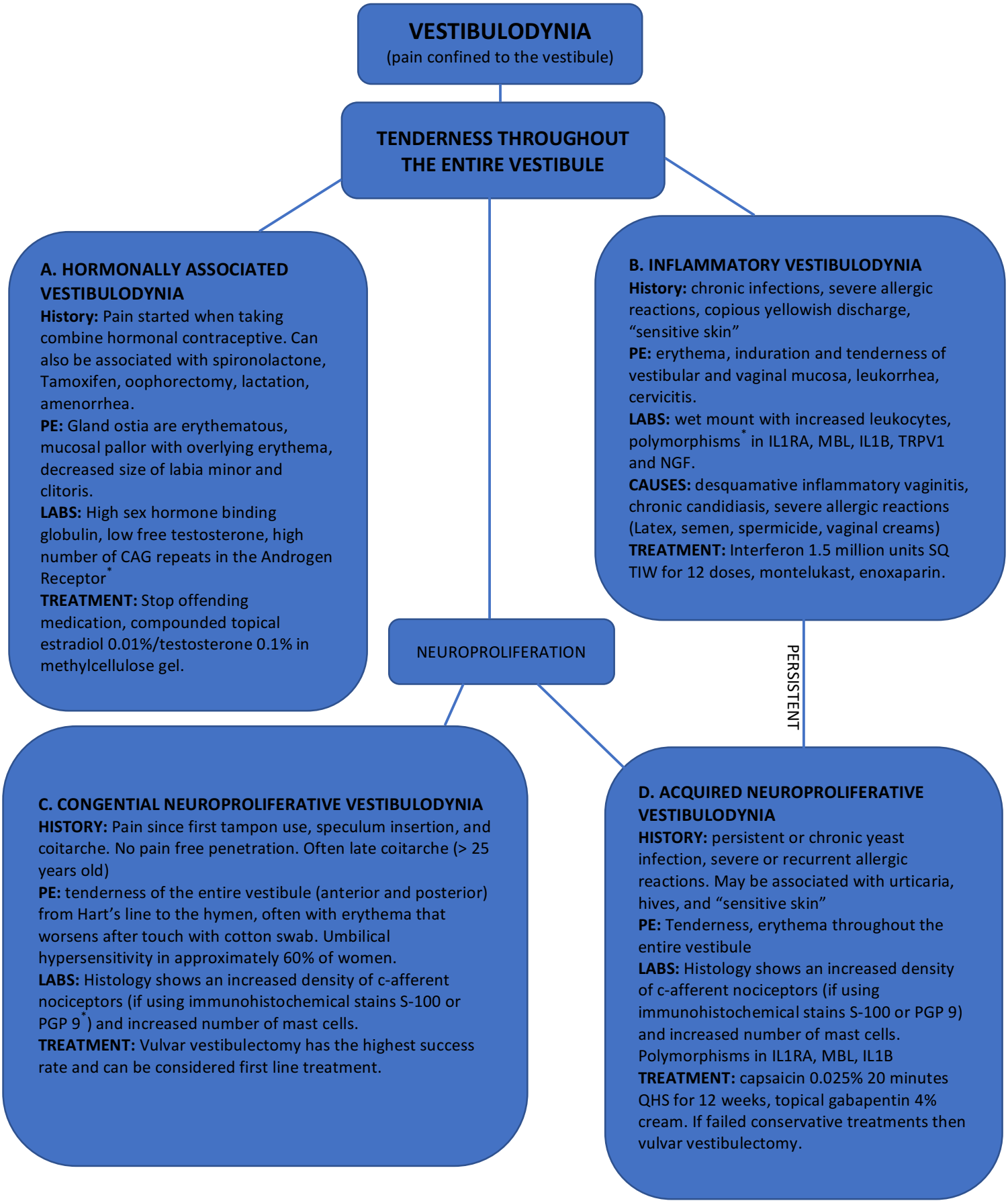
VESTIBULODYNIA
(pain confined to the vestibule)
TENDERNESS THROUGHOUT THE ENTIRE VESTIBULE
A. HORMONALLY ASSOCIATED VESTIBULODYNIA
History: Pain started when taking combine hormonal contraceptive. Can also be associated with spironolactone, Tamoxifen, oophorectomy, lactation, amenorrhea.
PE: Gland ostia are erythematous, mucosal pallor with overlying erythema, decreased size of labia minor and clitoris.
LABS: High sex hormone binding globulin, low free testosterone, high number of CAG repeats in the Androgen Receptor*
TREATMENT: Stop offending medication, compounded topical estradiol 0.01%/testosterone 0.1% in methylcellulose gel.
B. INFLAMMATORY VESTIBULODYNIA
History: chronic infections, severe allergic reactions, copious yellowish discharge, "sensitive skin"
PE: erythema, induration and tenderness of vestibular and vaginal mucosa, leukorrhea, cervicitis.
LABS: wet mount with increased leukocytes, polymorphisms* in IL1RA, MBL, IL1B, TRPV1 and NGF.
CAUSES: desquamative inflammatory vaginitis, chronic candidiasis, severe allergic reactions (Latex, semen, spermicide, vaginal creams)
TREATMENT: Interferon 1.5 million units SQ TIW for 12 doses, montelukast, enoxaparin.
NEUROPROLIFERATION
PERSISTENT
C. CONGENTIAL NEUROPROLIFERATIVE VESTIBULODYNIA
HISTORY: Pain since first tampon use, speculum insertion, and coitarche. No pain free penetration. Often late coitarche (> 25 years old)
PE: tenderness of the entire vestibule (anterior and posterior) from Hart's line to the hymen, often with erythema that worsens after touch with cotton swab. Umbilical hypersensitivity in approximately 60% of women.
LABS: Histology shows an increased density of c-afferent nociceptors (if using immunohistochemical stains S-100 or PGP 9*) and increased number of mast cells.
TREATMENT: Vulvar vestibulectomy has the highest success rate and can be considered first line treatment.
D. ACQUIRED NEUROPROLIFERATIVE VESTIBULODYNIA
HISTORY: persistent or chronic yeast infection, severe or recurrent allergic reactions. May be associated with urticaria, hives, and "sensitive skin"
PE: Tenderness, erythema throughout the entire vestibule
LABS: Histology shows an increased density of c-afferent nociceptors (if using immunohistochemical stains S-100 or PGP 9) and increased number of mast cells. Polymorphisms in IL1RA, MBL, IL1B
TREATMENT: capsaicin 0.025% 20 minutes QHS for 12 weeks, topical gabapentin 4% cream. If failed conservative treatments then vulvar vestibulectomy.

VESTIBULODYNIA
(pain confined to the vestibule)

PAIN CONFINED TO THE POSTERIOR VESTIBULE
(or pain throughout the entire vestibule but significantly worse at 4,6,8 o'clock)

E. OVERACTIVE (HYPERTONIC) PELVIC FLOOR MUSCLE DYSFUNCTION
HISTORY: May be associated with urinary frequency, urgency, hesitancy, and sensation of incomplete emptying, constipation, rectal fissures, hemorrhoids. Associated with anxiety, lower back pain, scoliosis, hip pain, "holding urine," excessive core strengthening exercises.
PE: Tenderness and erythema of the posterior vestibule only. Hypertonus of levator ani muscles, retracted perineum, tenderness to deep palpation of the perineum, post-coital fissure in posterior vestibule. Pain at 4, 8 o'clock if hypertonus of pubococcygeus muscles. Pain at 6 o'clock if hypertonus of puborectalis and transverse perinei muscles.
LABS: elevated muscle tone measured with EMG*
TREATMENT: pelvic floor physical therapy, diazepam rectal/vaginal suppositories, vaginal dilators, home pelvic floor exercises, intramuscular botulinum toxin injections, cognitive behavior therapy, hypnosis, yoga.

Vulvodynia
(pain extends outside the vestibule)

F. PUDENDAL NEURALGIA
HISTORY: Trauma to the coccyx, torn hip labrum, traumatic childbirth, straddle injury of the perineum, excessive bike riding. Pain is exacerbated when sitting on hard surfaces and is improved when lying prone or standing. Pain of the rectum, perineum, labia, and clitoris.
PE: Severe tenderness when palpating the pudendal nerve at the ischial spine (transvaginally and trans-rectally), most commonly unilateral or significantly greater on one side, tenderness and hypertonus of obturator internus muscle.
LABS: Diagnostic pudendal nerve block should cause temporary resolution of pain. 3 Tesla MRI may show entrapment or scar tissue adjacent to the pudendal nerve in Alcock's canal.
TREATMENT: Serial pudendal nerve blocks with anesthetic and corticosteroids, pelvic floor physical therapy gabapentin, pregabalin, pudendal nerve neuromodulation, pudendal nerve radio-frequency nerve ablation, pudendal nerve neurolysis.

G. SPINAL PATHOLOGY/VULVAR DYSTHESIA
HISTORY: Vulvar pruritus, burning or soreness without any physical finding. May be associated with low back pain, sciatica.
PE: May have allodynia of affected area without any other observable physical findings. The symptoms may be hard to distinguish from pudendal neuralgia. However, a pudendal nerve block should be able to relieve the symptoms of pudendal neuralgia. If, after a diagnostic pudendal nerve block, the patients has numbness of her vulva and perineum but she still has her dysesthesia, it is likely that her symptoms are caused by spinal pathology.
LABS: MRI of the lumbar spine and sacrum. Findings on MRI may include annular tear, disc herniation, or Tarlov (perineural) cyst. Diagnostic epidural nerve block at the spinal level of the identified pathology should temporarily relieve symptoms.
TREATMENT: Physical therapy, epidural steroid injection, gabapentin, pregabalin, spinal neuromodulation. Spinal surgery if conservative treatment fail.

H. PERSISTENT GENITAL AROUSAL DISORDER
HISTORY: Very disturbing sensation of arousal without sexual desire. Can cause depression/suicidal ideation. Sometimes begins when starting or stopping psychotropic or anti-epileptic medication but more commonly related to pudendal neuralgia or that increase dopamine or epinephrine
PE: Allodynia of clitoris, sometimes tenderness of the pudendal nerve at the ischial spine.
LABS: MRI of sacrum may reveal Tarlov cyst, MRI of lumbar spine may show disc herniation or annular tear. Try ascending nerve blocks to find location of "lesion": dorsal nerve of the clitoris → pudendal nerve block → epidural.
TREATMENT: Treat overactive pelvic floor muscle dysfunction (see above), treat pudendal neuralgia (see above), treat spinal lesions. Varenicline, zolpidem, SSRI's

Bladder/Urethral Pain/Dysuria

I. INTERSTITIAL CYSTITIS/ PAINFUL BLADDER SYNDROME

HISTORY: Severe urinary frequency, dysuria, nocturia. Symptoms exacerbated by diet (citrus, acidic food, alcohol, caffeine).

PE: Tenderness of the urethra and or bladder trigone when palpating through the vagina typically described as burning (not just urgency). If no intrinsic tenderness of the urethra or bladder then it is unlikely to be IC/PBS and the urinary symptoms are more likely due to either overactive pelvic floor dysfunction or other causes of vestibulodynia.

LABS: Cystoscopy if there is intrinsic bladder tenderness or hematuria. Culture for ureaplasma if isolated urethral pain. If there is a clinical suspicion for a urethral diverticulum get a voiding cystourethrogram or MRI.

TREATMENT: Dietary changes, antihistamines, bladder analgesics, bladder instillations.