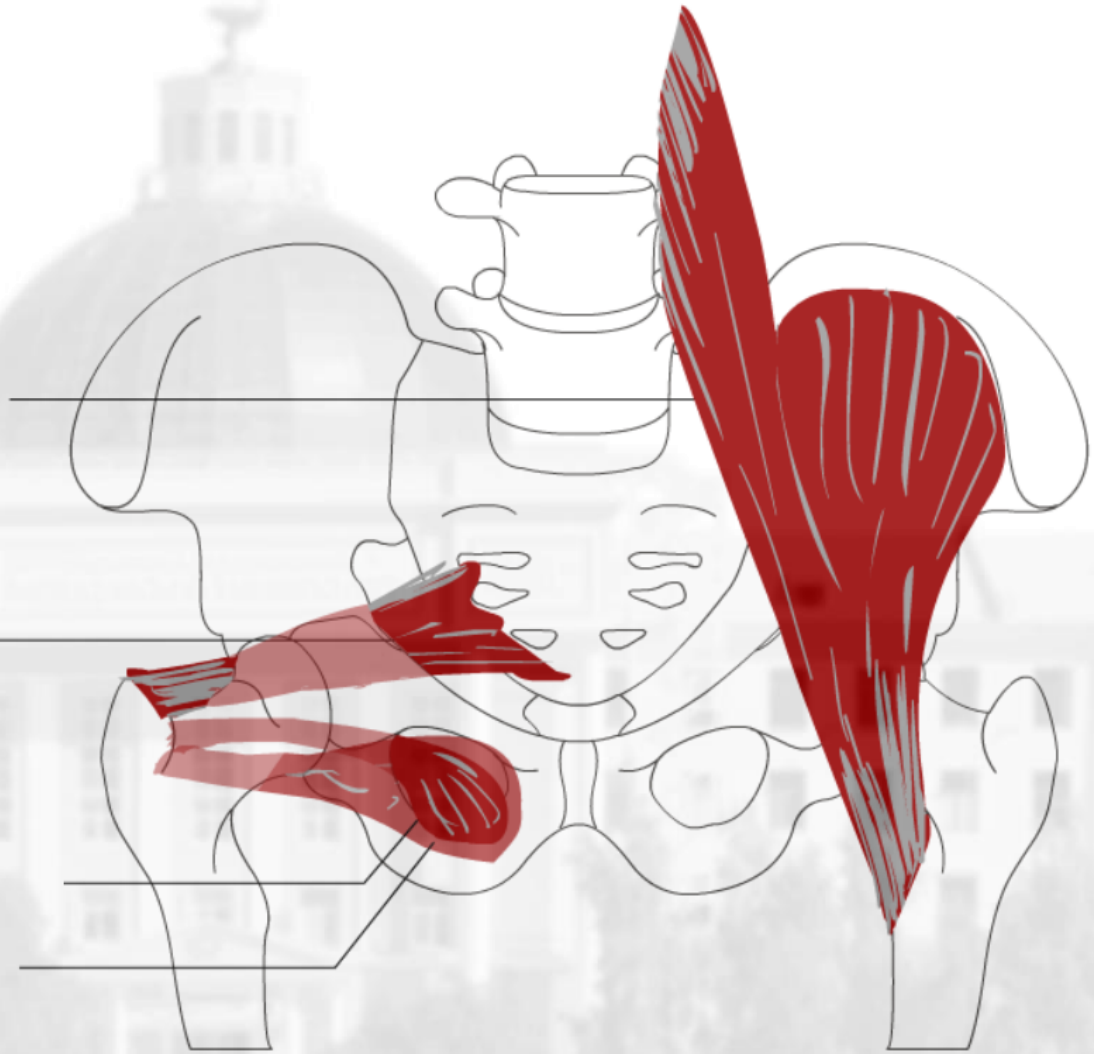
Parietal:

iliopsoas muscle

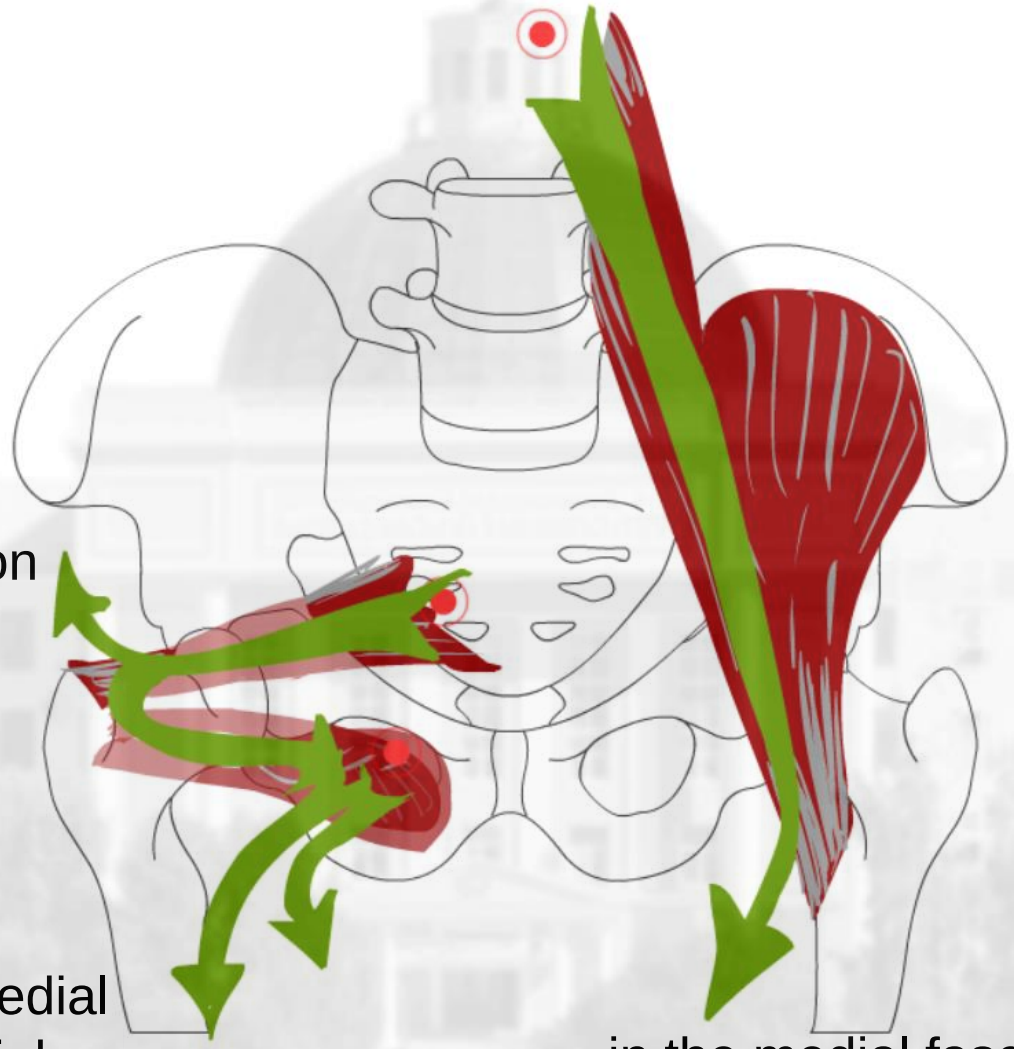
pyriform muscle

internal obturator muscle

external obturator muscle



PURULENT SWELLING ALONG THE FASCIAL MUSCLE CASE



in the gluteal region

in the anterior and medial fascial case of the thigh

in the medial fascial case of the thigh

PELVIC MUSCLES

Visceral:

levator ani muscle

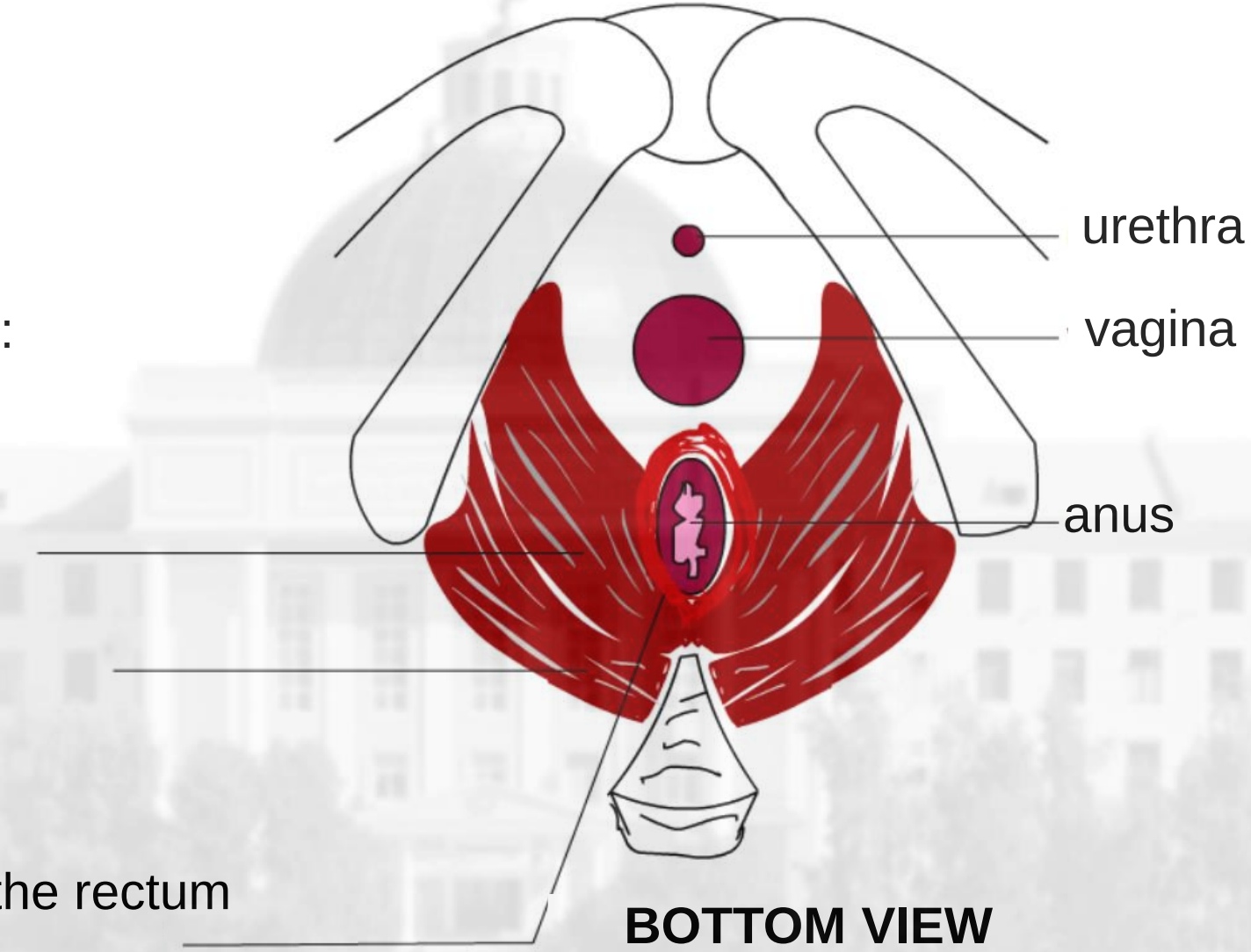
formed by 3 muscles:

puborectalis

pubococcygeal

iliococcygeal

external sphincter of the rectum



BOTTOM VIEW

PELVIC MUSCLES

Visceral:

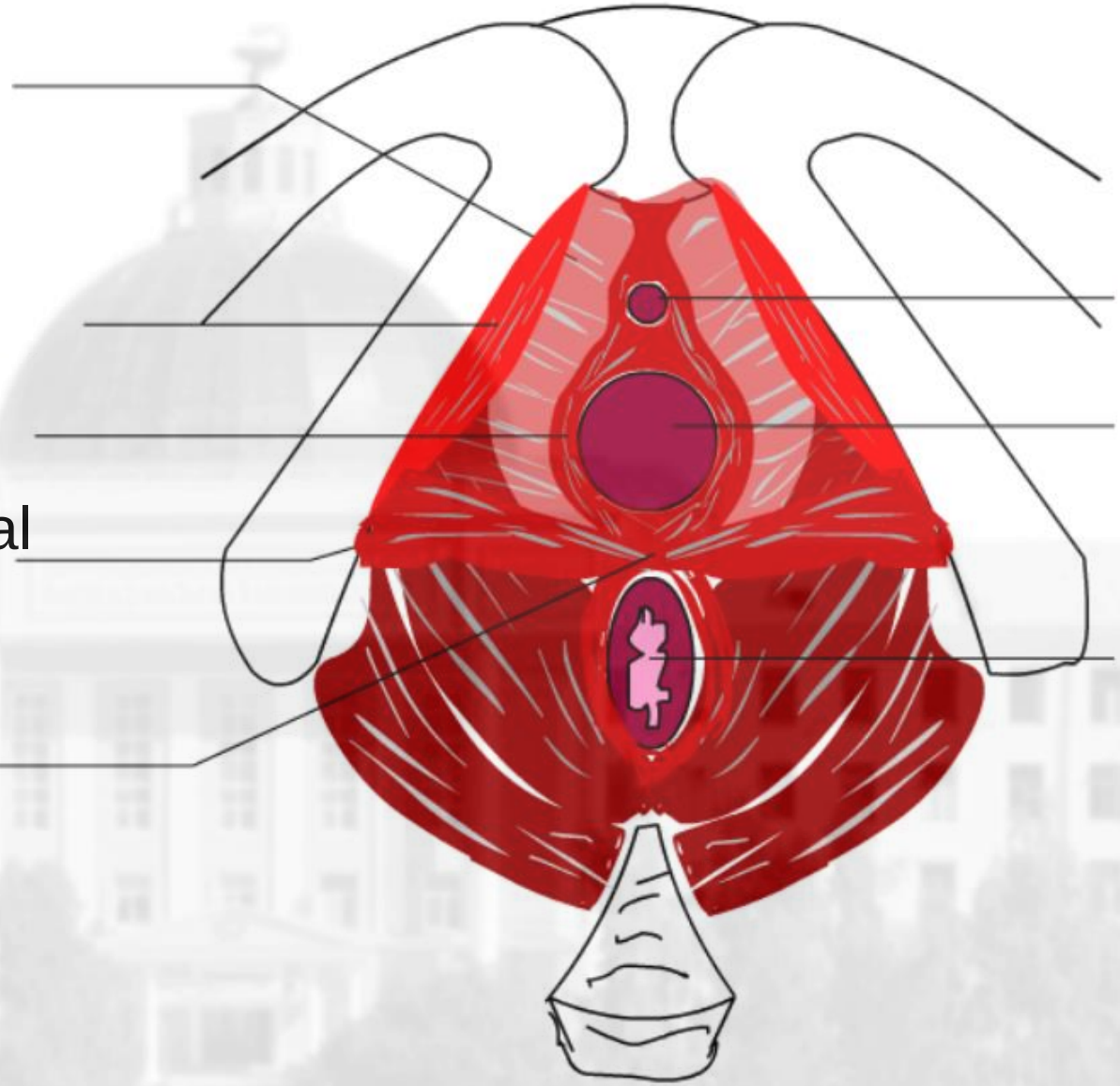
deep transverse perineal muscle

sciatic-cavernous muscle

bulbous-cavernous muscle

superficial transverse perineal muscle

the tendon center of the perineum

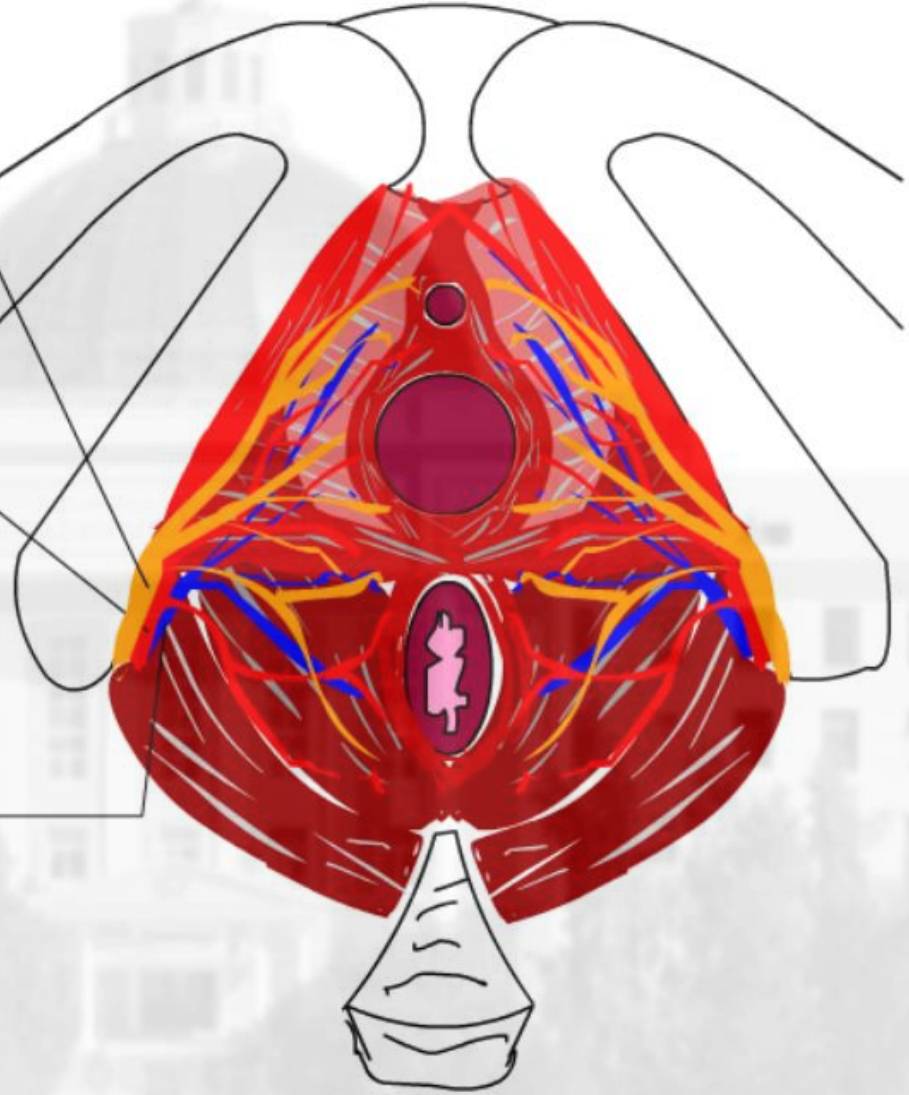


BLOOD SUPPLY AND INNERVATION OF THE PERINEUM

n. pudendus

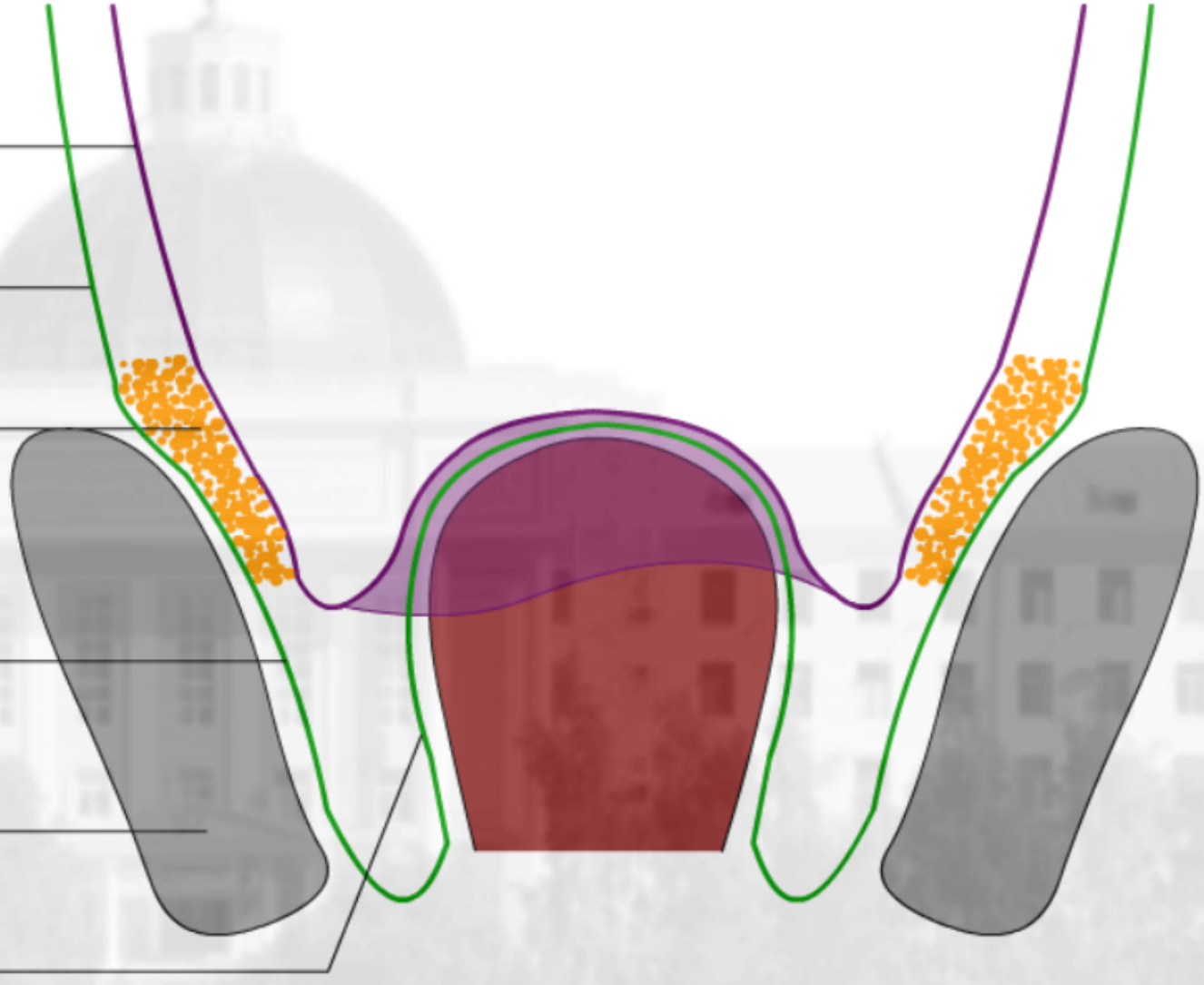
a. pudenda interna

v. pudenda interna



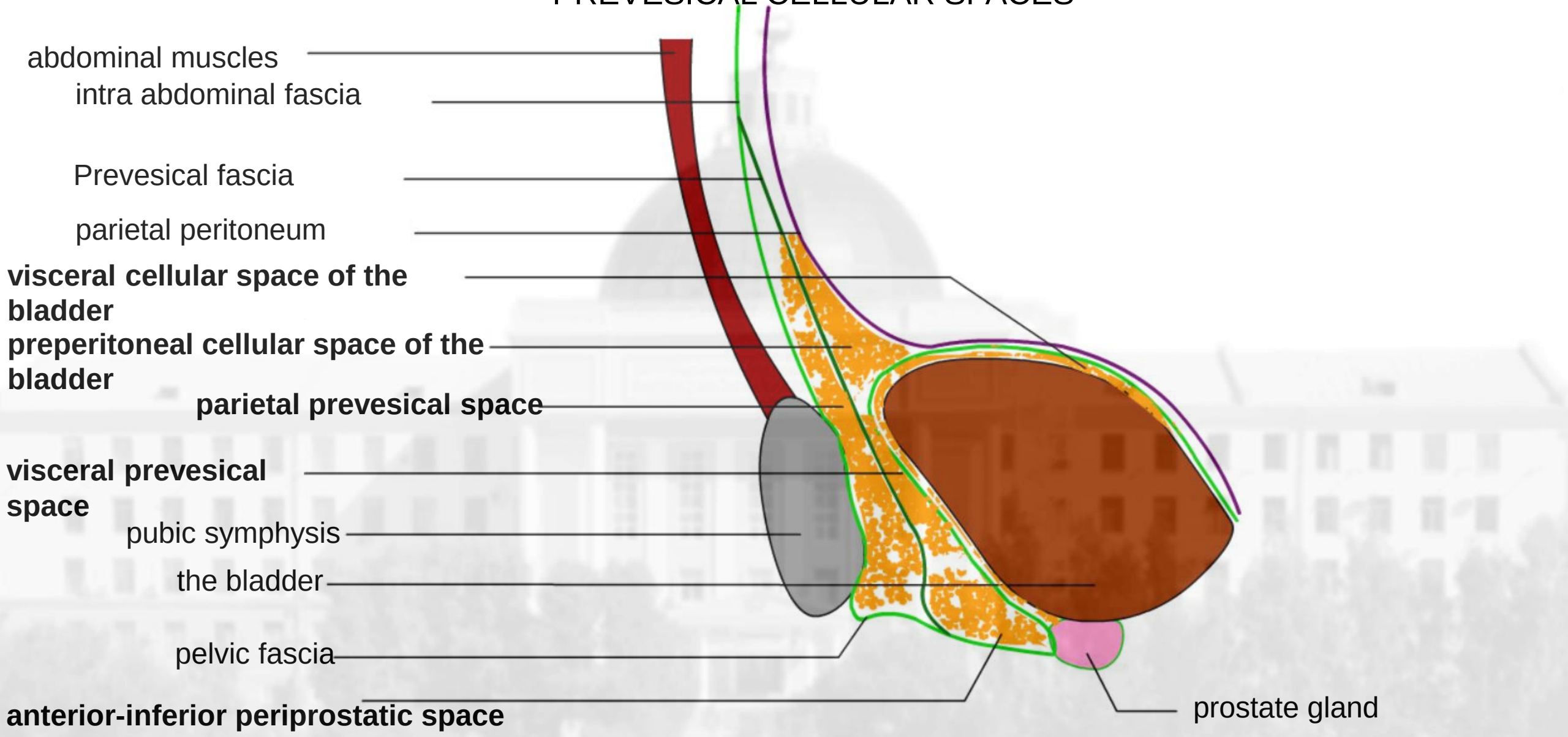
CELLULAR SPACES OF THE PELVIS

LATERAL CELLULAR SPACE OF THE PELVIS



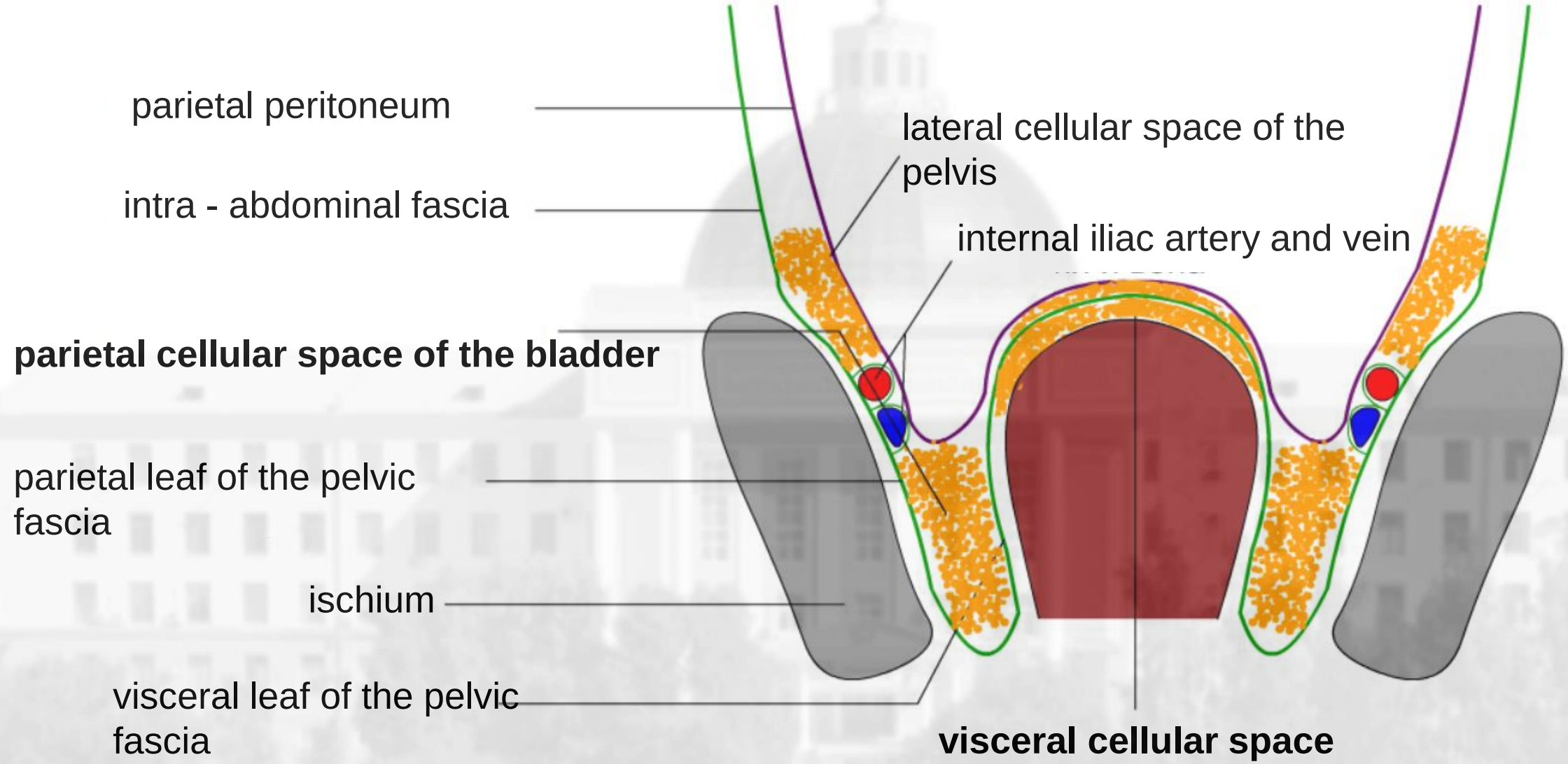
CELLULAR SPACES OF THE PELVIS

PREVESICAL CELLULAR SPACES



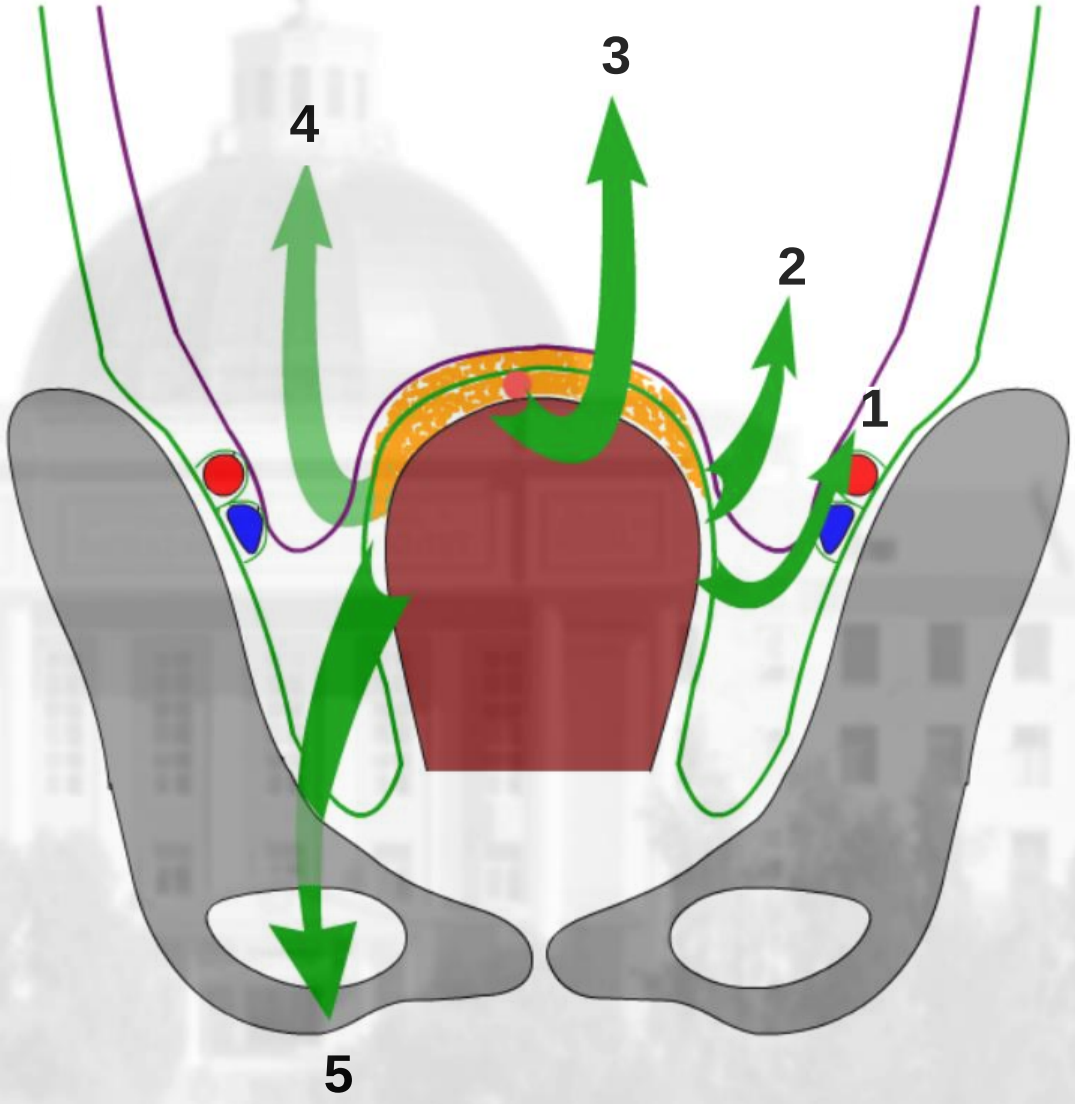
CELLULAR SPACES OF THE PELVIS

PERIVESICAL CELLULAR SPACES



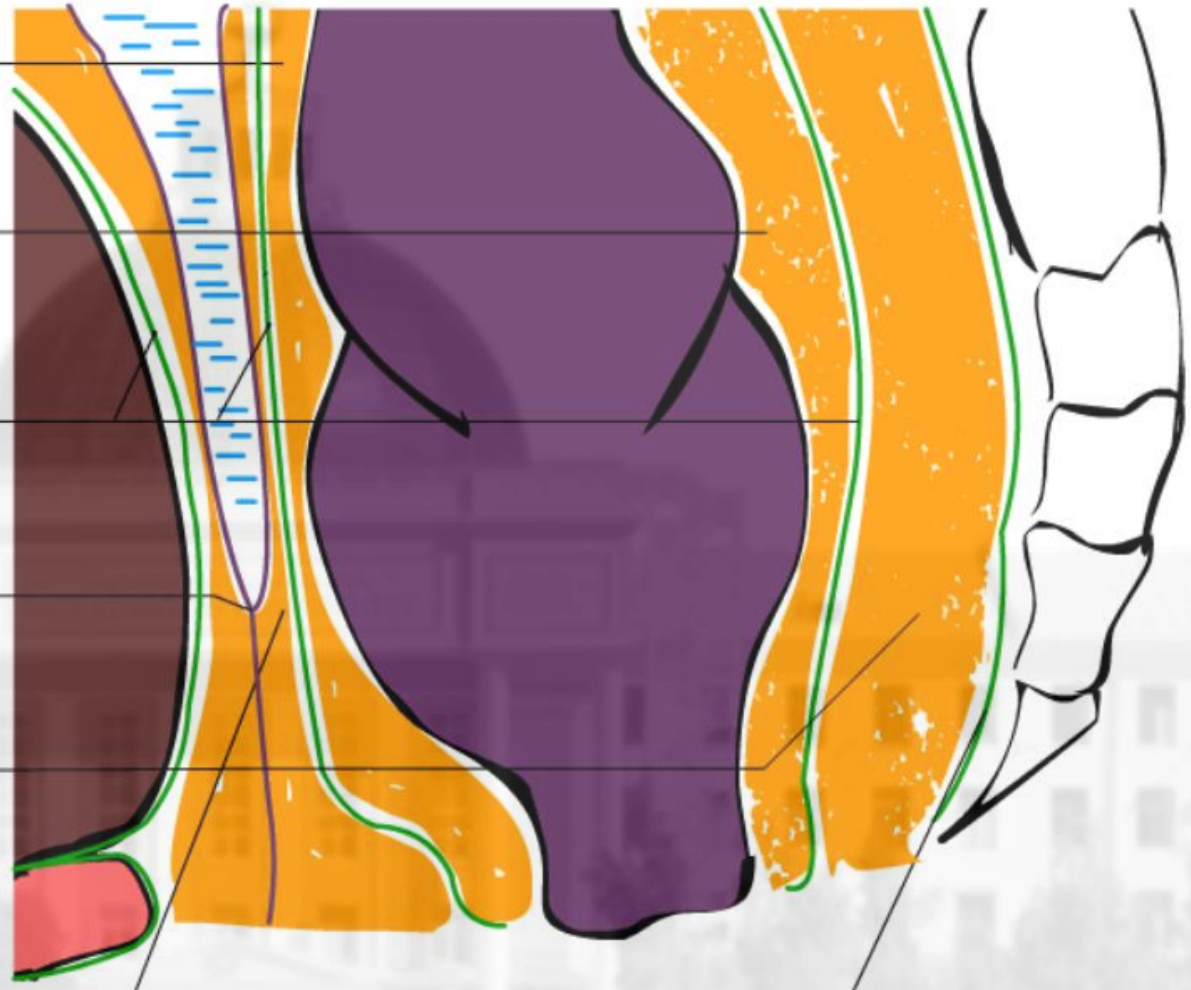
THE SPREAD OF INFLAMMATORY PROCESS FROM THE VISCERAL CELLULAR SPACE OF THE BLADDER

1. **into the lateral space of the pelvis**
2. **into the abdominal cavity on the anterior abdominal wall**
3. **into the retroperitoneal space**
4. **through the femoral and obturator canal to the thigh**



CELLULAR SPACES OF THE PELVIS

RECTAL CELLULAR SPACES



visceral anterior rectal cellular space

visceral retrorectal cellular space

visceral leaf of the pelvic fascia

peritoneal-perineal aponeurosis

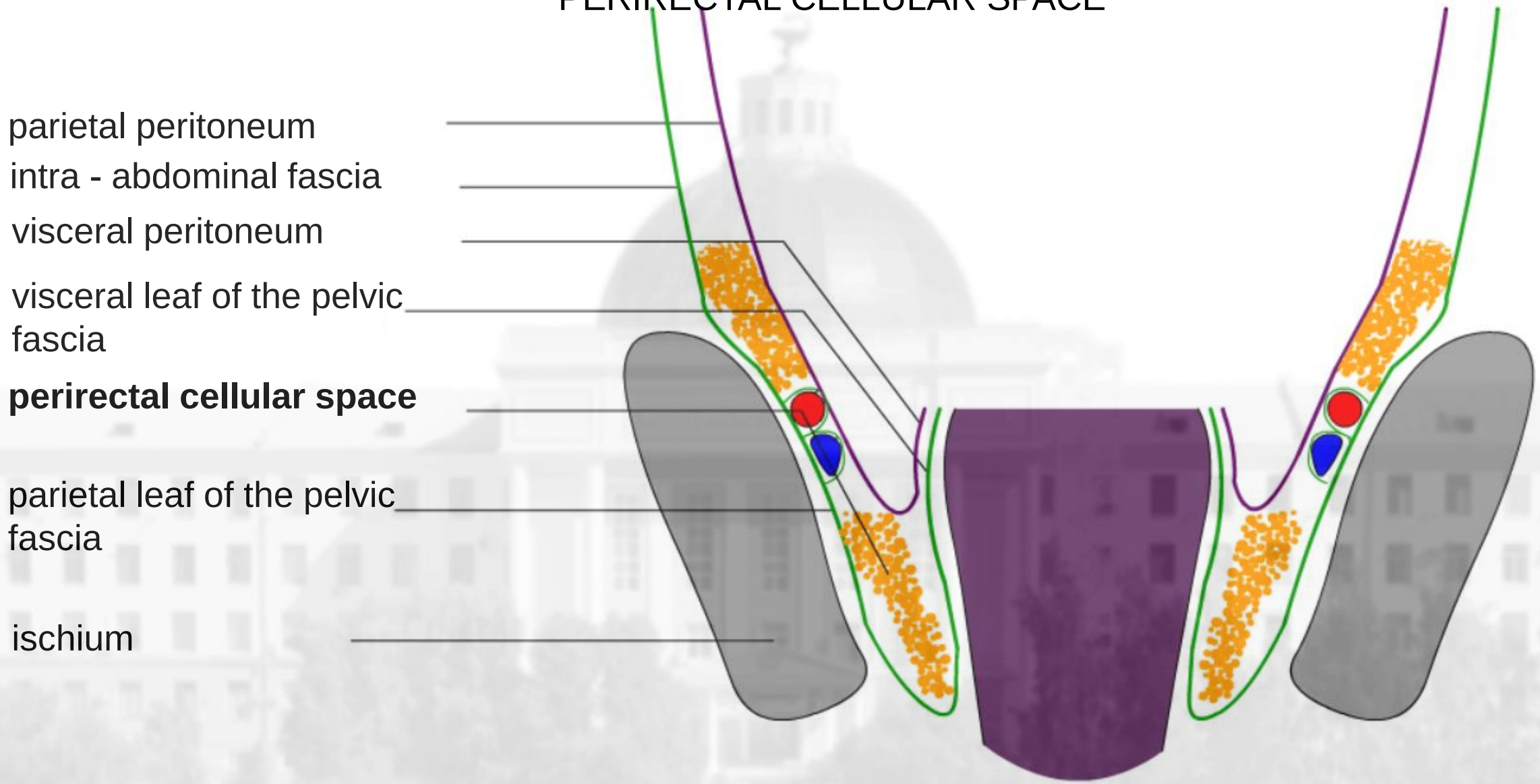
parietal retrorectal cellular space

visceral anterior rectal cellular space (layer 2)

parietal leaf of the pelvic fascia

CELLULAR SPACES OF THE PELVIS

PERIRECTAL CELLULAR SPACE



CELLULAR SPACES OF THE PELVIS

Perirectal cellular space

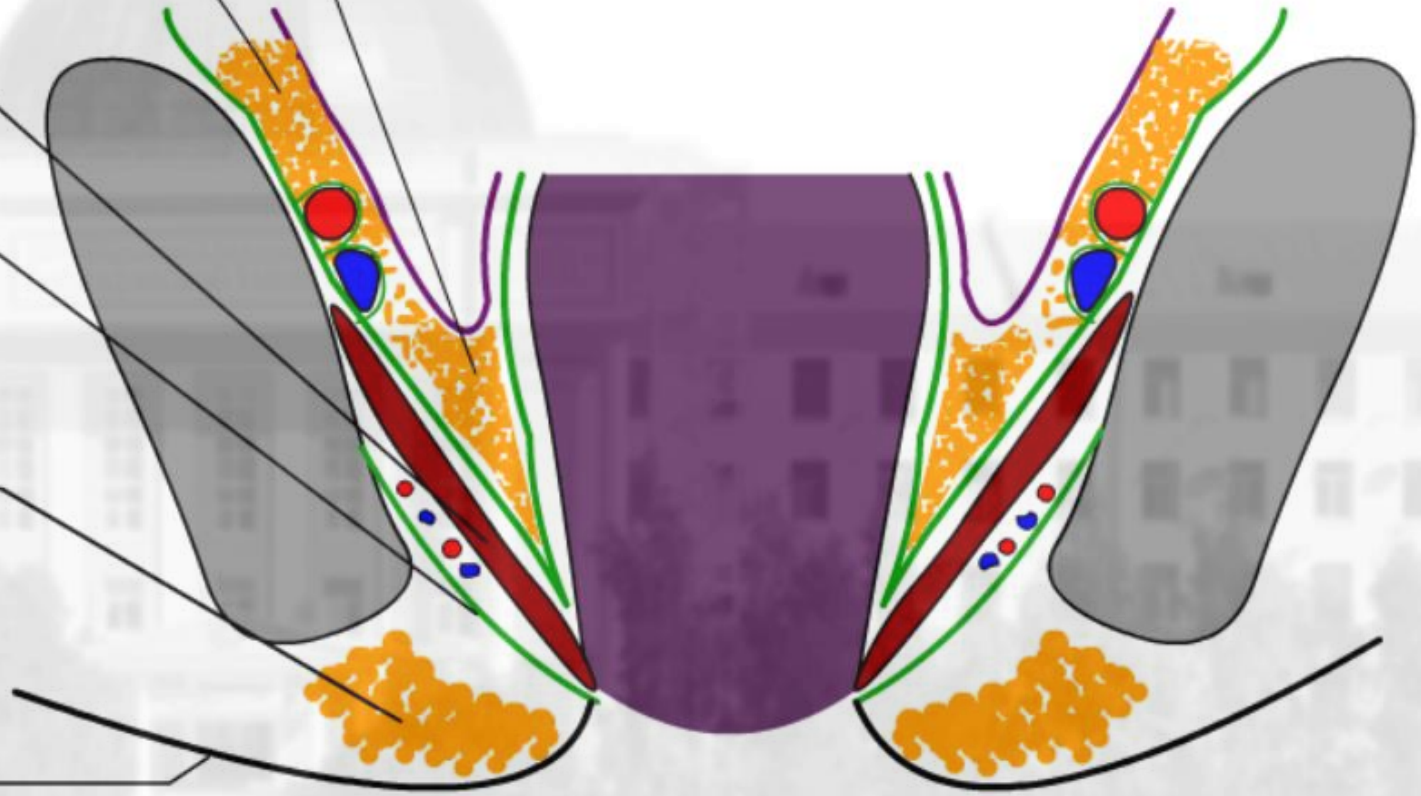
lateral cellular space of the pelvis

m. levator ani

parietal leaf of the pelvic fascia

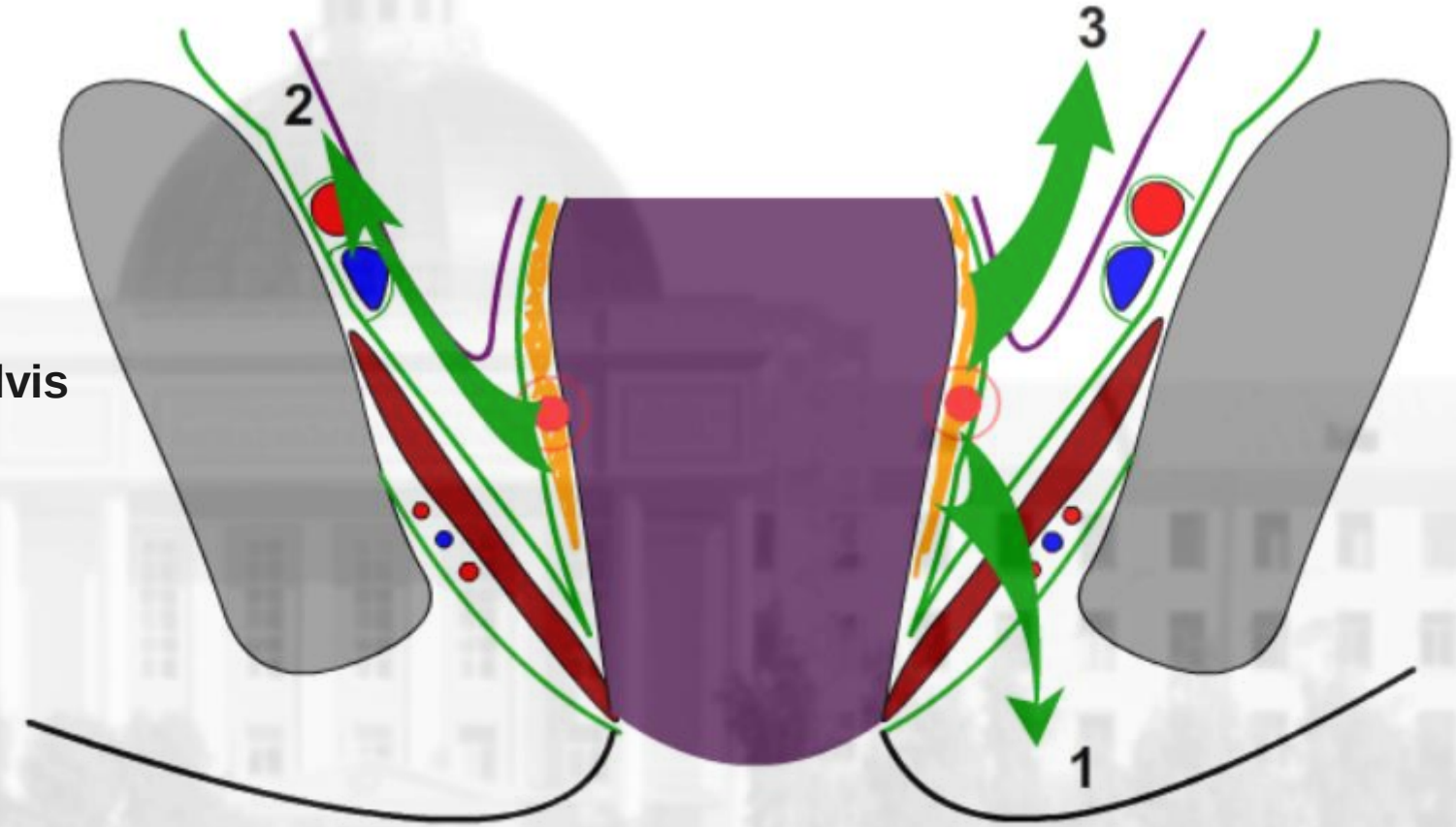
cellular space of the sciatic-rectal region

skin of the perianal area

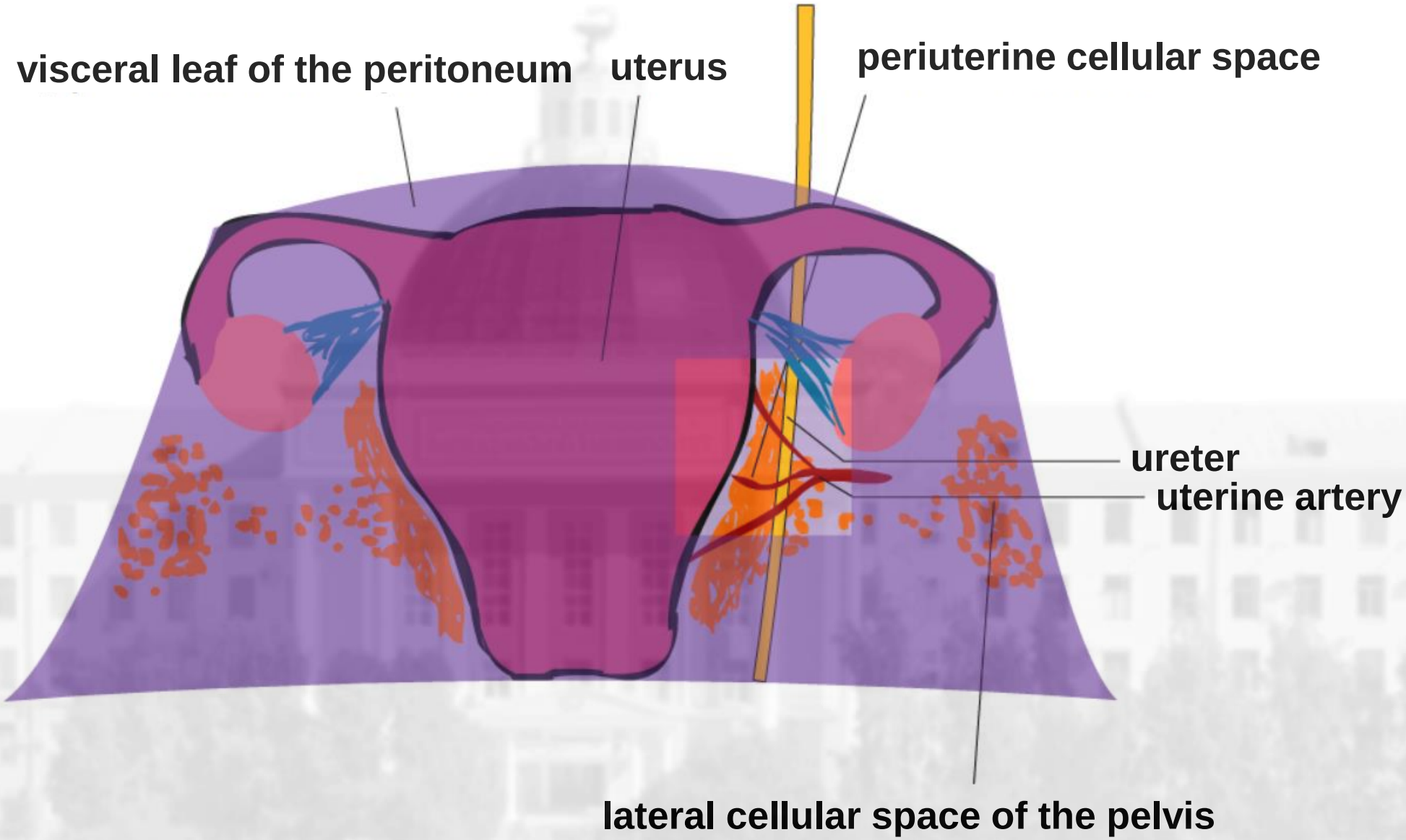


THE SPREAD OF INFLAMMATORY PROCESS FROM THE VISCERAL CELLULAR SPACE OF THE BLADDER

1. **into the sciatic-rectal fossa**
2. **into the lateral space of the pelvis**
3. **into the abdominal cavity**



PERIUTERINE CELLULAR SPACE

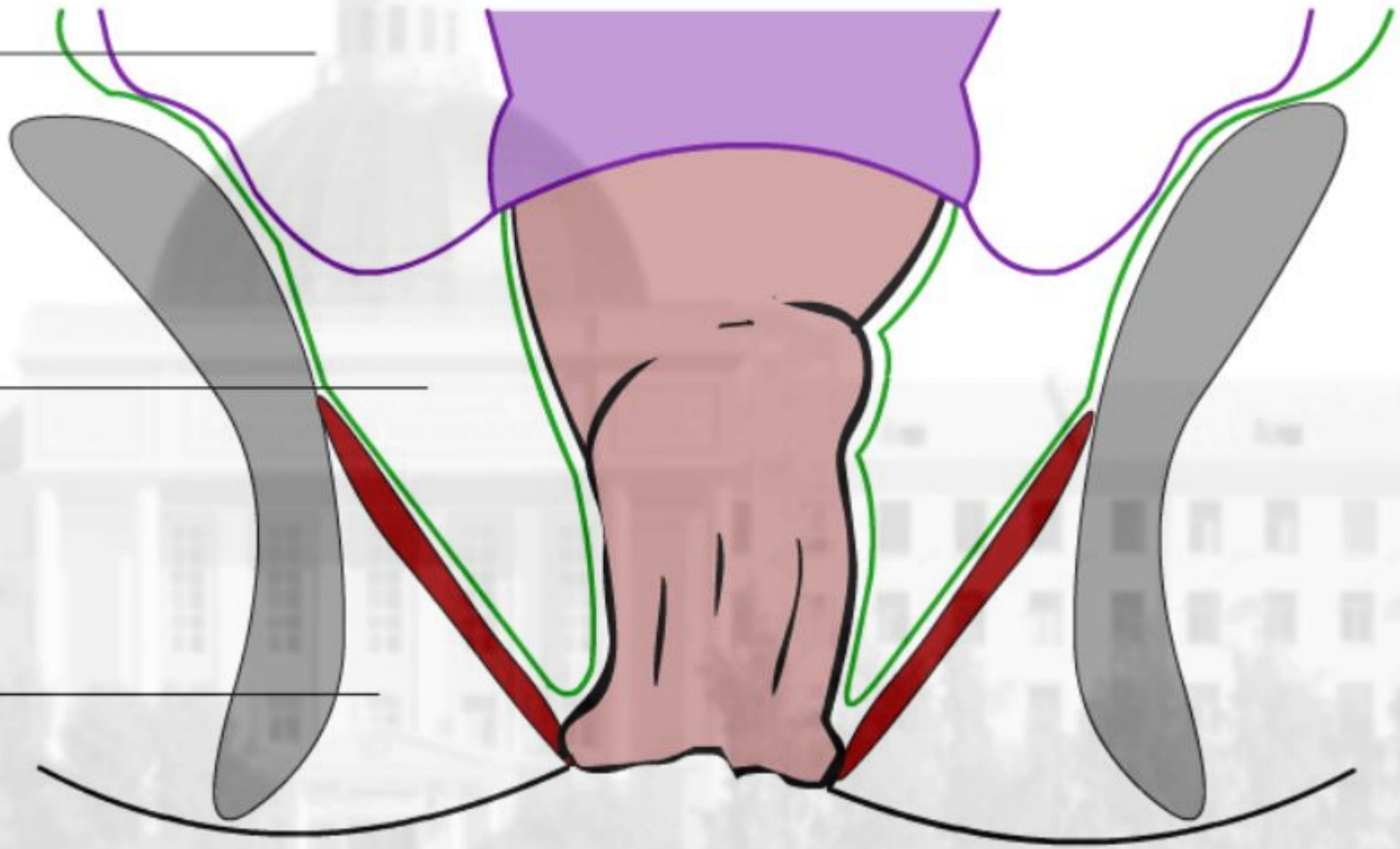


FLOORS OF THE PELVIS

I. PERITONEAL

II. PERITONEAL

III. SUBCUTANEOUS



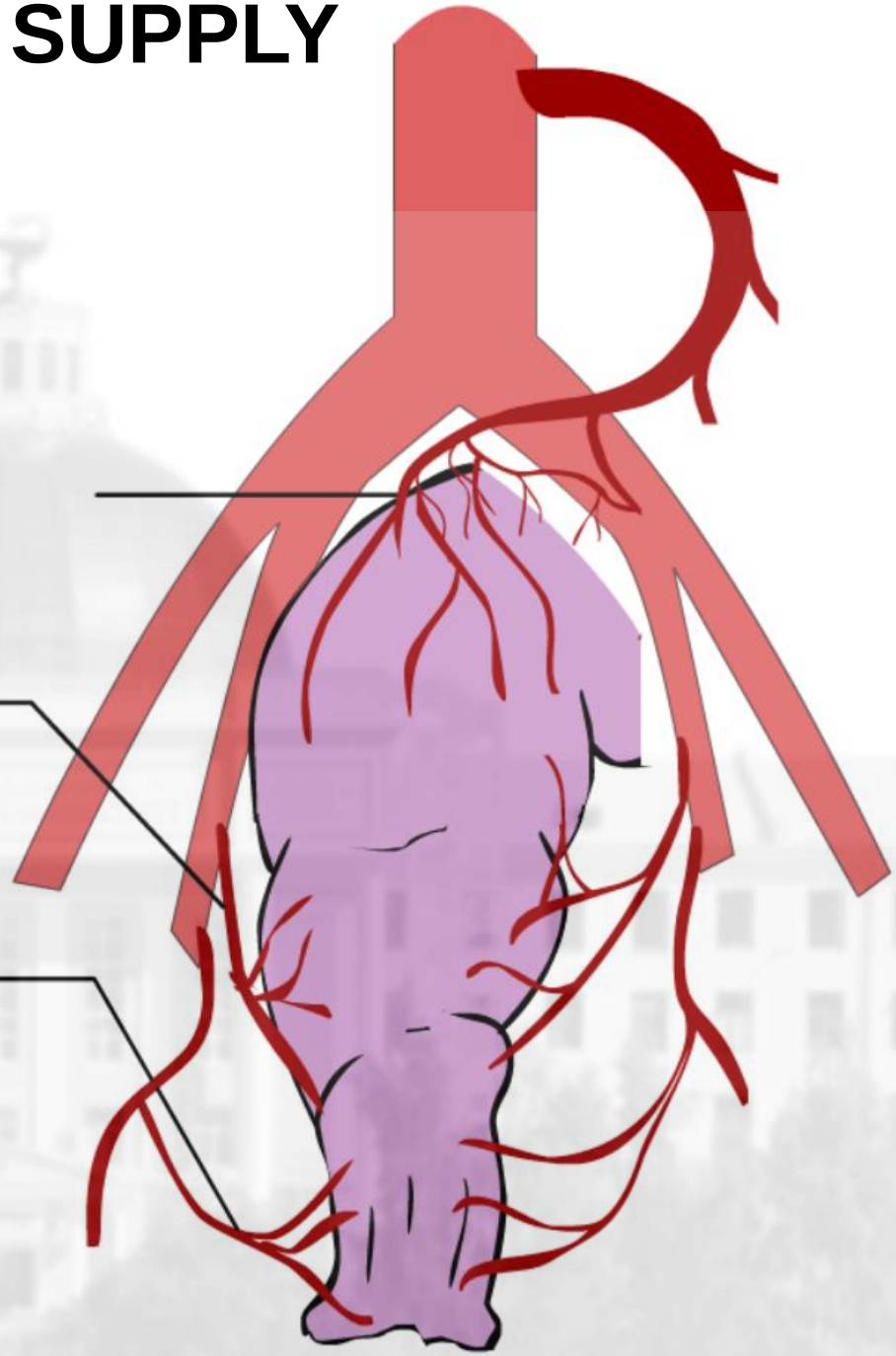
THE RATIO OF THE PERITONEUM TO THE ORGANS OF THE MALE AND FEMALE PELVIS

RECTUM. BLOOD SUPPLY

a. rectalis superior (from a. mesenterica inferior)

a. rectalis media (from a. iliaca interna)

a. rectalis inferior (from a. pudenda interna

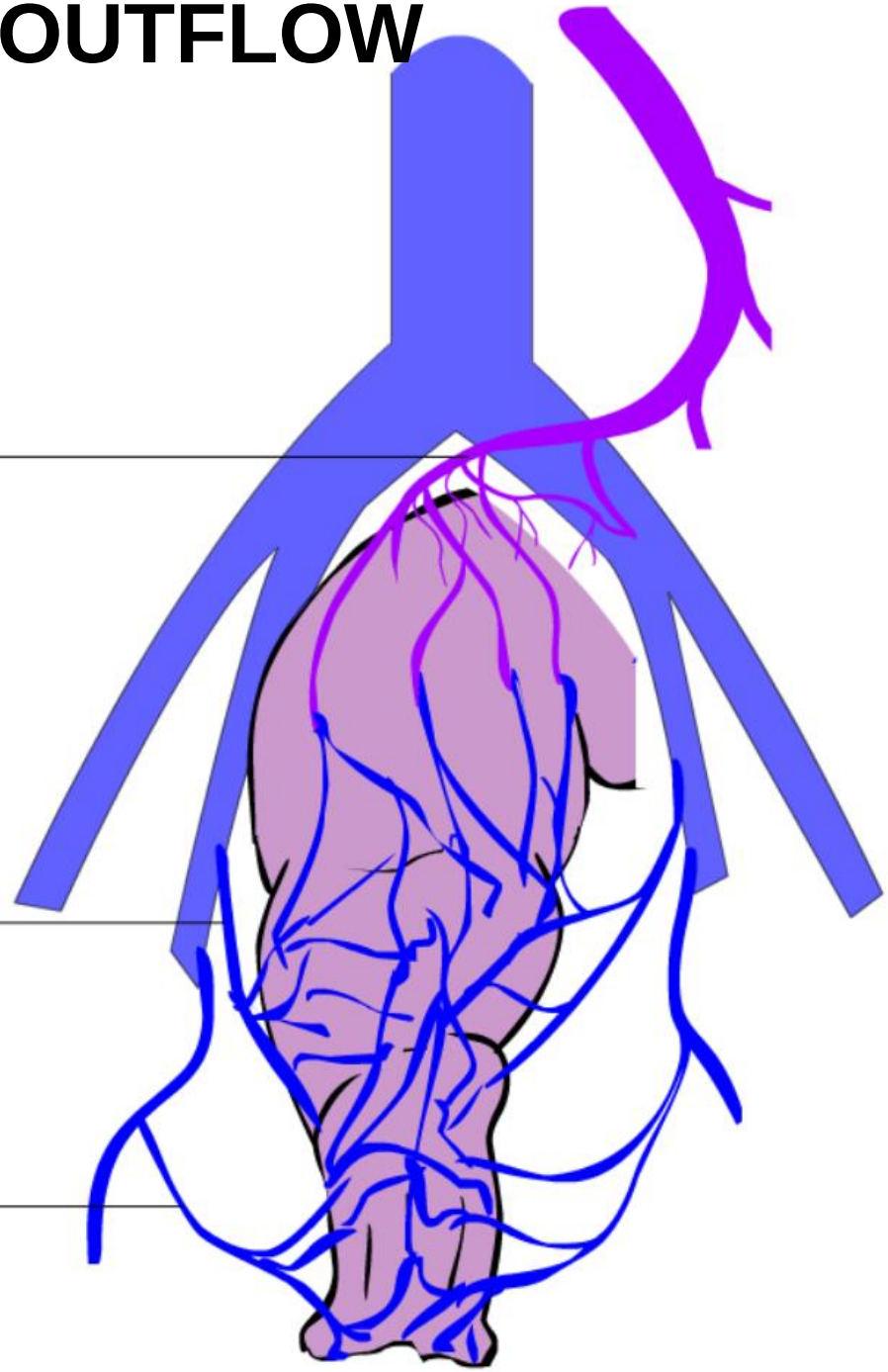


RECTUM. VENOUS OUTFLOW

superior rectal vein (to the portal vein system)

middle rectal vein (to the inferior vena cava system)

inferior rectal vein (to the inferior vena cava system)

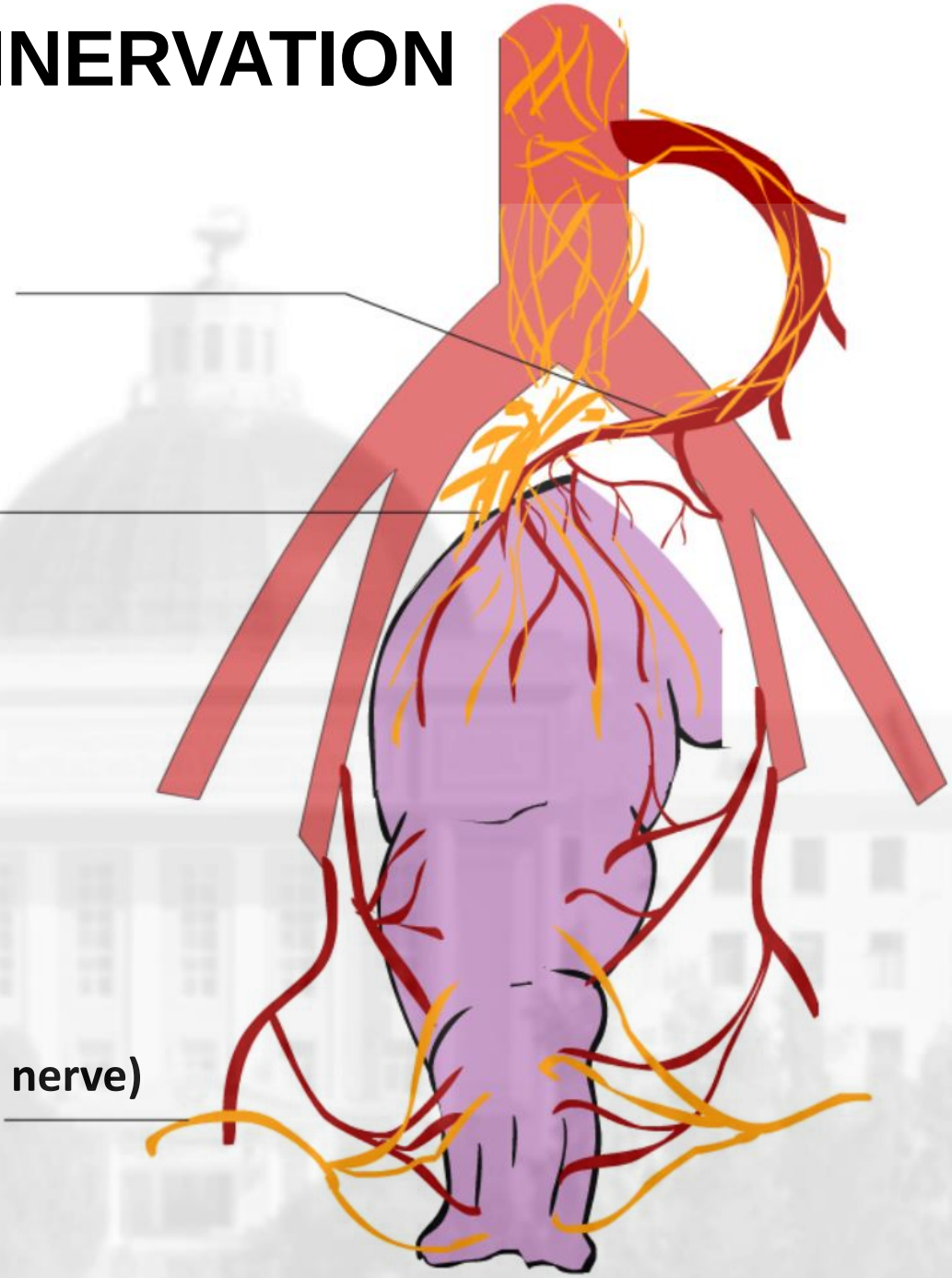


RECTUM. INNERVATION

upper rectal plexus (from the lower mesenteric plexus)

hypogastric plexus(hypogastric nerve + anterior roots of the II, III, IV sacral nerves)

lower rectal nerves (branches of the pudendal nerve)



RECTUM. LYMPH DRAINAGE

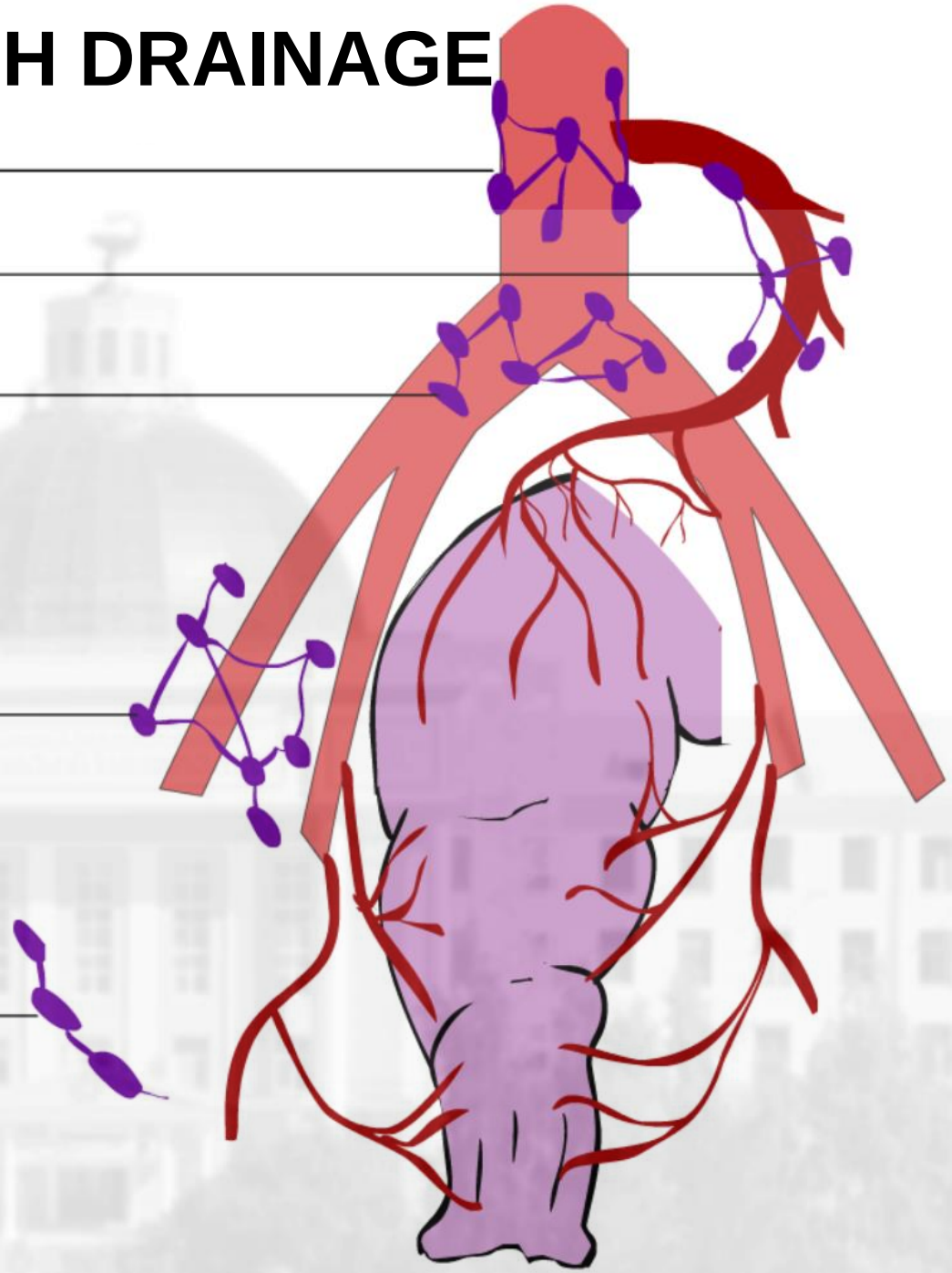
paraaortic lymph nodes

lower mesenteric lymph nodes

lymph nodes of the common iliac artery

external and internal iliac lymph nodes

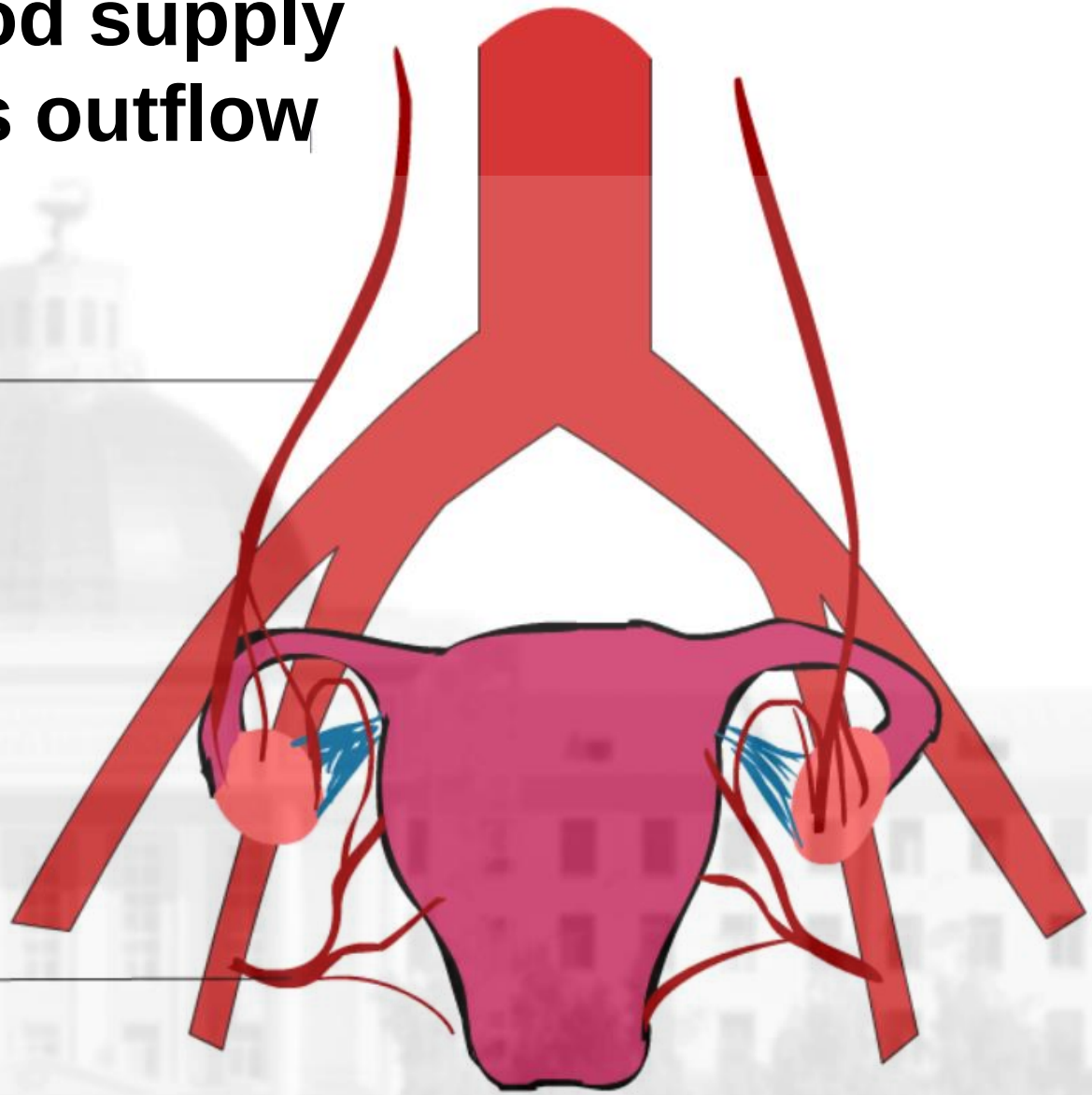
inguinal lymph nodes



Uterus. Blood supply and venous outflow

ovarian arteries (left from the aorta, right from the renal artery)

uterine arteries (from the internal iliac artery)



Venous outflow is carried out through the veins of the same name

UTERUS. LYMPHATIC OUTFLOW

Paraaortic lymph nodes

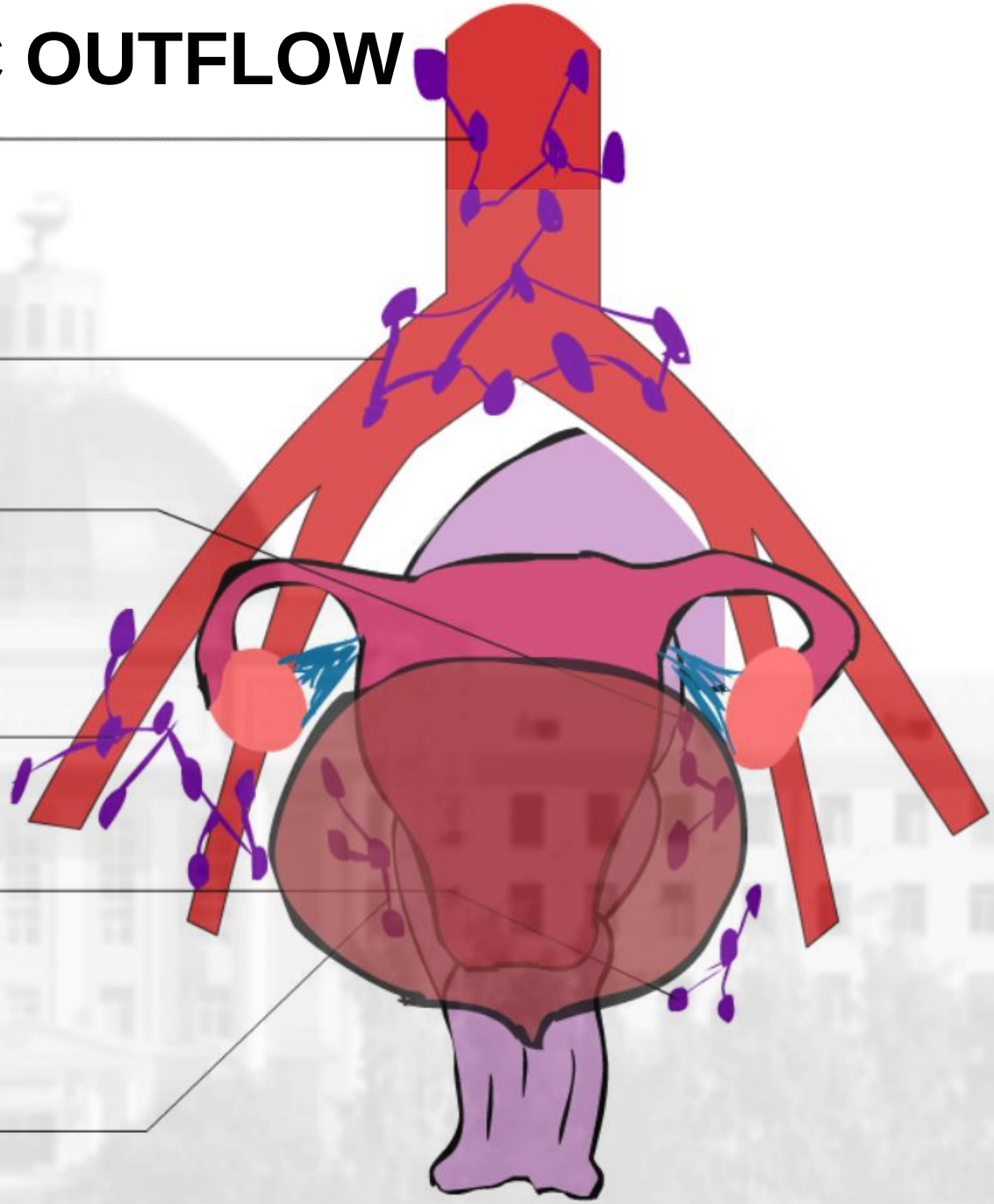
lymph nodes of the common iliac artery

Rectal nodes

external and internal iliac lymph nodes

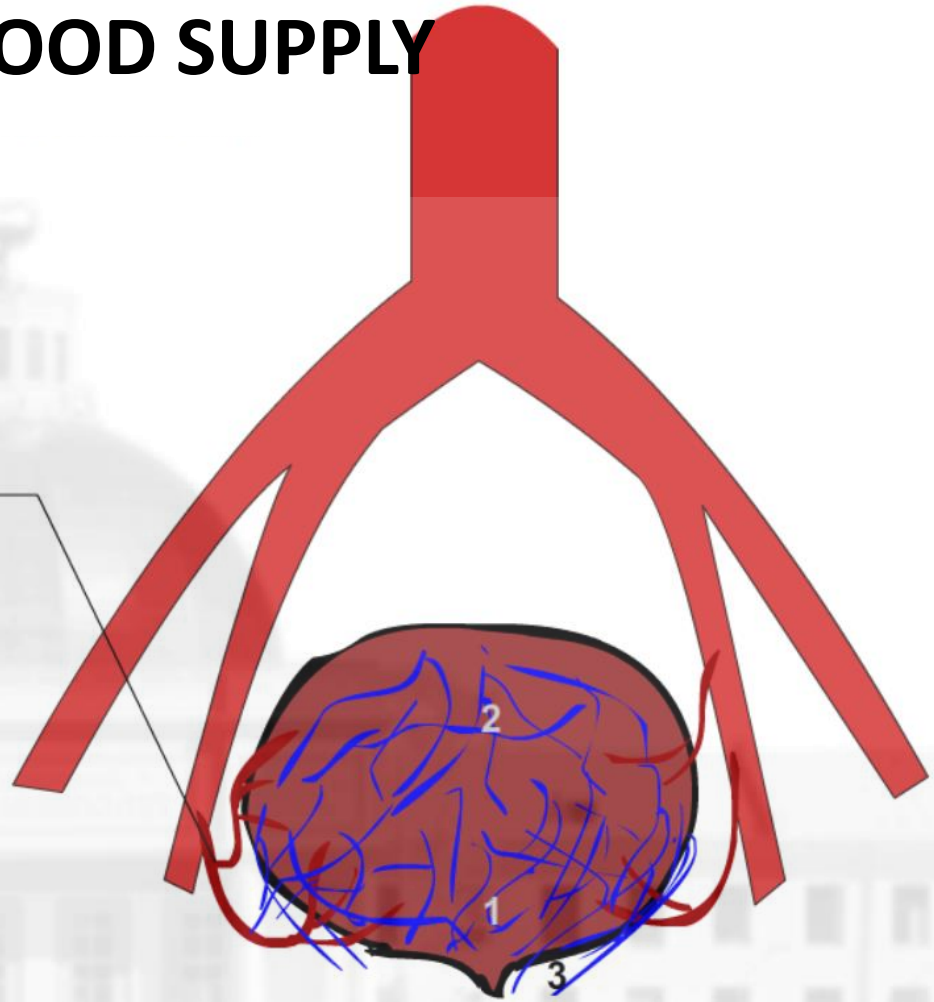
Urinary bladder lymph nodes

Periuterine lymph nodes



THE URINARY BLADDER. BLOOD SUPPLY

upper and lower cystic arteries (from the internal iliac artery)

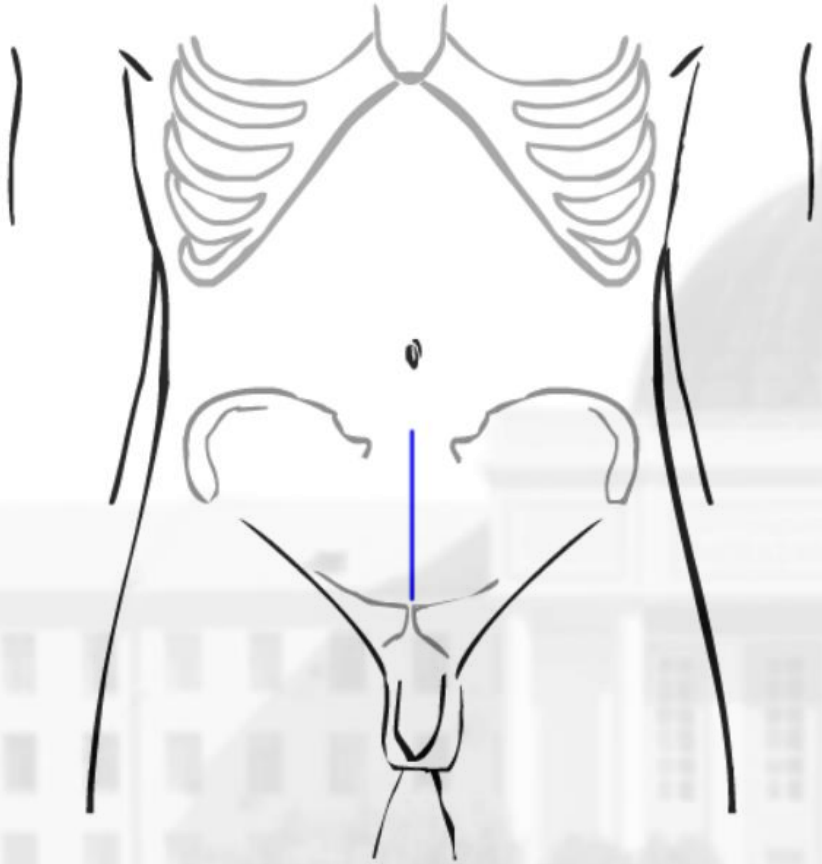


The bottom of the bladder is additionally equipped with branches a. rectalis media, a. pudenda interior et a. obturatoria

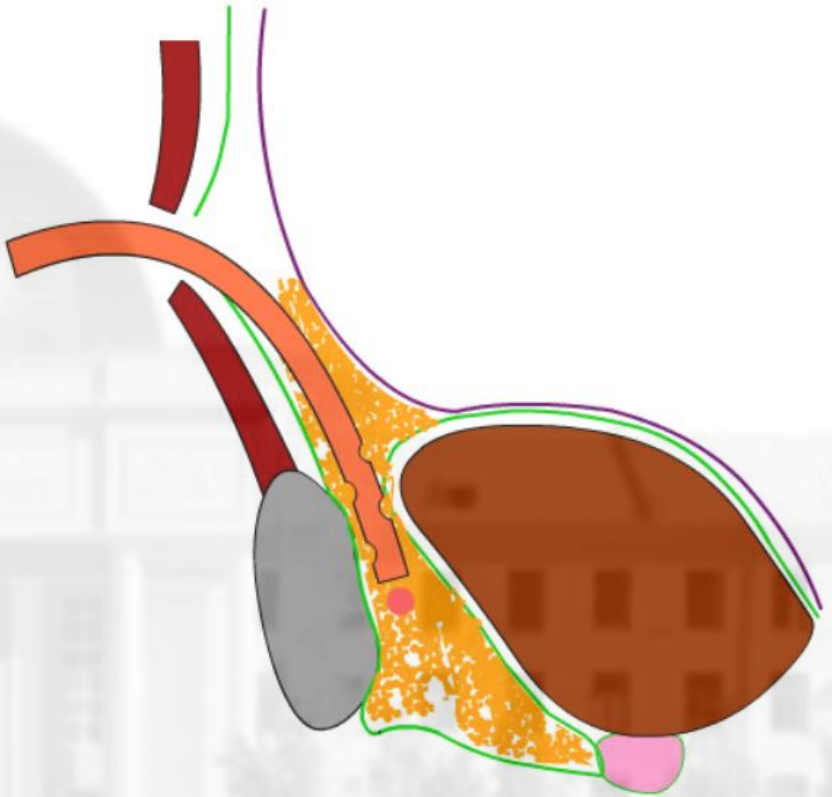
The veins of the bladder do not accompany the arteries of the same name, but form three plexuses: 1.shameful (plexus venosus pudendalis); 2.vesicular (plexus venosus vesicalis); 3.hemorrhoidal (plexus venosus rectalis).

OPERATIVE ACCESS TO CELLULAR SPACES OF THE PELVIS

Drainage of the prevesical cellular space according to Napalkov

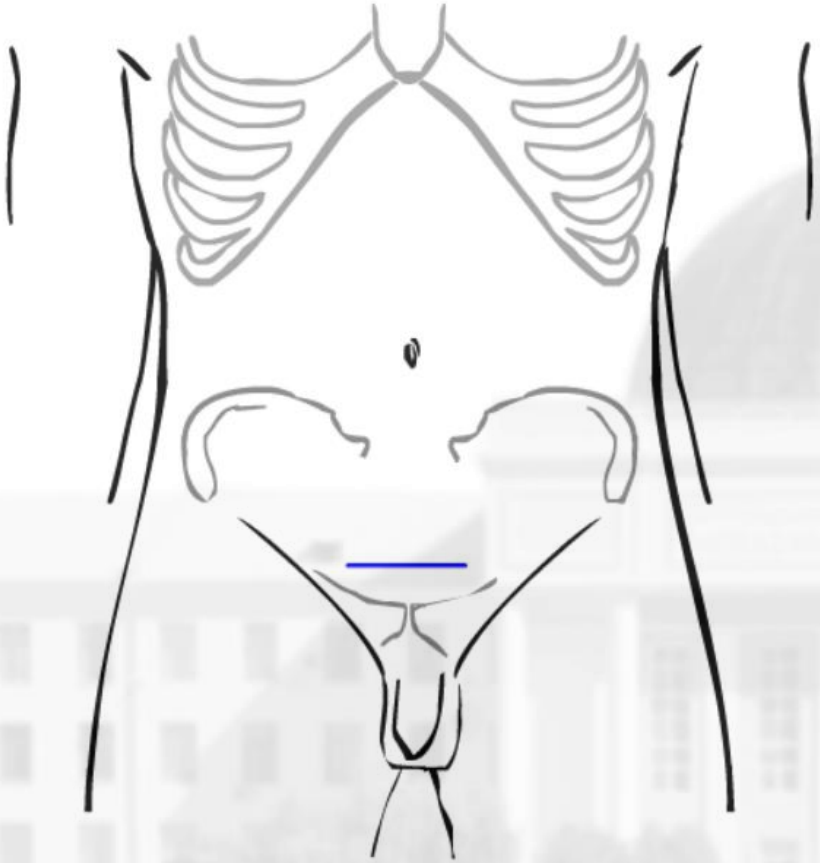


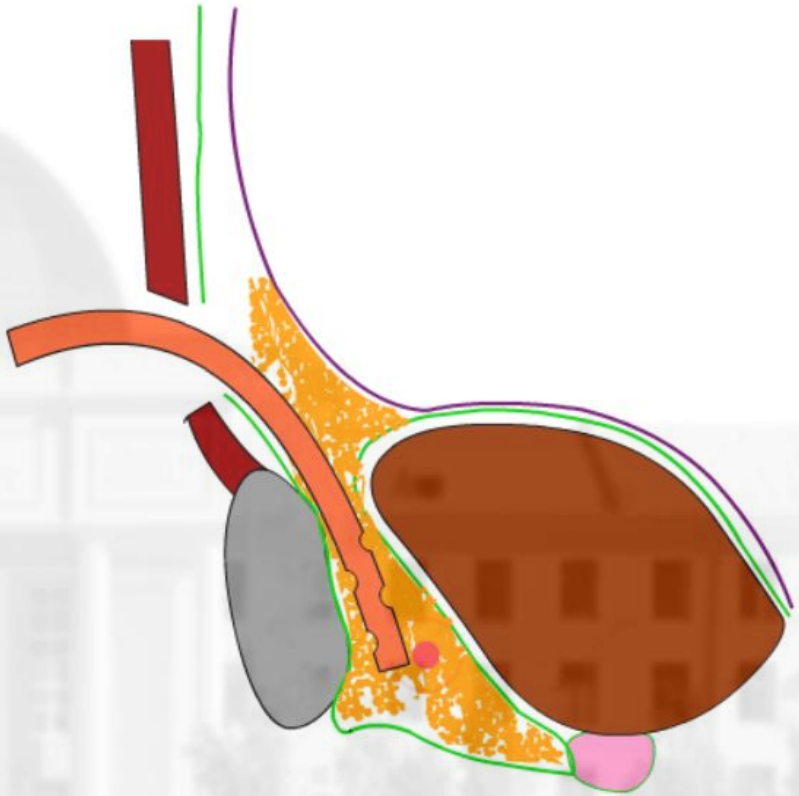
vertical incision of the skin and soft tissues to the transverse fascia from the symphysis to a level 3-4 cm below the umbilical ring



OPERATIVE ACCESS TO CELLULAR SPACES OF THE PELVIS

Drainage of the prevesical cellular space according to Fedorov

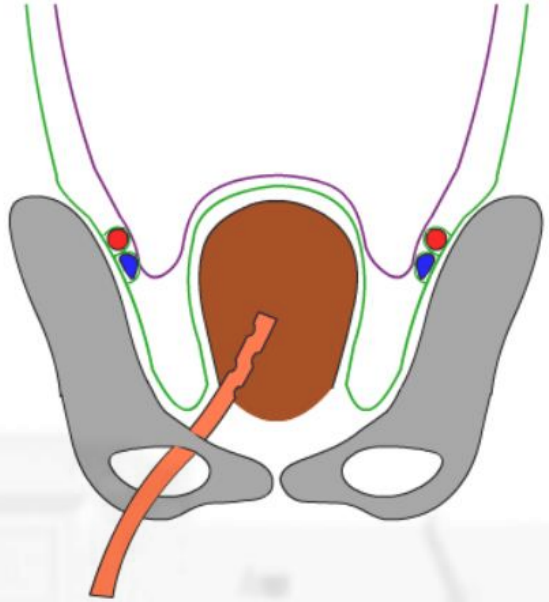




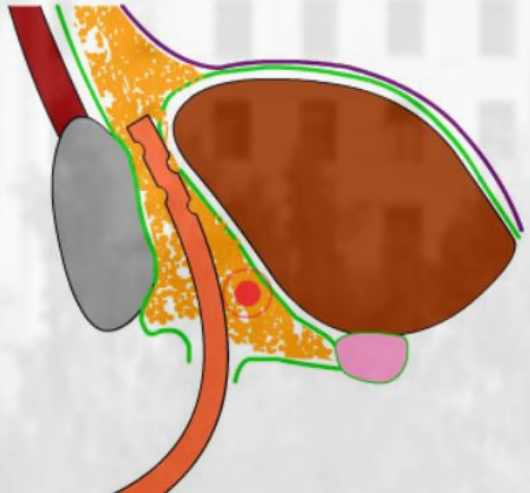
horizontal incision of the skin and soft tissues to the transverse fascia 2-2.5 cm above the symphysis

OPERATIVE ACCESS TO CELLULAR SPACES OF THE PELVIS

Drainage of the prevesical cellular space according to Buyalsky-McWorter

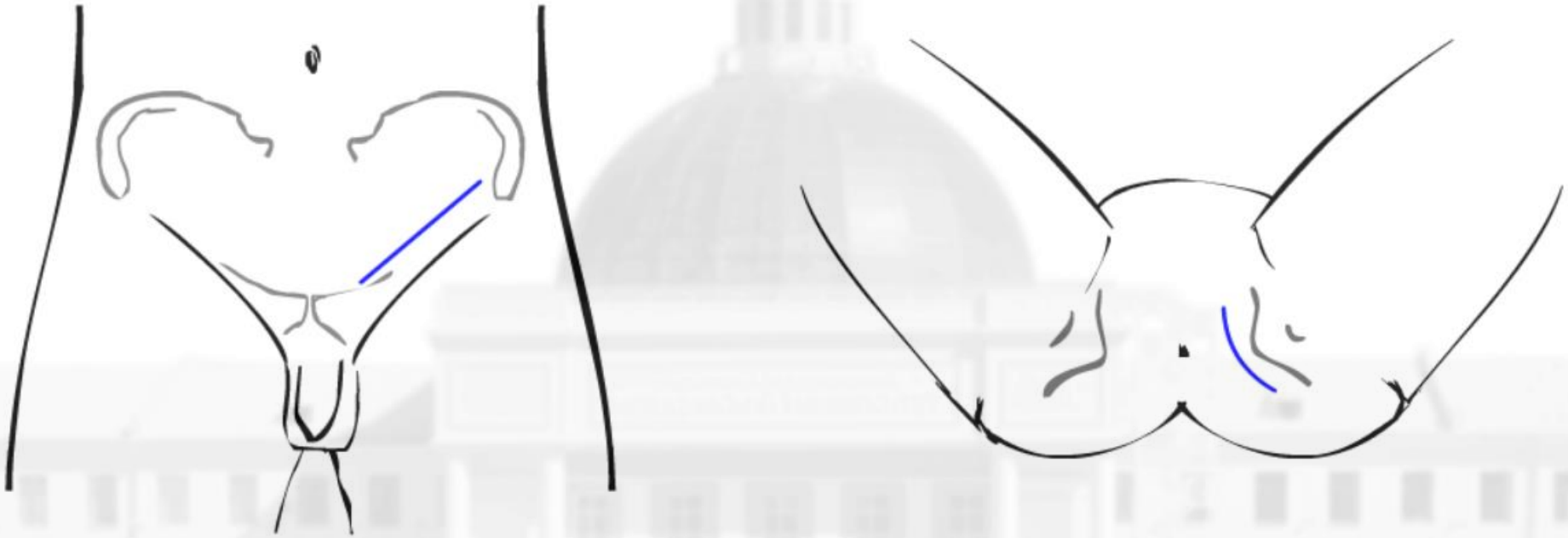


the incision is 2-4 cm downwards and parallel to the femoral-perineal fold; the length of the incision is 7-8 cm; access to the prevesical cellular space through the anterior-lower quadrant of the pelvic obturator orifice.



OPERATIVE ACCESS TO CELLULAR SPACES OF THE PELVIS

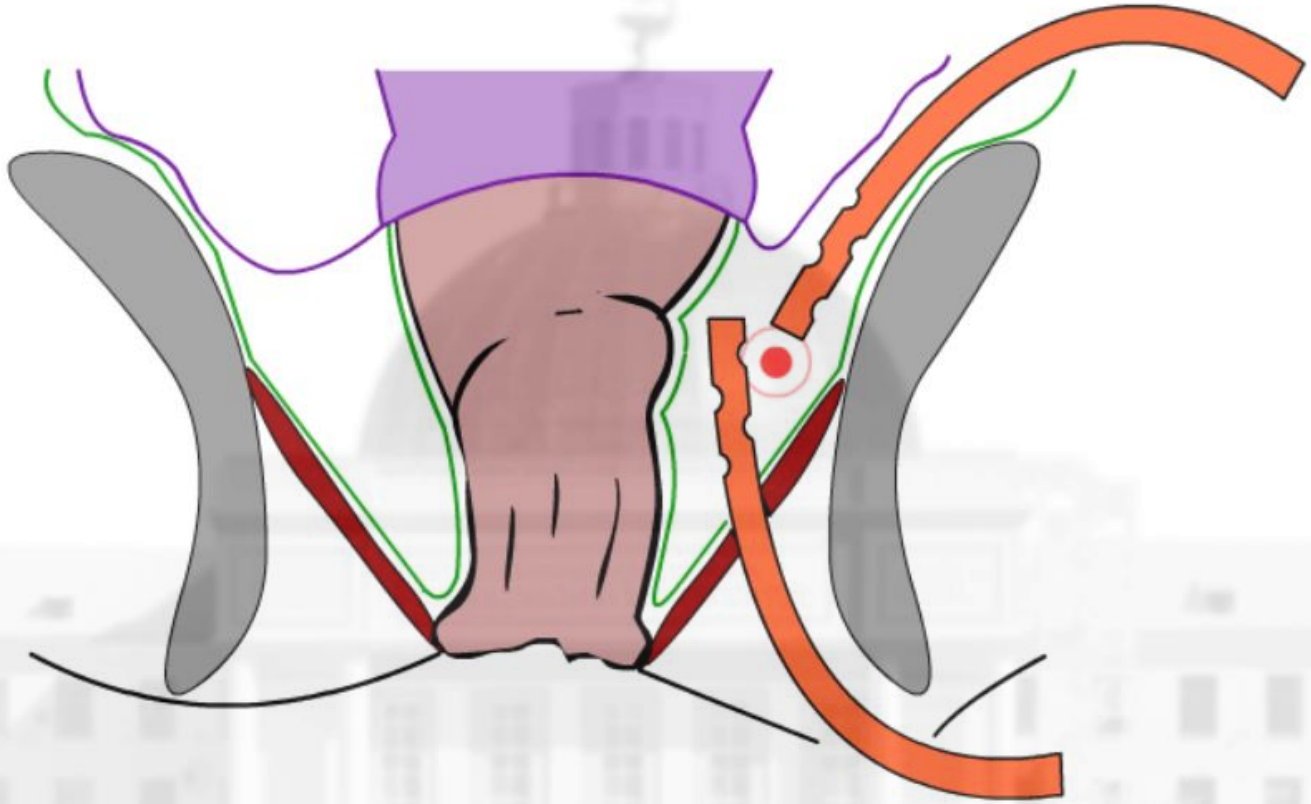
Drainage of the lateral space of the pelvis according to Starkov-Kreiselburd



1. Extraperitoneal access (contraperture) to the lateral tissue of the pelvis by Pirogov (parallel and above the inguinal ligament by 4-5 cm from the lateral edge of the rectus abdominis muscle to the anterior superior iliac spine).
2. A semilunar incision of the skin and subcutaneous tissue, bordering the sciatic tubercle medially. Perforation of the m. levator ani.
3. Installation of drainage pipes.

OPERATIVE ACCESS TO CELLULAR SPACES OF THE PELVIS

Drainage of the lateral space of the pelvis according to Starkov-Kreiselburd



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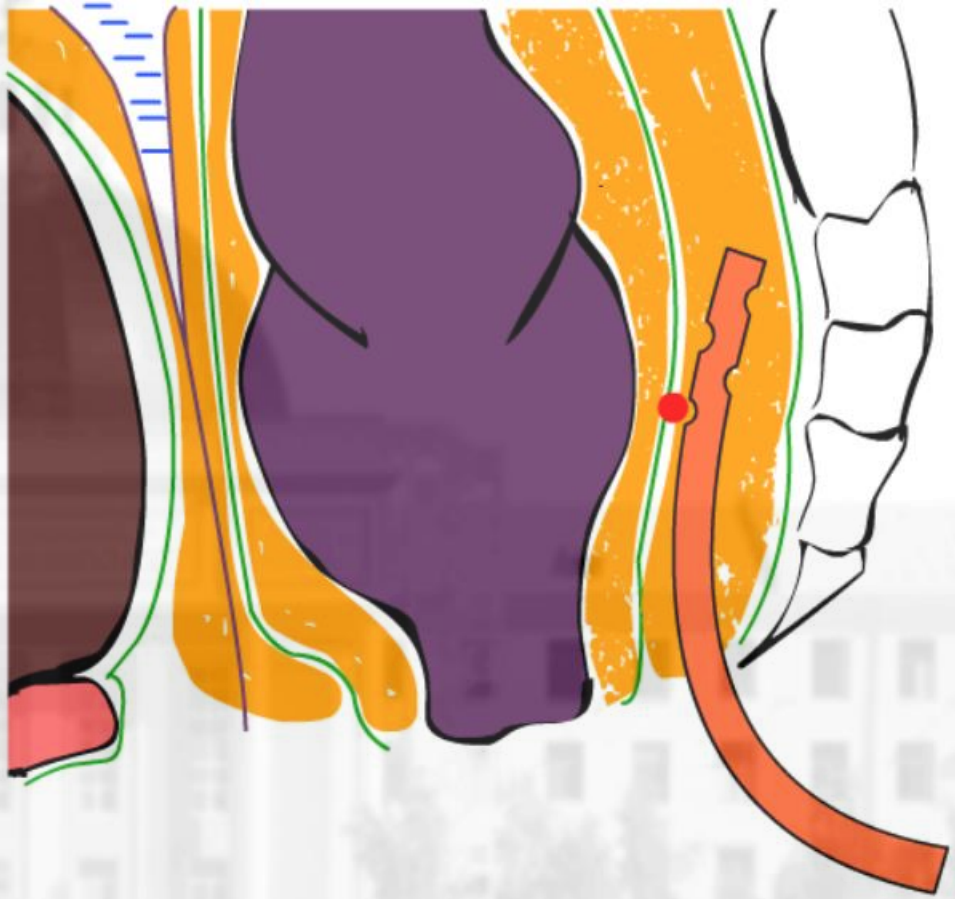
3. Installation of drainage pipes.

OPERATIVE ACCESS TO CELLULAR SPACES OF THE PELVIS

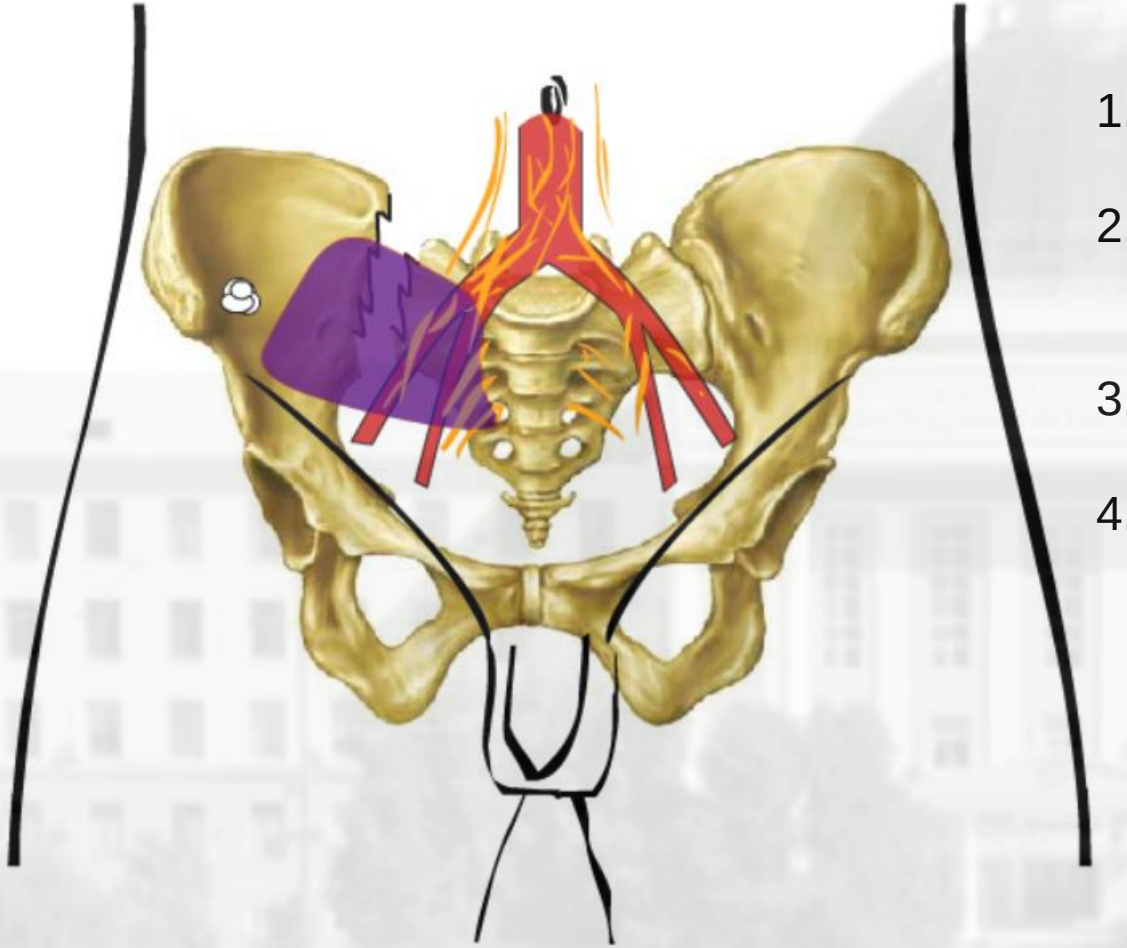
Drainage of the retro-rectal space according to Fedorov



Posterior semicircular incision between the coccyx and the anus; 1 cm outward from the external sphincter of the rectum;

INTRAPELVIC NOVOCAINE BLOCKADE BY SHKOLNIKOV - SELIVANOV

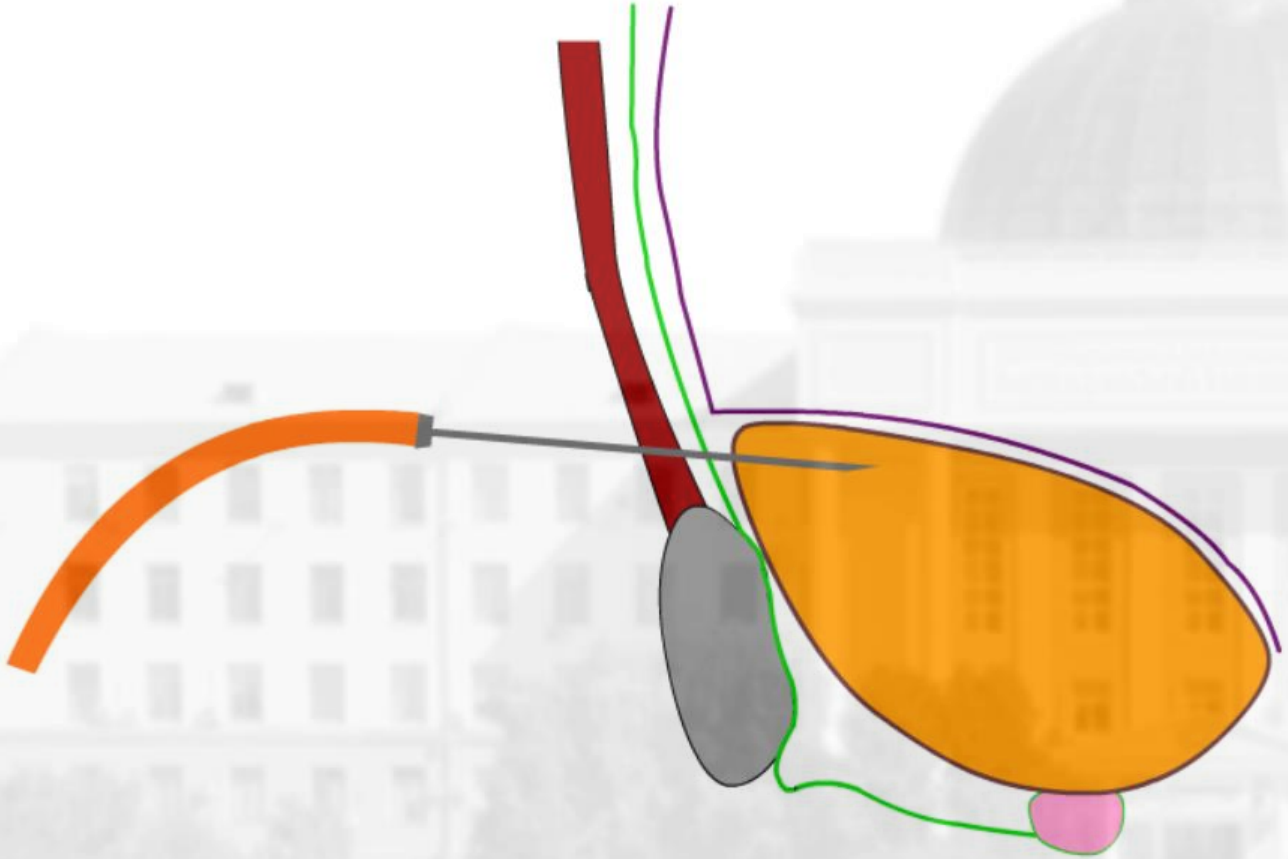
Indications: fractures of the pelvic bones, damage to the pelvic organs, crushing of the lower extremities, as a prevention of shock during transportation of victims.
Contraindications: infection of soft tissues on the side of the blockade.



1. Insert a needle 12-15 cm long by 1 cm medial to the anterior-superior iliac bone.
2. Run the needle 10 - 15 cm from front to back along the inner surface of the iliac wing towards the sacroiliac joint, sending a stream of novocaine.
3. Inject up to 100 ml (children) or up to 400 ml of 0.25% novocaine (adults).
4. Remove the needle, treat the injection site with antiseptic, fix a sterile gauze ball.

SUPRAPUBIC PUNCTURE OF THE BLADDER

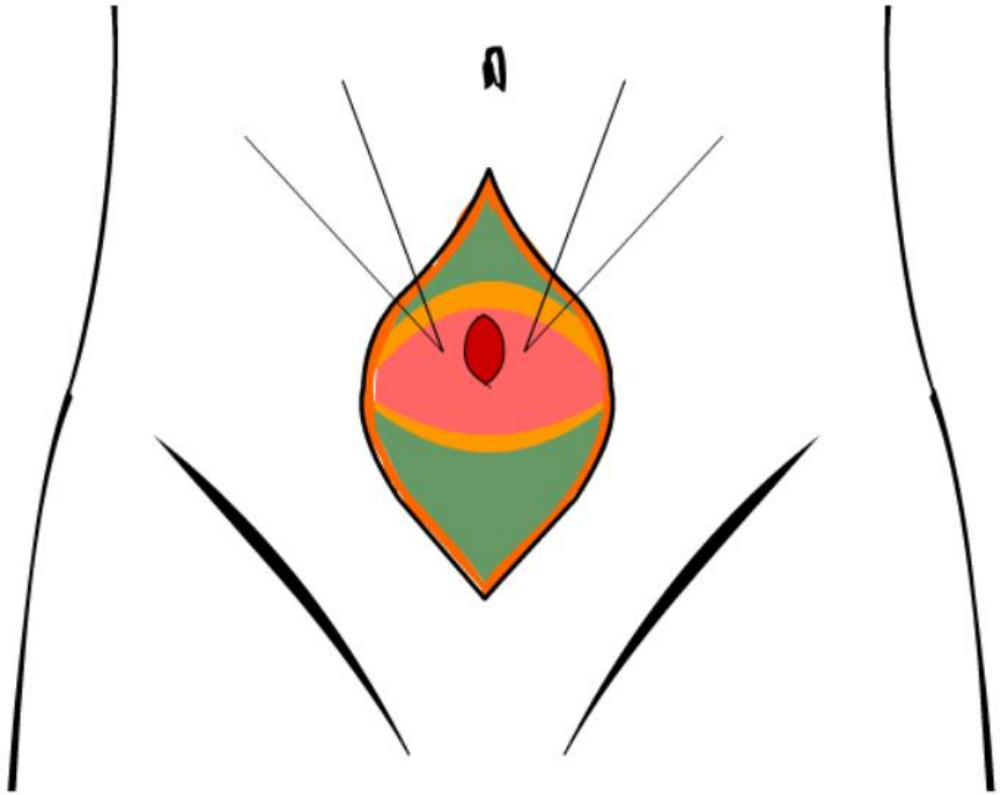
Indications: evacuation of urine from the bladder in the presence of contraindications to catheterization (with acute and chronic urinary retention), injury to the urethra, burns of the external genitalia.
Contraindications: small capacity of the bladder, acute cystitis and paracystitis, tamponade of the bladder with blood clots, the presence of bleeding neoplasms of the bladder, large scars of the anterior abdominal wall and inguinal hernias, pronounced obesity.



1. Premedication, surgical field treatment, local anesthesia("lemon peel", 0.25% novocaine).
2. injection 2-3 cm above the pubis along the median line; needle 15-20 cm long, 1 mm in diameter; on the needle pavilion there is a sterile soft tube (adjustment of the rate of evacuation of urine).
3. Remove the needle, close its lumen, treat the injection site with an antiseptic solution, apply a bandage.

HIGH CROSS-SECTION OF THE BLADDER

Indications: bladder stones and foreign bodies; benign prostatic hyperplasia; urethral injuries; bladder diseases.
The patient's position is on his back, the pelvis is raised;
Anesthesia - local infiltration anesthesia or anesthesia;
Rinse the bladder through a catheter, fill with an aqueous solution of furacilin 1:5000.



1. Dissect the skin, subcutaneous tissue and aponeurosis
Of the white line of the abdomen strictly along the median line.
The beginning of the incision is 3-5 cm above the symphysis, the end of the incision is 3-4 cm below the umbilical ring;
2. Dissect horizontally the transverse fascia, penetrate into the prevesical cellular space.
3. Pull up the transverse and prevesical fascia, the prevesical cellular space enclosed between the fascia;
The front wall of the bladder is exposed (characteristic pink color).
4. Stitch two catgut threads through the muscular layer of the bladder; Closer to the top of the bladder at a distance of 2 cm from each other.
5. Make a longitudinal incision of the bladder wall through the fold between the holders.
6. Perform an operational reception.
7. Apply stitches to the bladder wall, rubber drainage into the bladder, layer-by-layer suturing of the wound.

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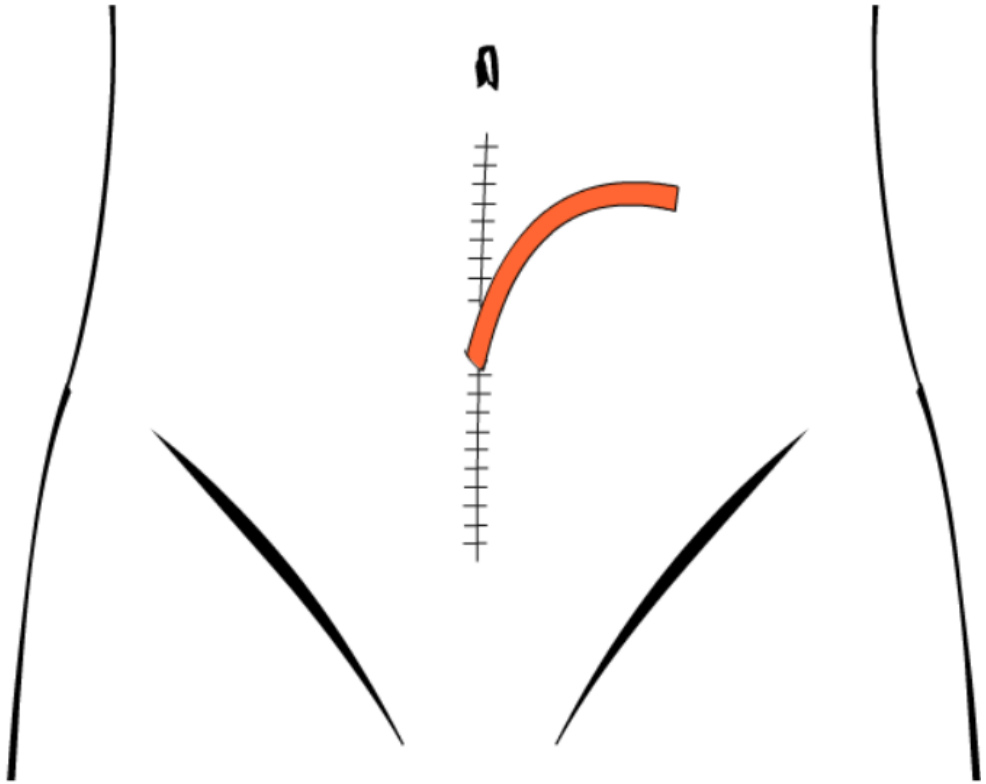

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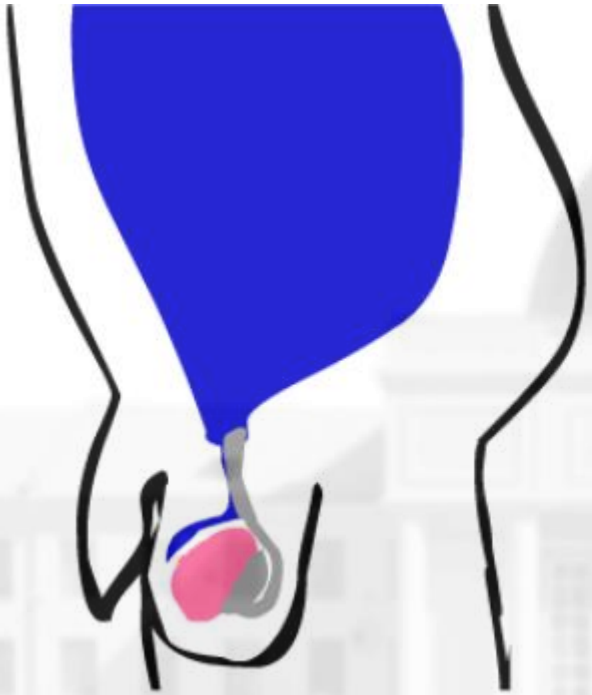
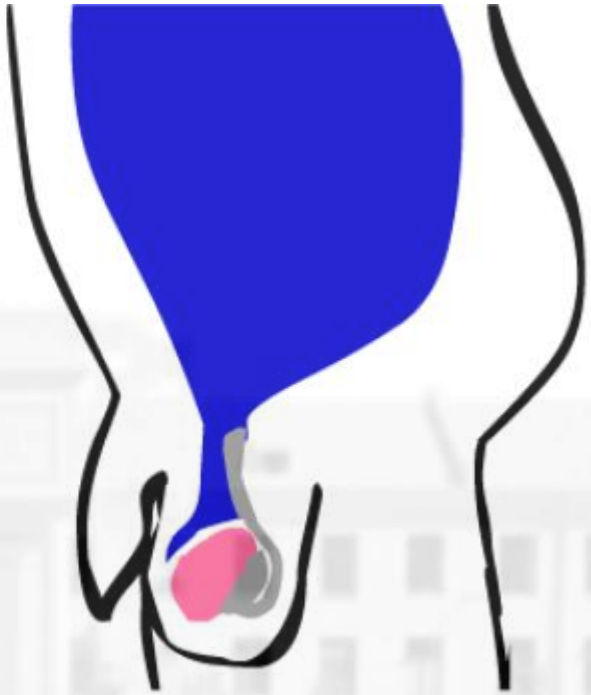
THE PROCESS OF THE TESTICLE DESCENDING INTO THE SCROTUM



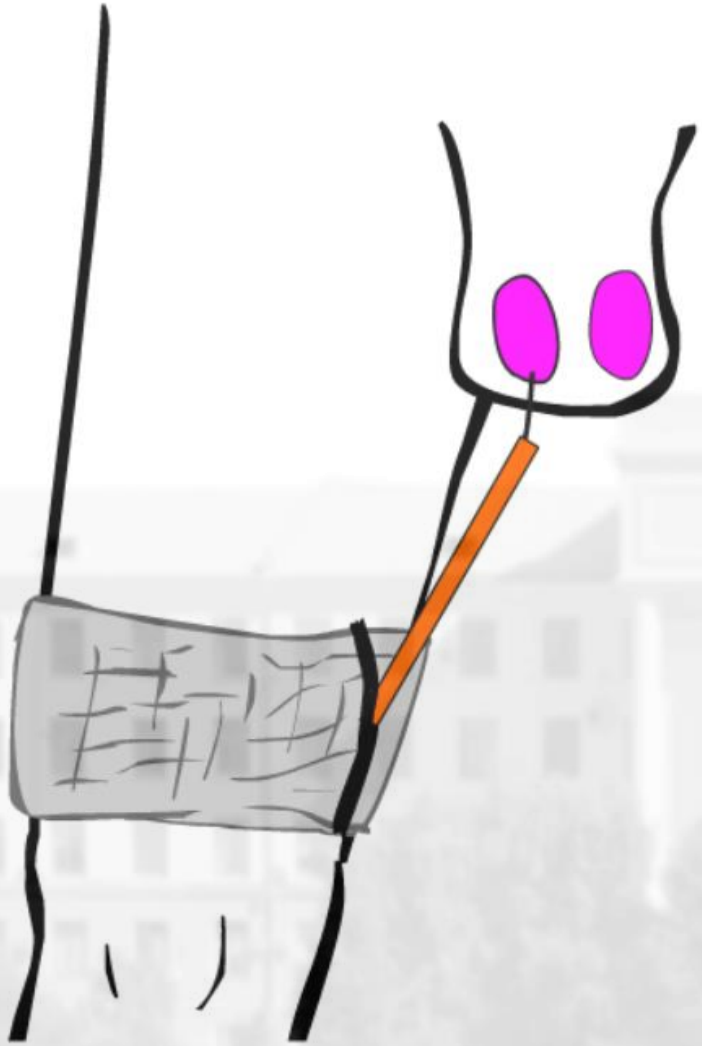
The vaginal leaf of the peritoneum has closed (norm)



Open vaginal leaf of the peritoneum

OPERATIONS FOR CRYPTORCHIDISM

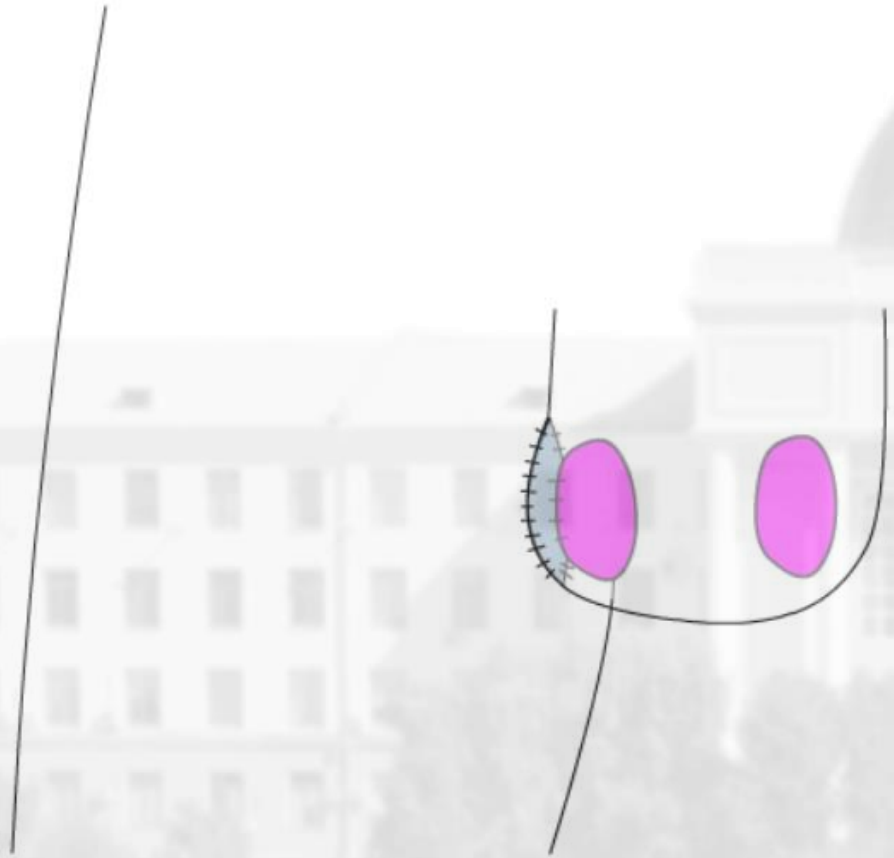
Surgery for testicular retention according to Emelyanov-Sokolov



1. On the eve of the operation, a plaster splint is applied to the lower third of the thigh.
2. The testicle is mobilized, reduced to the bottom of the scrotum.
3. The shells of the testicle are sewn under its lower pole, ligatures are carried out through the skin of the bottom of the scrotum.
4. Fix a rubber nipple tube to the spar and scrotal ligature.

OPERATIONS FOR CRYPTORCHIDISM

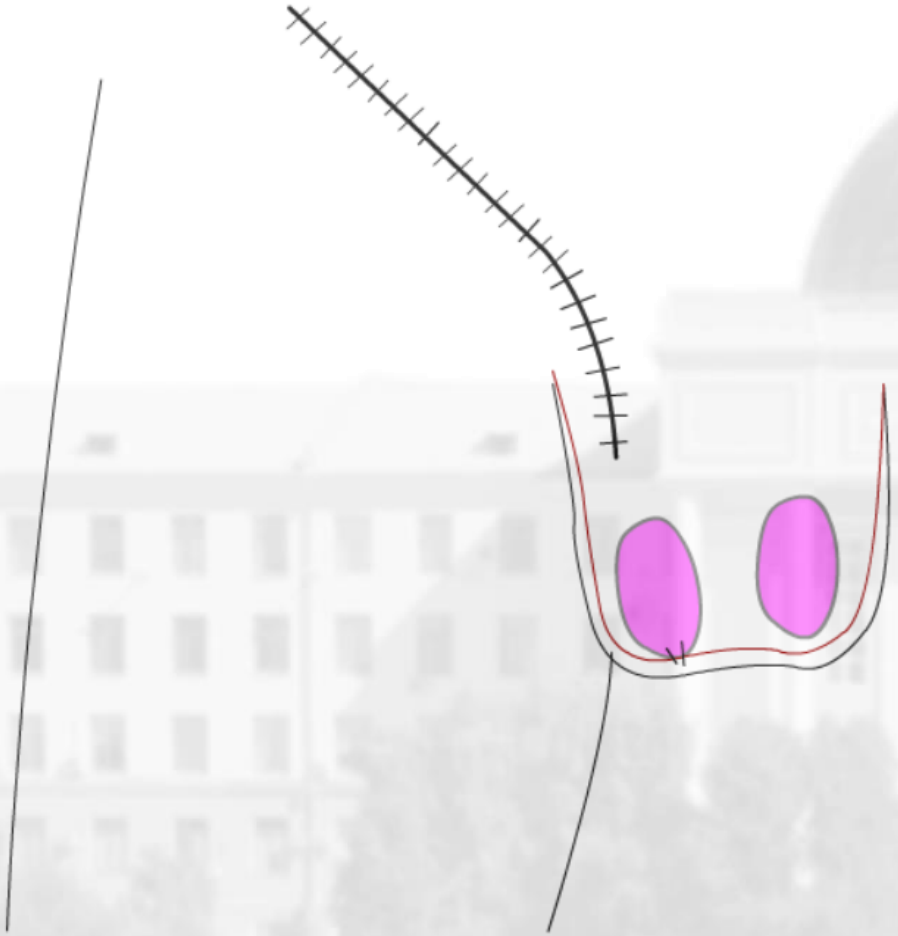
Testicular retention surgery by Katzenstein-Herzen-Torek



1. The testicle with the spermatic cord is released, mobilizes and sinks into the scrotum bed.
2. Incision of the scrotum on the lateral surface. At the level of the scrotum incision, make an incision of the thigh skin along the medial surface of the wide fascia of the thigh (2-3 cm).
3. Sew the sections of the protein shell of the testicle and the wide fascia of the thigh together.
4. Sew the edges of the incisions in the skin of the scrotum and thigh together.

OPERATIONS FOR CRYPTORCHIDISM

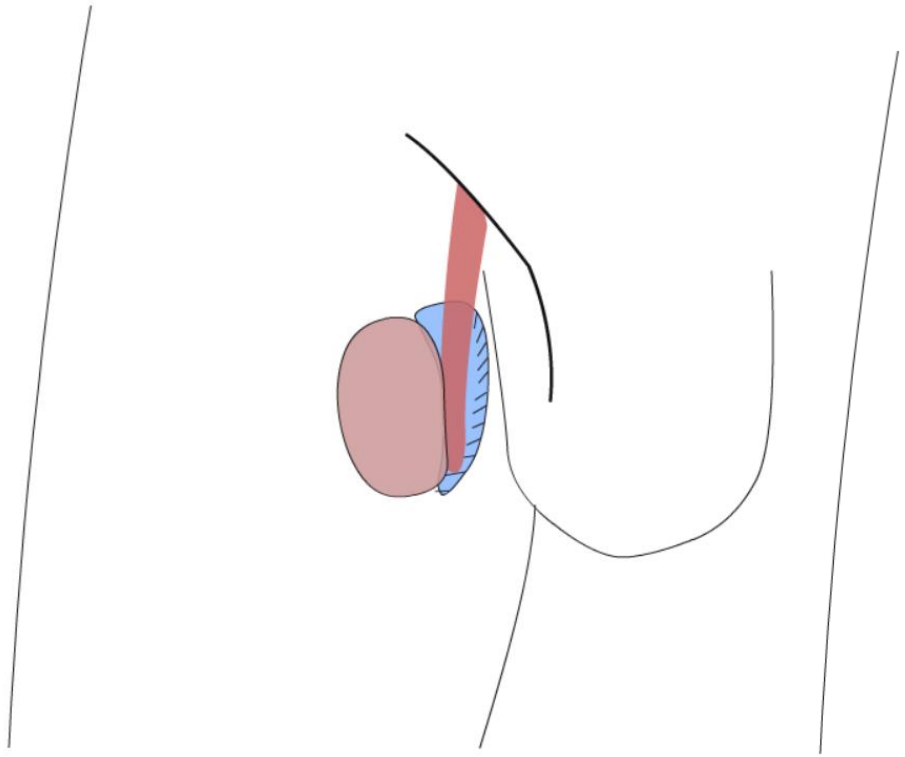
Testicular retention surgery by Petrivalsky-Schumacher'y

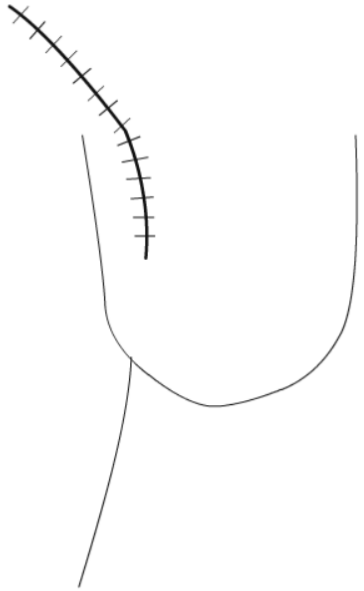


1. Mobilization, lowering of the testicle into the scrotum bed through Pirogov's access with continuation to the root of the scrotum.
2. Through the skin of the scrotum with a finger, the testicle is pushed into the wound, the scrotum is turned out.
3. The protein shell of the testicle is sewn to the fleshy shell at the point of contact (above the finger).
4. The testicle sinks into the scrotum, the wound is sutured.

OPERATIONS FOR DROPSY OF THE TESTICLE

Winkelmann's method

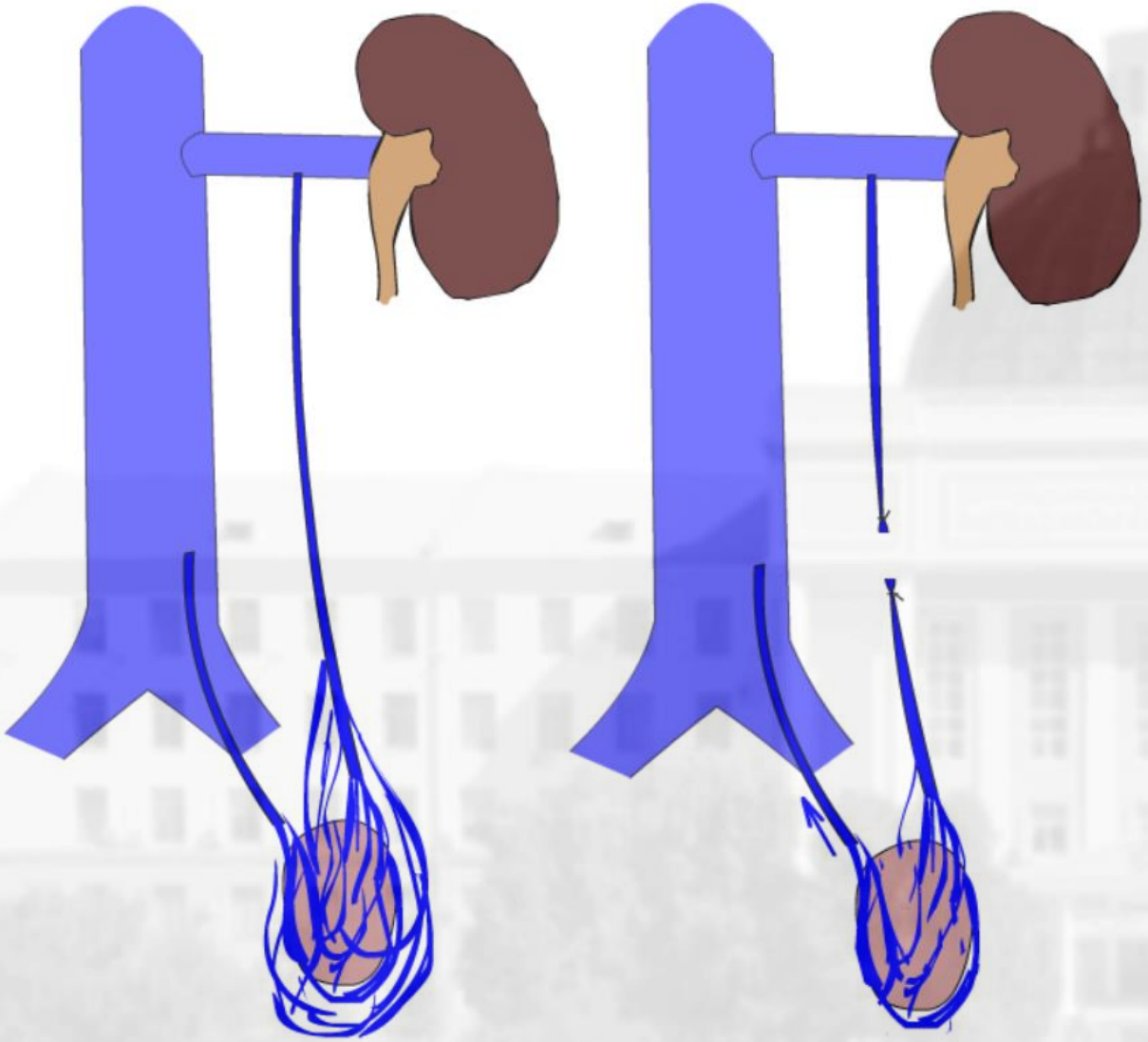




1. Incision parallel to and above the inguinal fold by 2 cm with a transition to the Antero-lateral surface of the scrotum. The testicle is removed into the wound.
2. Puncture the water bag, remove the liquid.
3. Dissect the parietal leaf of the vaginal membrane along the anterior surface of the testicle.
4. Sew the edges of the parietal sheet of the vaginal sheath behind the spermatic cord.
5. Immerse the testicle in the scrotum, layer-by-layer suturing of the wound.

OPERATIONS FOR VARICOCELE

Ivanissevich 's operation



Isolation, ligation and intersection of the internal seminal vein flowing into the renal vein.

extraperitoneal Pirogov access (parallel and above the inguinal ligament by 4 cm).

Thank you for your attention!!!