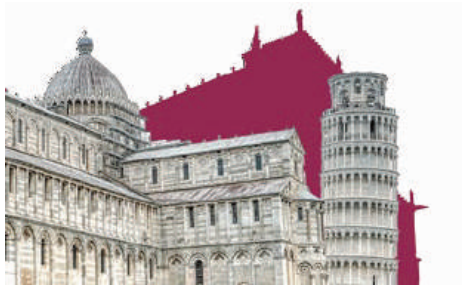
UNIVERSITÀ DI PISA

# CHRONIC PELVIC PAIN

**Dr.ssa Eleonora Russo, MD**
*University Hospital of Pisa*

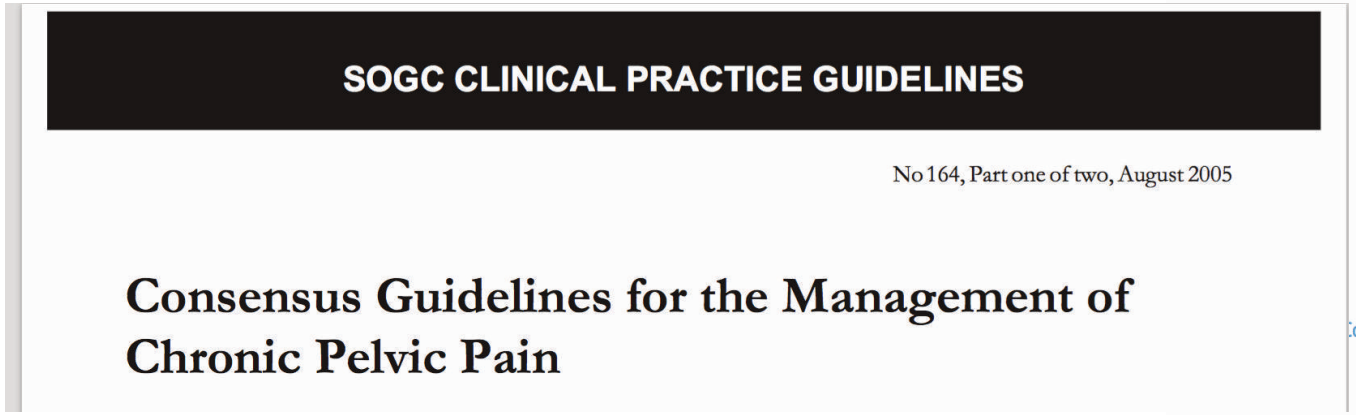




# CHRONIC PELVIC PAIN



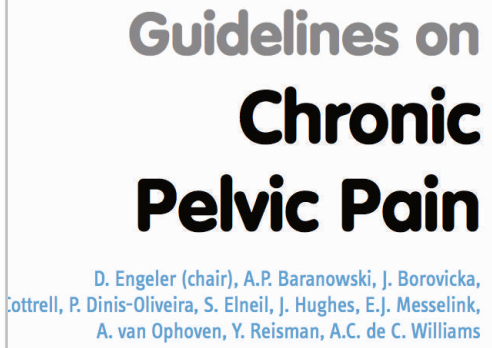
# CHRONIC PELVIC PAIN



SOGC CLINICAL PRACTICE GUIDELINES

No 164, Part one of two, August 2005

Consensus Guidelines for the Management of Chronic Pelvic Pain



Guidelines on

Chronic Pelvic Pain

D. Engeler (chair), A.P. Baranowski, J. Borovicka, Cottrell, P. Dinis-Oliveira, S. Elneil, J. Hughes, E.J. Messelink, A. van Ophoven, Y. Reisman, A.C. de C. Williams



Neurourology and Urodynamics

A Standard for Terminology in Chronic Pelvic Pain Syndromes: A Report From the Chronic Pelvic Pain Working Group of the International Continence Society

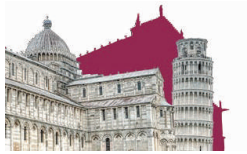
Regula Doggweiler,[1] Kristene E. Whitmore,[2*] Jane M. Meijlink,[3] Marcus J. Drake,[4] Helena Frawley,[5] Jørgen Nordling,[6] Philip Hanno,[7] Matthew O. Fraser,[8] Yukio Homma,[9] Gustavo Garrido,[10] Mario J. Gomes,[11] Sohier Elneil,[12] Joop P. van de Merwe,[13] Alex T.L. Lin,[14] and Hikaru Tomoe[15]



European Association of Urology

# ITEMS

- PATHOPHISIOLOGY OF CHRONIC PAIN
- CHRONIC PELVIC PAIN SYNDROMES (CPPS)
- POST-OPERATIVE PELVIC PAIN (PPOP)
- CPSS MANAGEMENT

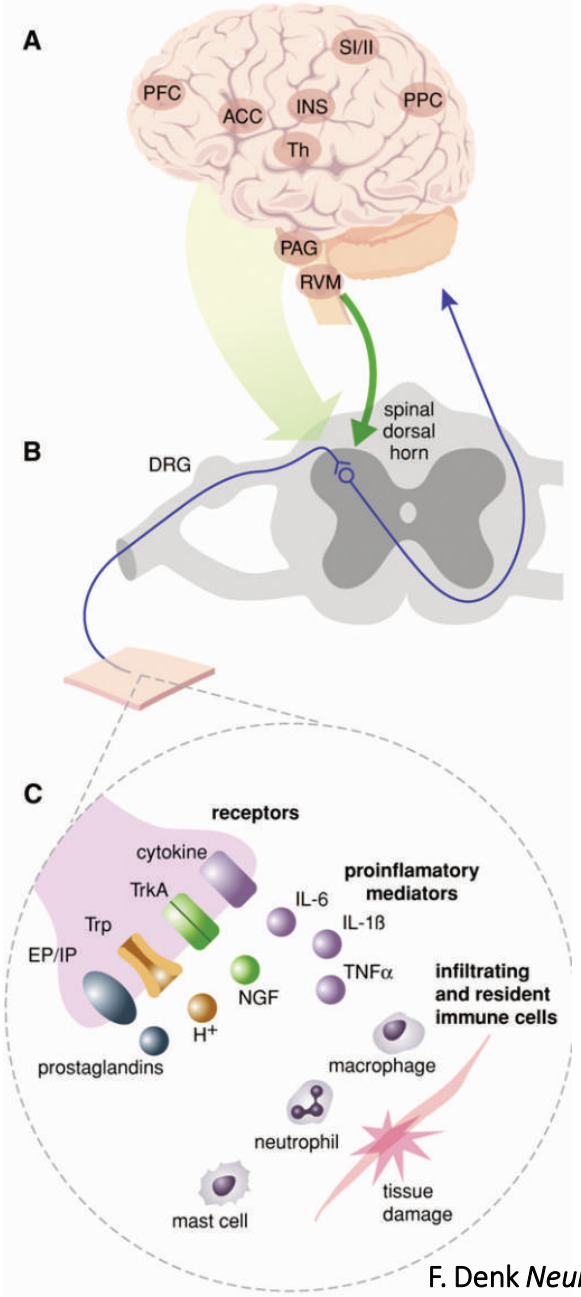


# PATHOPHYSIOLOGY OF CRHONIC PAIN

Central sensitization

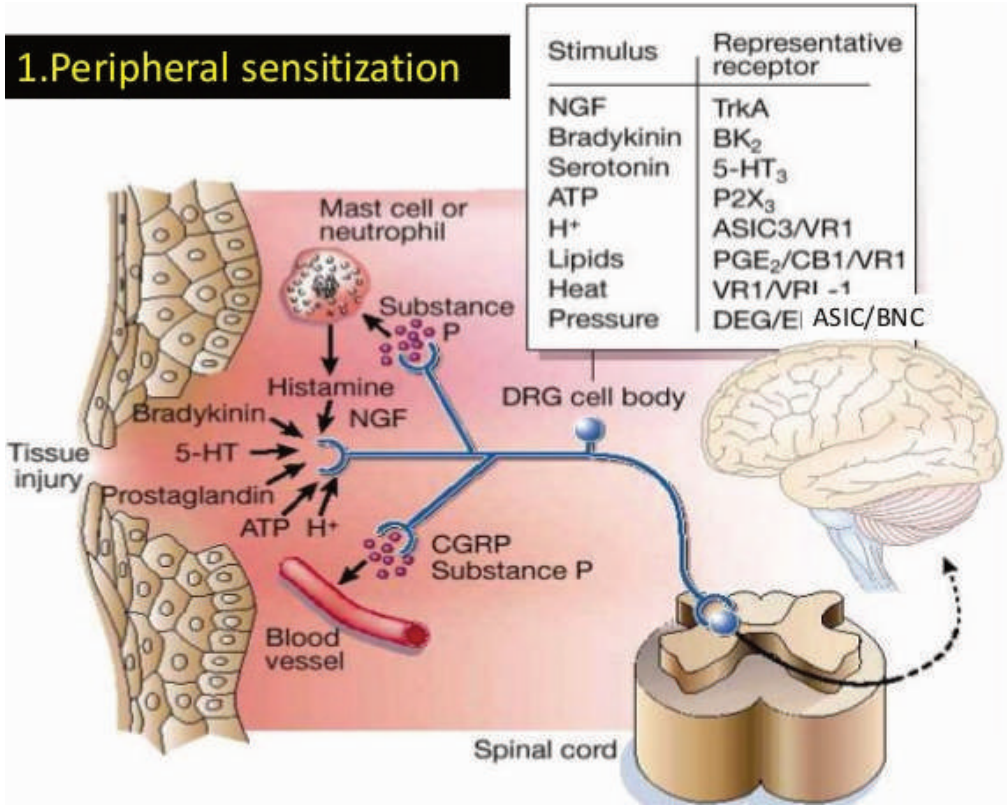
Spinal windup

Peripheral sensitization




F. Denk *Neuron 2012*

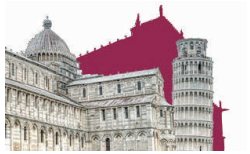
# PATHOPHYSIOLOGY: PERIPHERAL SENZITIZATION



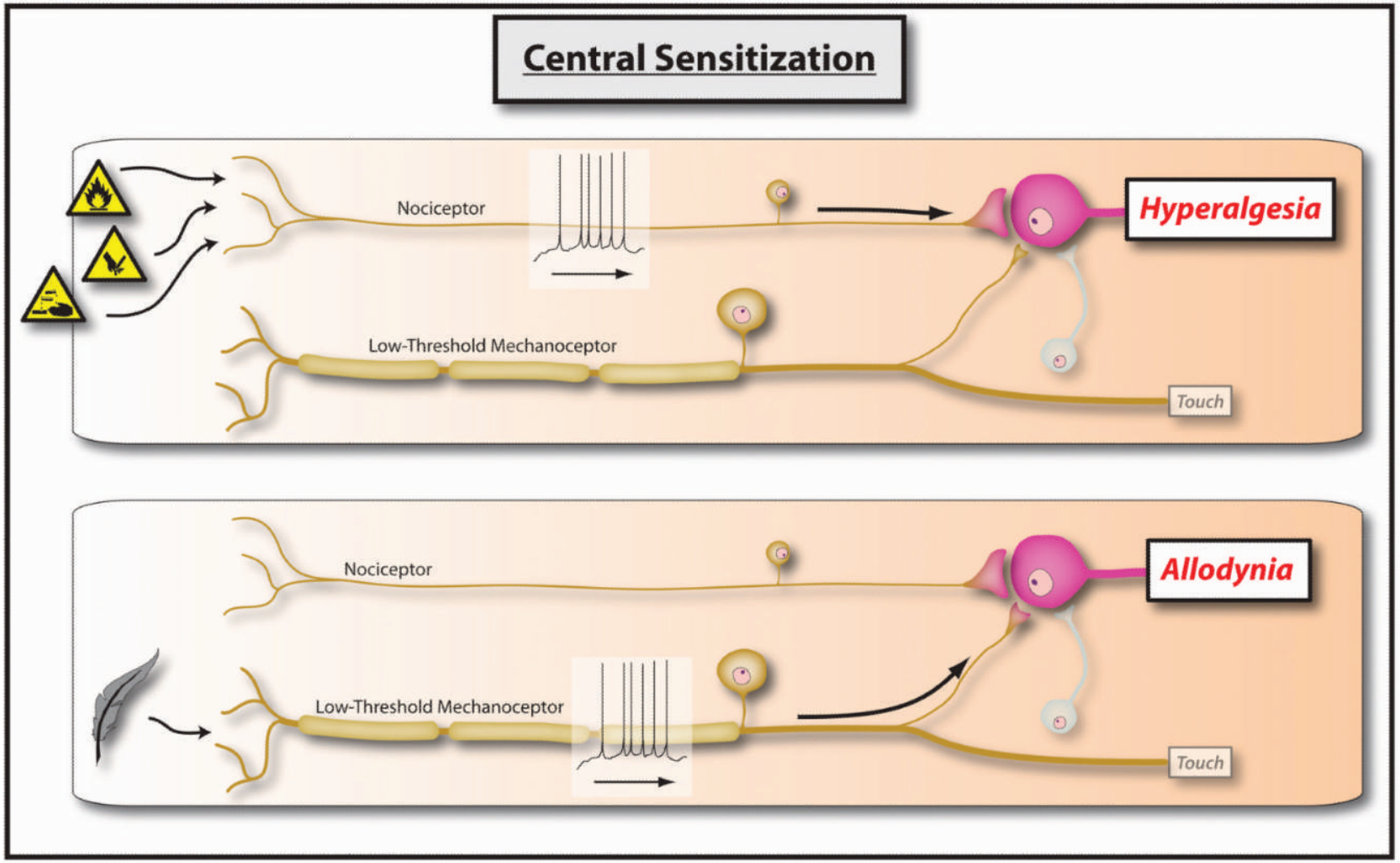

Inflammatory mediators
(cytokines, bradykinin, prostaglandins)

Nociceptors
neural plasticity induction

Enhanced pain sensitivity
(peripheral sensitization)



# PATHOPHYSIOLOGY: CENTRAL SENTITIZATION

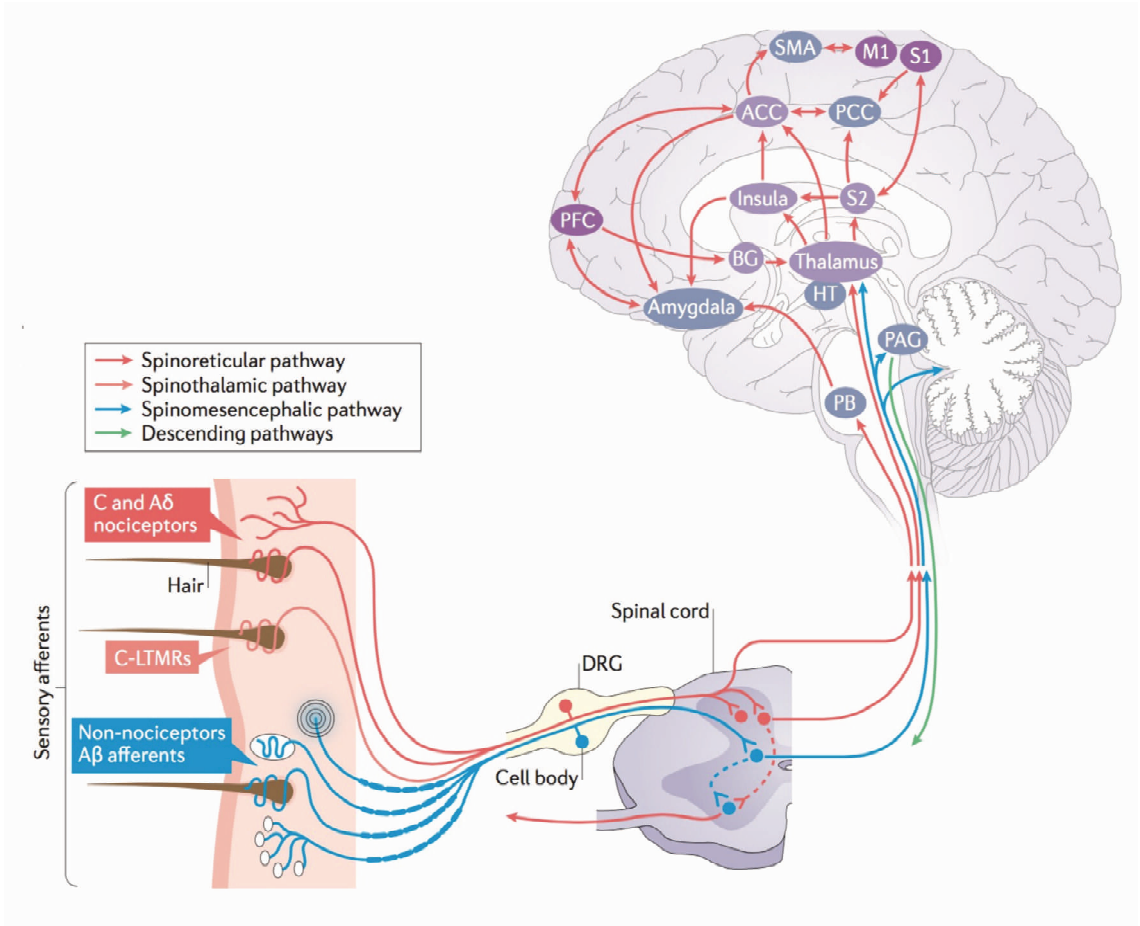


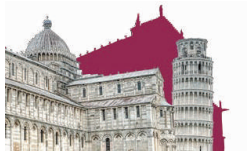



*CJ Wolf 2010*

# PATHOPHYSIOLOGY: SPINAL WINDUP

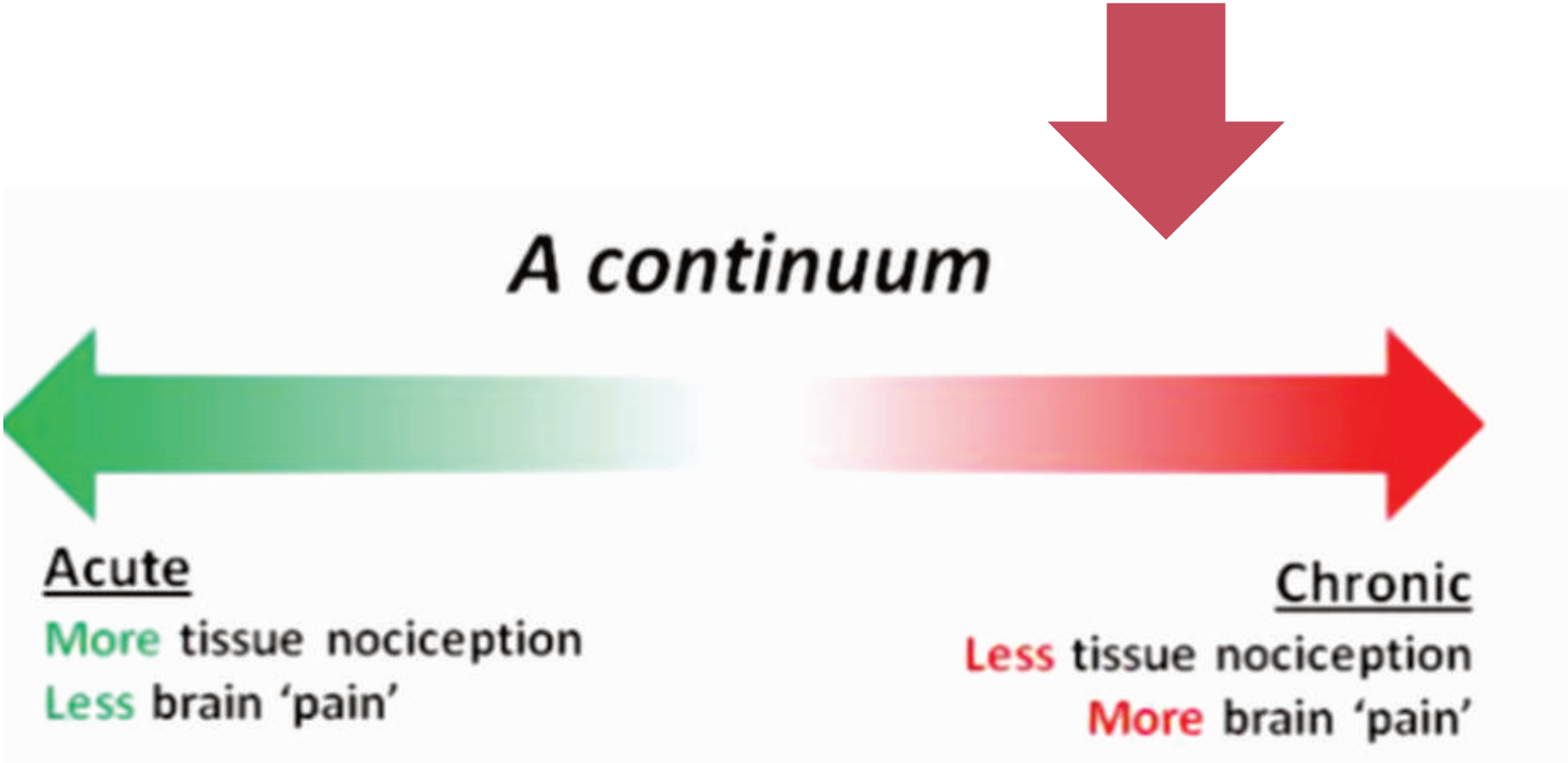
- This central neural plasticity can continue long after the original tissue injury has resolved.
- New pain generators in the periphery
- Pain becomes self-perpetuating.
- Spinal windup

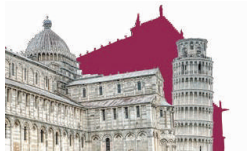


*CJ Wolf 2010*

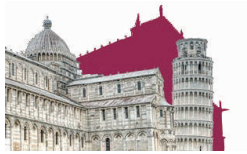
# CENTRAL SENTITIZATION



# ITEMS

- PATHOPHISIOLOGY OF CHRONIC PAIN
- CHRONIC PELVIC PAIN SYNDROMES (CPPS)
- POST-OPERATIVE PELVIC PAIN (PPOP)
- CPSS MANAGEMENT



# CHRONIC PELVIC PAIN SYNDROMES



# CHRONIC PELVIC PAIN SYNDROMES

| Gynaecologic | Urologic | Gastrointestinal | Musculoskeletal | Psychological |
|---|---|---|---|---|
| Endometriosis | Interstitial cystitis | Irritable bowel syndrome | Myofascial pain (trigger points) | Depression |
| Endosalpingiosis | Urethral syndrome | Chronic appendicitis | Pelvic floor myalgia and spasms | Physical or sexual abuse (previous or current) |
| Adenomyosis | Chronic urinary tract infection | Constipation | Nerve entrapment syndromes | Sleep disturbance |
| Pelvic adhesions | Bladder stones | Inflammatory bowel disease | Mechanical low back pain | Psychological stress (marital, work) |
| Chronic pelvic infections | | | Disc disease | Substance abuse (alcohol, narcotics, other drugs) |
| Ovarian cysts | | | Hernias | |
| Residual ovary syndrome | | | | |
| Ovarian remnant syndrome | | | | |
| Post-hysterectomy pain | | | | |
| Pelvic congestion syndrome | | | | |
| Fibroids | | | | |
| Vulvodynia* | | | | |

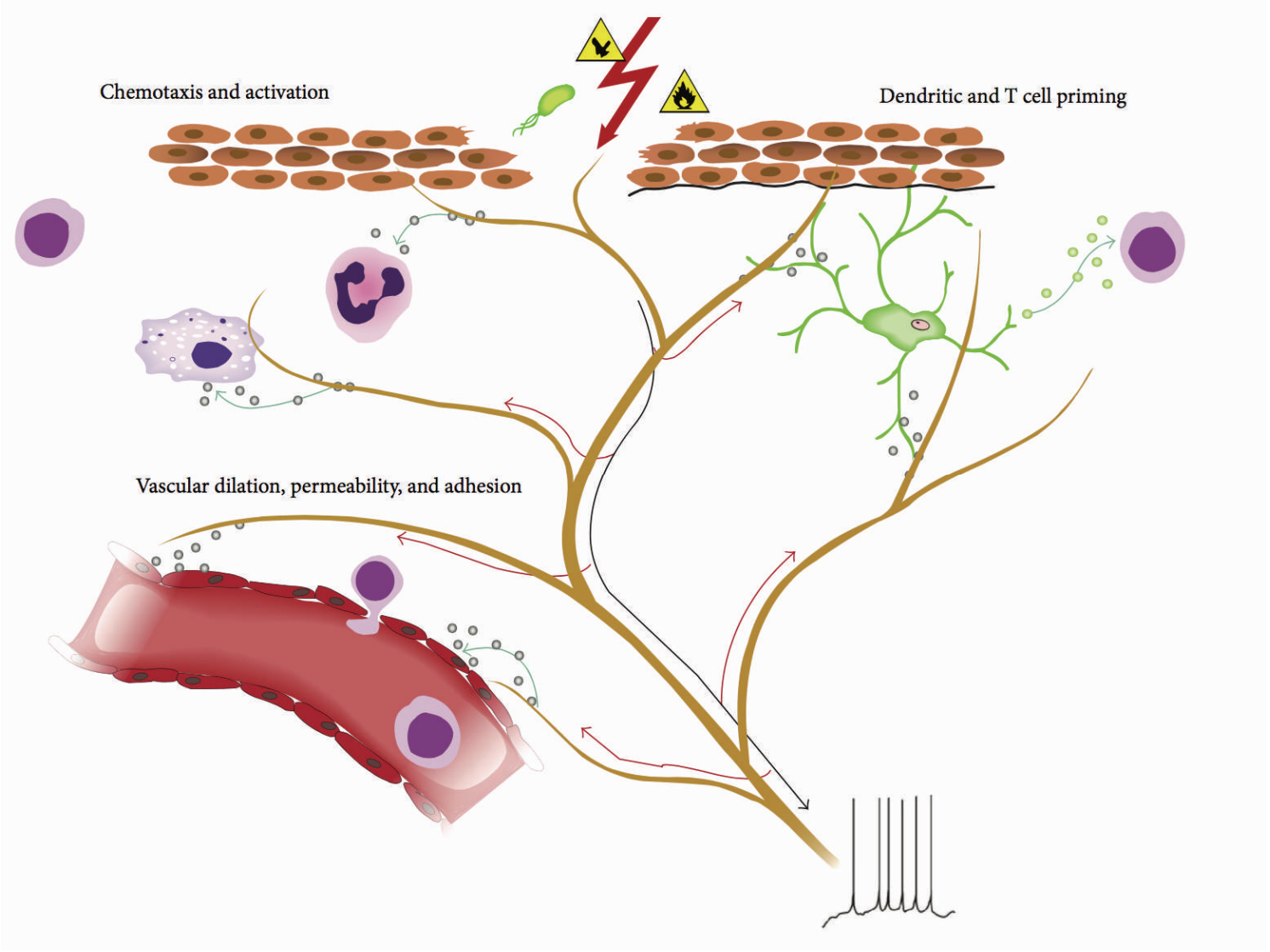


# ANATOMICAL CLASSIFICATION OF UROGENITAL PAIN SYNDROME

- Bladder pain syndrome
- Urethral pain syndrome
- Vulvar pain syndrome
- Vaginal pain syndrome
- Scrotal pain syndrome
- Perineal pain syndrome
- Pelvic pain syndrome

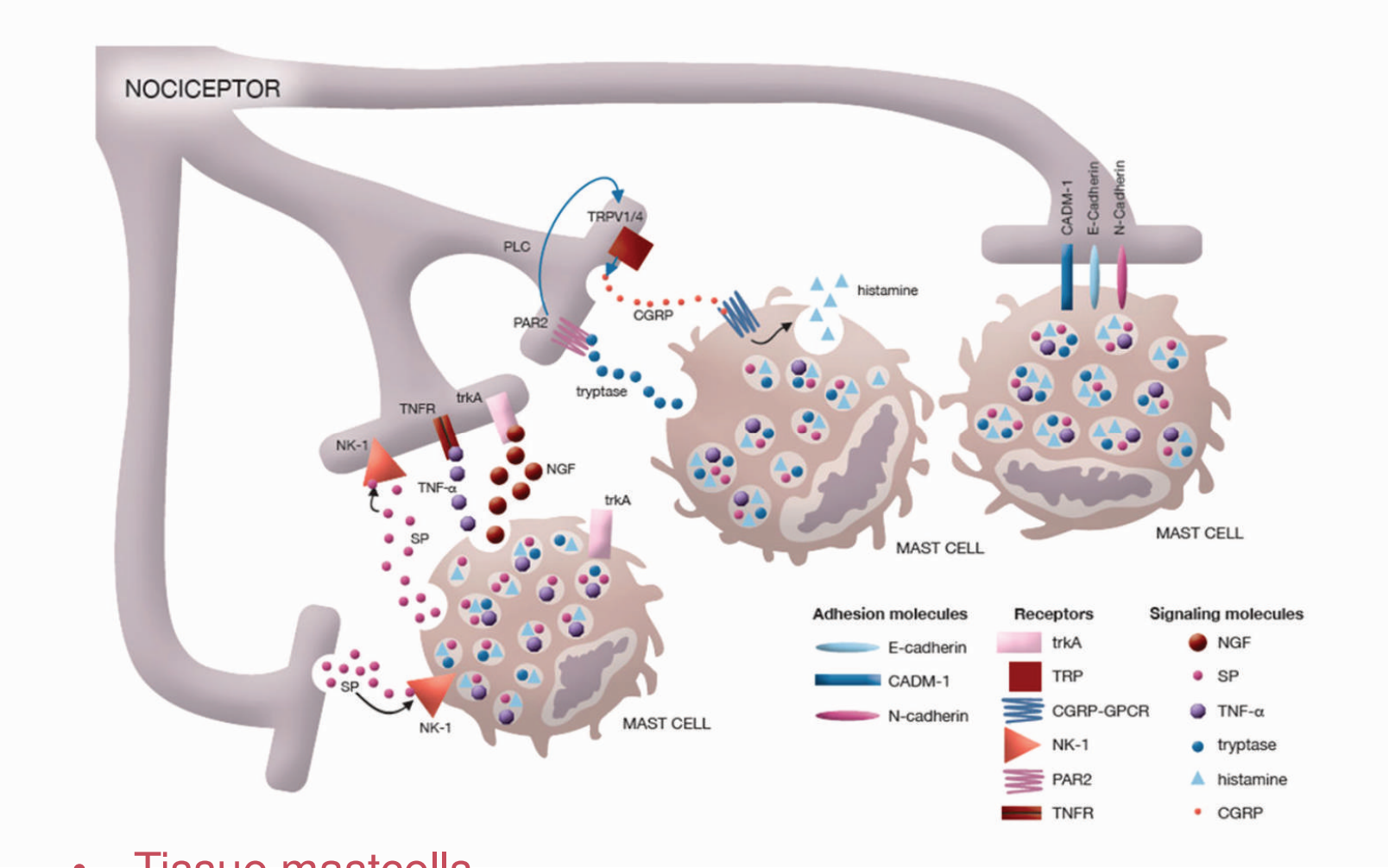


# NEUROGENIC INFLAMMATION



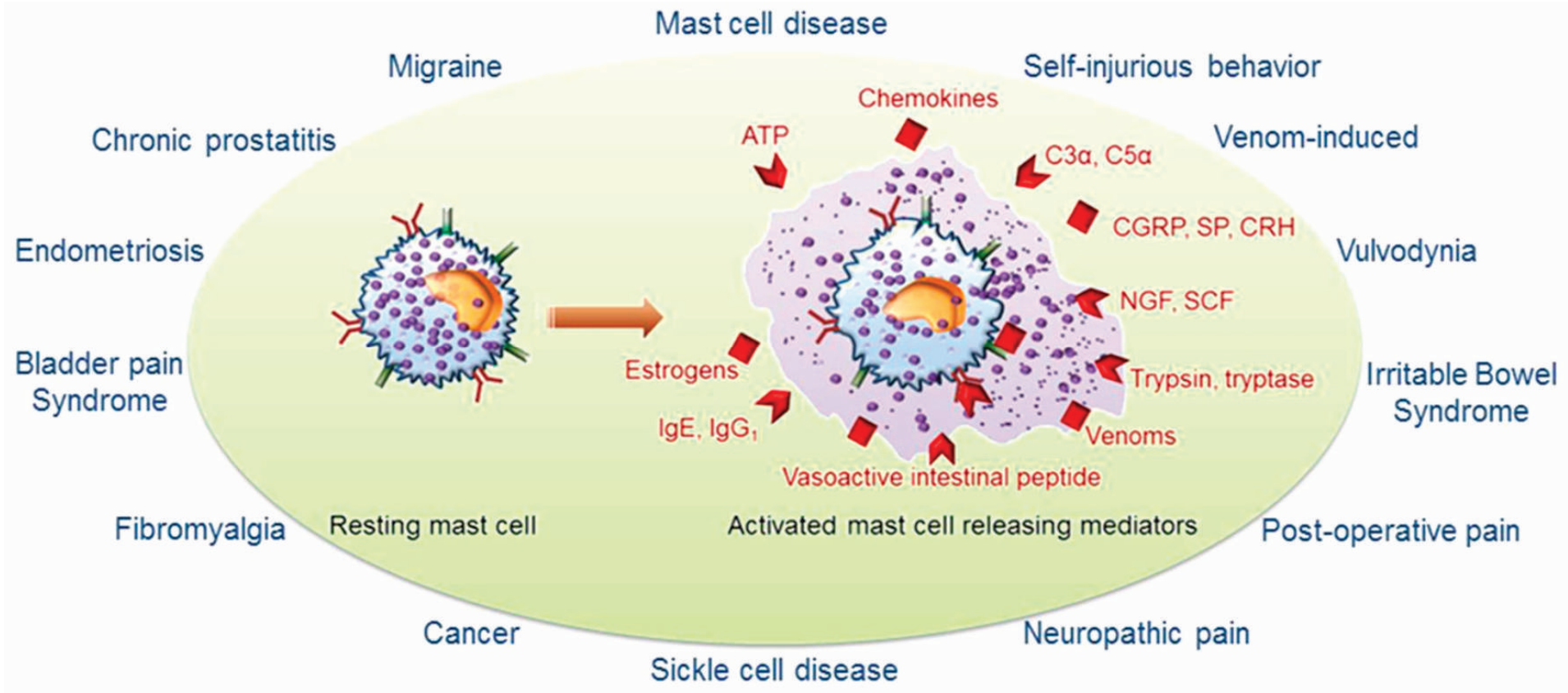

M.Origoni et al BioMed Research International, 2014

# MAST CELL: neuro-immune cross talk for pain modulation




- Tissue mastcells
- Degranulated mastcells
- Mastcells in close proximity of pain fibers

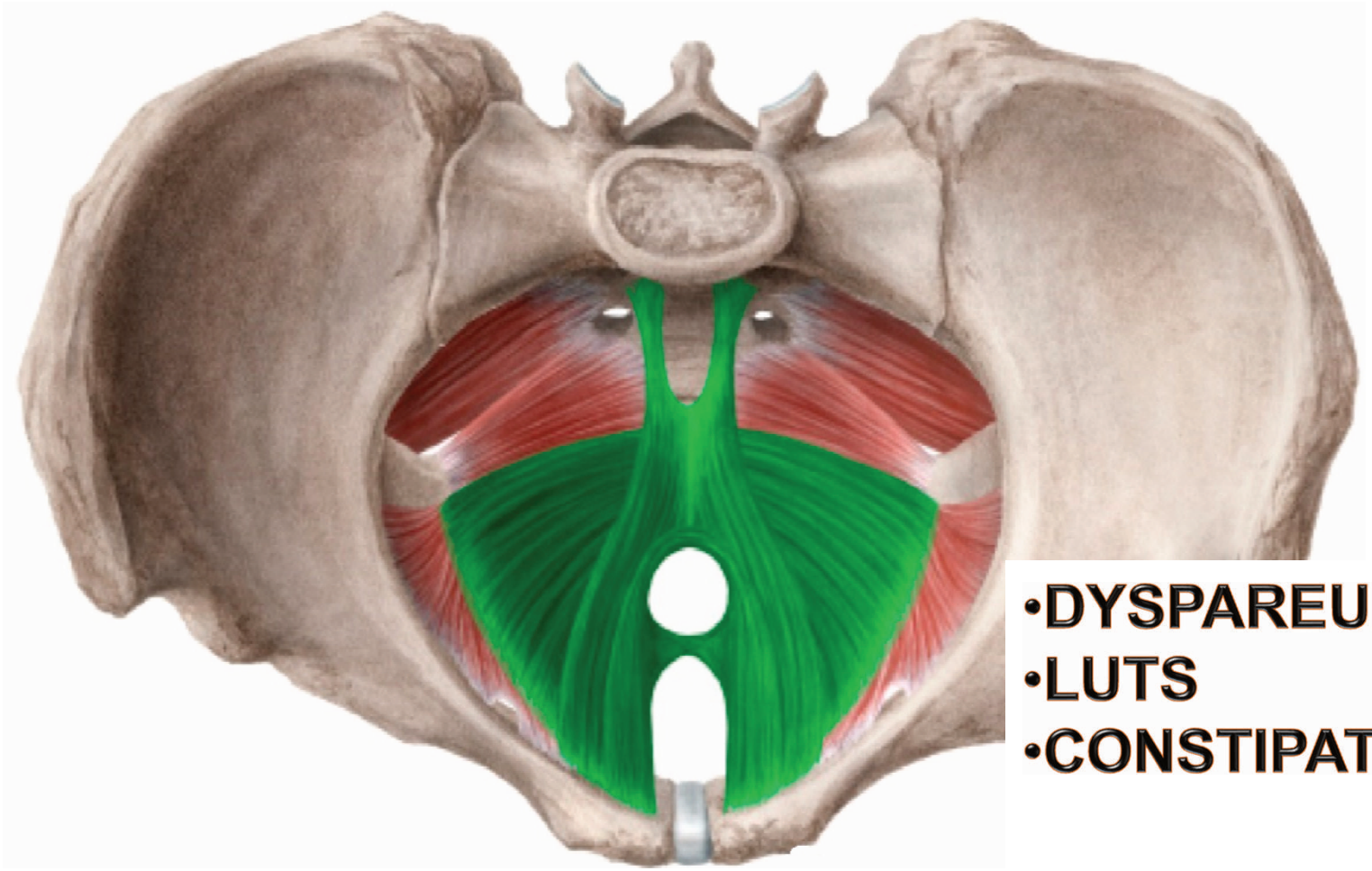
# MAST CELL-ASSOCIATED DISEASE-SPECIFIC PAIN SYNDROMES






A. Aich *2015*

# LEVATOR ANI HYPERACTIVITY

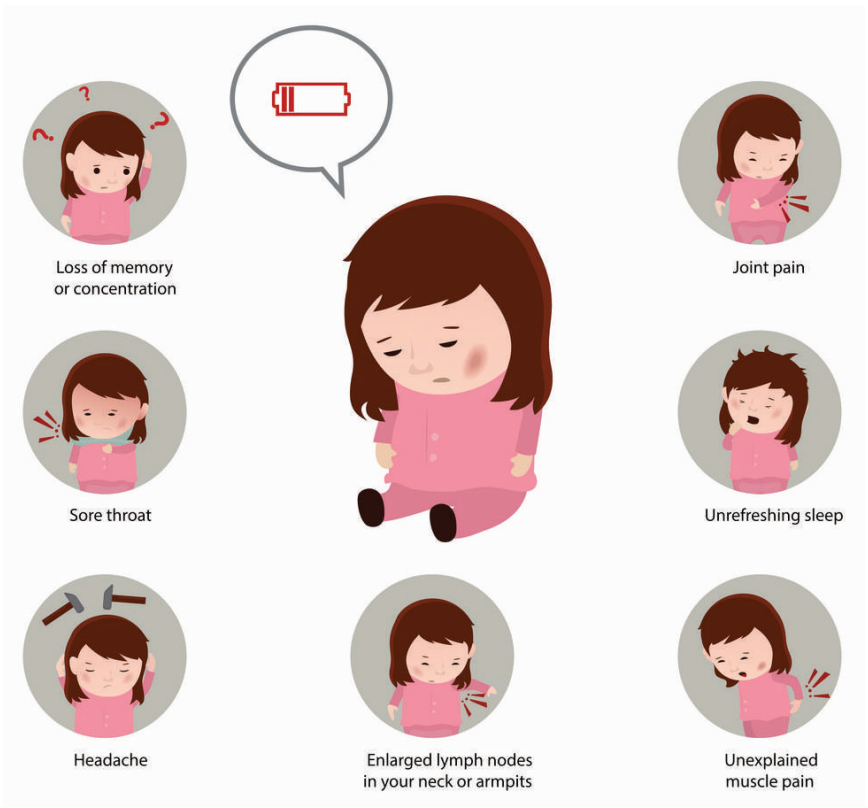


- DYSPAREUNIA
- LUTS
- CONSTIPATION

Bertolasi et Al, 2004; Bergeron et Al, 2001,2002 Glazer et Al, 1999; Graziottin et Al. 1999, 2004; McKay et Al, 2001, Barlow et Al, 2004, 2006, Graziottin & Giovannelli 2006, Graziottin et Al, 2012, 2015, 2016

# EXTRA-PELVIC CO-MORBIDITIES

- Fibromialgya
- Chronic fatigue syndrome
- Sleep dysorders
- Autoimmune disorders




| Symptoms | Signs | Evaluation | Syndrome/disease |
|---|---|---|---|
| Allergies<br>Fatigue<br>Widespread muscular and joint pain<br>Irritation of the eyes<br>Dryness<br>Sleep disorder | Fatigue<br>Skin lesions<br>Dry eye<br>Muscular skeletal tenderness | General medical evaluation<br>Laboratory<br>Imaging | Allergies<br>Chronic pain and fatigue syndrome<br>Systemic autoimmune diseases |

*R. Doggweilwe et al Neur. AND Urodyn. 2016*

| SYMPTOMS | SIGNS | EVALUATION | SYNDROME |
|---|---|---|---|
| Increased daytime frequency<br>Increased night-time frequency | Suprapubic tenderness<br>Tenderness of the bladder | Questionnaires<br>Voiding diary | Hypersensitive bladder<br>Interstitial cystitis/bladder pain syndrome |
| Urgency | Tenderness of the pelvic floor muscles | Urine analysis | Interstitial cystitis/hunner lesion |
| Hypersensitivity<br>Pain, pressure, discomfort with bladder filling<br>Hesitancy<br>Intermittency<br>Feeling of incomplete bladder emptying | | Optional: urine culture/cytology<br>Intravesical anesthetic challenge<br>Urodynamics<br>Cystoscopy (biopsy) | **LUT PAIN** |
| Frequency/urgency painful urination | Tenderness of the urethra | Urine analysis | Urethral pain |
| Sharp burning and/or stabbing<br>Provocation of pain with touch<br>Dysmenorrhea<br>Abnormal menstrual bleeding<br>Dyspareunia<br>Itching, stabbing, burning pain<br>Cyclic, (episodic or persistent) | Erythema<br>Tenderness: uterine, adnexal | Q-tip touch sensitivity test<br>Laboratory testing<br>Pelvic ultrasound<br>Laparoscopy/biopsy<br>CT-scan | **FEMALE GENITAL PAIN**<br>Ovarian Pain<br>Pelvic congestion<br>Uterine pain<br>Tubal pain |
| Pain with defecation<br>Evacuation dysfunction<br>Pain/pressure with sitting<br>Abdominal pain<br>Nausea<br>Constipation/diarrhea<br>Persistent or episodic | Tenderness on rectal examination<br>Abdominal tenderness<br>Bloating | Questionnaire<br>Culture<br>Colonoscopy/biopsy<br>Ultrasound<br>CT/barium enema/MRI | **GASTRO-INTESTINAL PAIN**<br>Ano-rectal pain<br>Colo-rectal pain |
| Abdomino-pelvic-perineal pain<br>Pain at rest, with movement, with sitting, with sexual activity<br>Pain with voiding or bowel evacuation<br>Unilateral or bilateral pain<br>Persistent or episodic | Altered muscle tone<br>Tension; muscle spasms and muscle compliance<br>Stiffness muscle tightness<br>Trigger point tenderness<br>Tender taut band<br>Twitch response, referred pain | Questionnaires<br>Pain mapping<br>Ultrasound | **MUSCULOSKELETAL PAIN**<br>Pelvic muscle pain syndrome<br>Coccyx pain syndrome<br>Pelvic joint, ligament or bony pain |

*R. Doggweilwe et al Neur. AND Urodyn. 2016*

# Recognizing a Chronic Pain Syndrome

1. duration of 6 months or longer
2. incomplete relief by most previous treatments
3. significantly impaired physical function at home or at work
4. signs of depression (sleep disturbance, weight loss, loss of appetite)
5. hypersensitive response to nociceptive stimuli
6. altered family roles



# CLINICAL ASSESSMENT

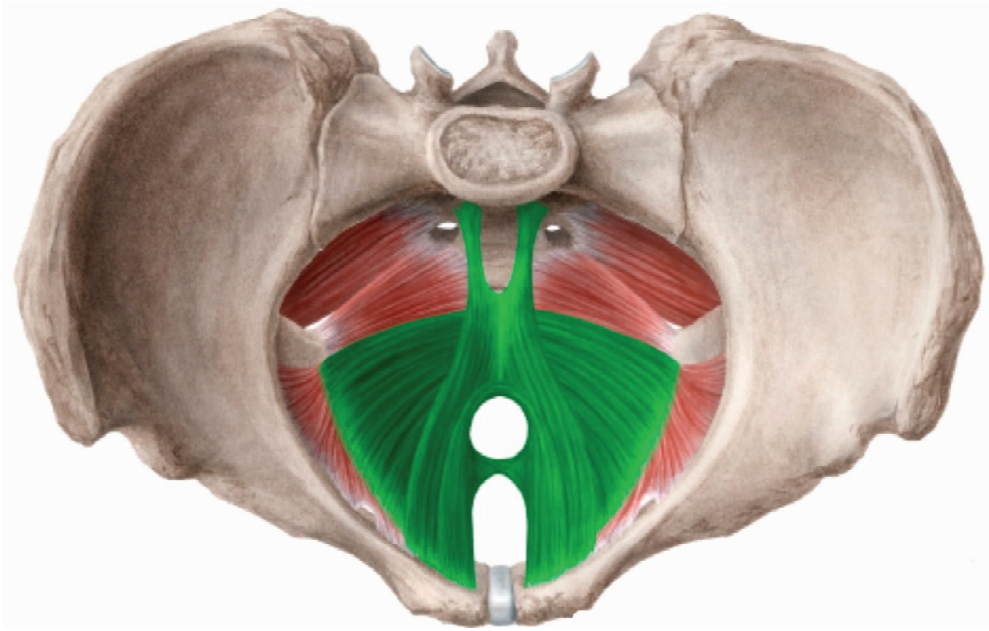



- Location of pain
- Intensity and duration of pain
- Quality of pain
- Relation to the menstrual cycle
- Trigger situation
- Quality of life (partnership, sexuality, work, leisure)

- Observation
- Muscles tenderness (levator plate, piriformis and obturator muscles )
- Muscles tone and control
- Tenderness of cervix utero-sacral ligaments, uterus, adnexa, bladder, and urethra
- Vaginal trigger point
- Size, shape, and mobility of pelvic structures
- Vulvar areas of sensitivity

# LEVATOR ANI HYPERACTIVITY: FUNCTIONAL EVALUATION

- DYSPAREUNIA
- LUTS
- CONSTIPATION



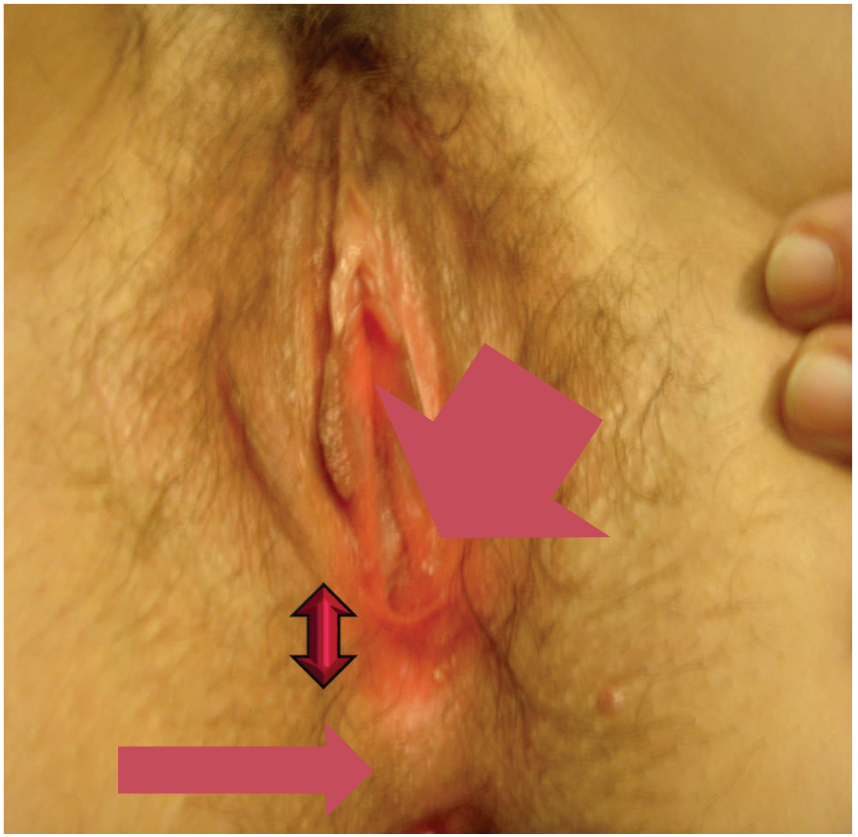
- **Tonus:**
  hyperactive /normal/ hypoactive
- **Myalgia:**
  tender and/or trigger points mono o bilateral
- **Quality of the perineal command**
  (PC test)



Bertolasi et Al, 2004; Bergeron et Al, 2001,2002 Glazer et Al, 1999; Graziottin et Al. 1999, 2004; McKay et Al, 2001, Barlow et Al, 2004, 2006, Graziottin & Giovannelli 2006, Graziottin et Al, 2012, 2015, 2016

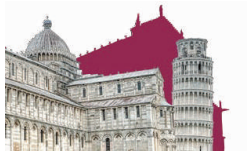
# Vestibular erythema and pelvic floor defensive contraction





# ITEMS

- PATHOPHISIOLOGY OF CHRONIC PAIN
- CHRONIC PELVIC PAIN SYNDROMES (CPPS)
- POST-OPERATIVE PELVIC PAIN (PPOP)
- CPSS MANAGEMENT



# PAIN AND PF SURGERY

- PF reconstructive surgery is a functional surgery
- It is meant to improve quality of life and pelvic organ function
- We always inform our patients thoroughly about the risk of DVT, bleeding, infections…
- But how often do we discuss the possibility of developing or worsening pelvic pain?



# PREVALENCE OF PAIN AFTER PF SURGERY

**TABLE 1.** Prevalence of PPOP After Common Surgical Procedures

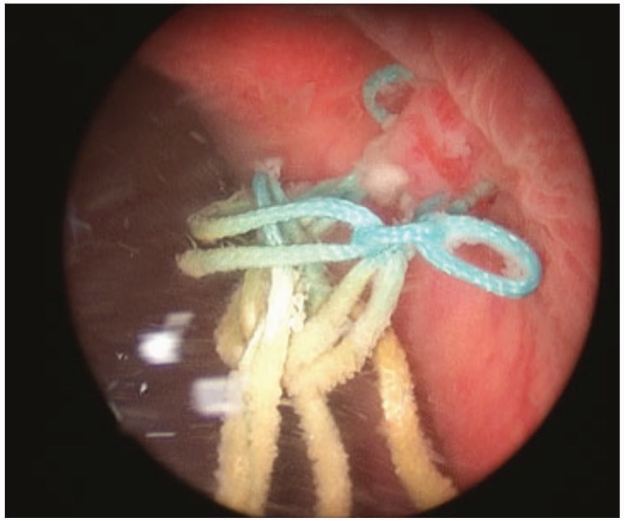
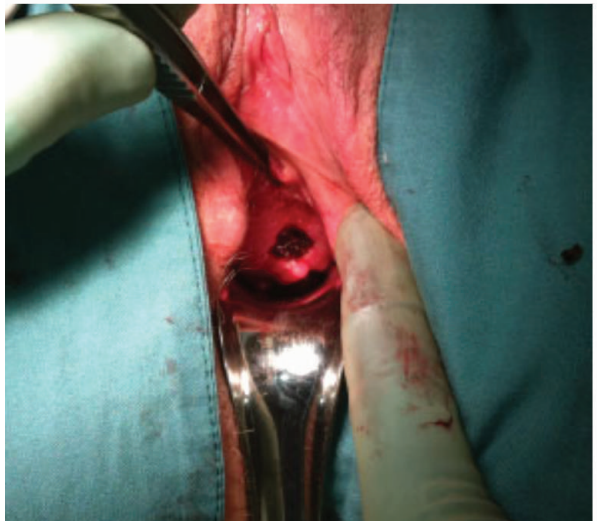
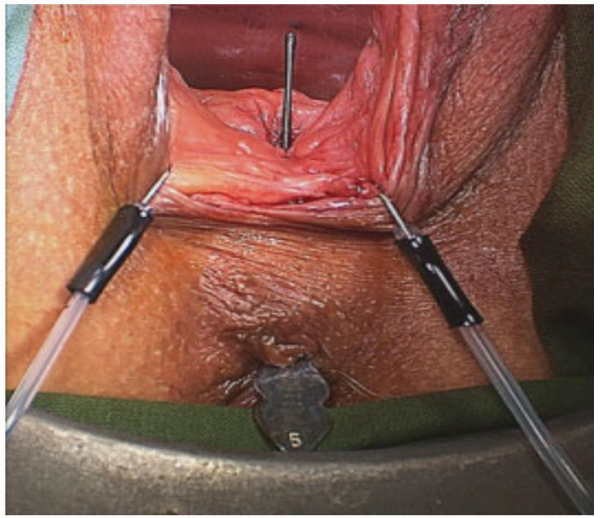
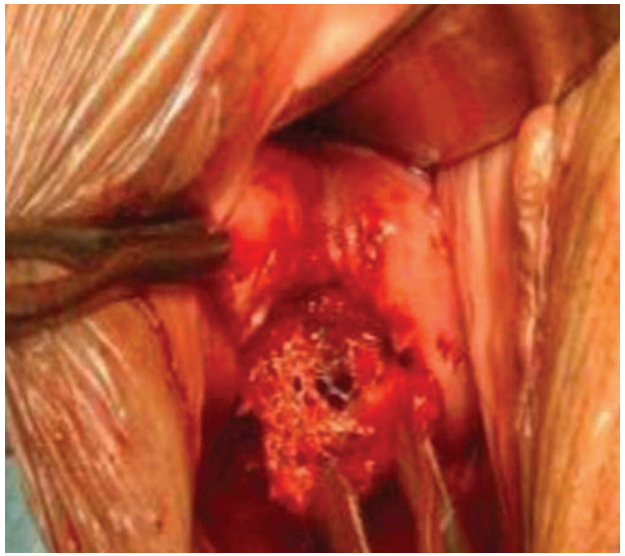
| | |
|---|---|
| Cesarean delivery | 10% with 4% severe debilitating pain |
| Midurethral sling | 0%–30% |
| Posterior colporraphy | Up to 25% (especially with levatorplasty) |
| Sacrospinious ligament suspension | 10% to 15% (2% requiring intervention for resolution) |
| Transvaginal mesh | 11.7%–19% |
| Sacrocolpopexy | unknown% (but 10.5% mesh erosion with most presenting with complaints of pain) |

- Pain is not infrequent after PF surgery
- Persistent dyspareunia and vaginal pain have been reported in both native tissue as well as mesh-augmented repairs



Moore and Miklos: Vaginal mesh kits for pelvic organ prolapse, friend or foe: a comprehensive review Scientific World Journal 2009;9:163–189

# PROSTHETIC SURGERY SPECIFIC COMPLICATIONS



# IUGA/ICS Classification of Complications Related to Female Pelvic Floor Surgery

| | General Description | A (Asymptomatic) | B (Symptomatic) | C (Infection) | D (Abscess) |
|---|---|---|---|---|---|
| 1 | **Vaginal**: no epithelial separation<br>Include prominence or excessive scarring.<br>Vaginal invagination. Grades of pain from table 3 incorporated | **1A**: Abnormal finding on clinical examination | **1B**: Symptomatic e.g. unusual discomfort / pain; dyspareunia (either partner); bleeding | **1C**: Infection (suspected or actual) | **1D** = Abscess |
| 2 | **Vaginal**: smaller epithelial separation or ulcer ≤ 1cm | **2A**: Asymptomatic | **2B**: Symptomatic | **2C**: Infection | **2D** = Abscess |
| 3 | **Vaginal**: larger >1cm epithelial separation or ulcer or suture extrusion | **3A**: Asymptomatic<br>1-3A*a* if no surgery related pain | **3B**: Symptomatic<br>1-3B (*b-e*) if surgery related pain | **3C**: Infection<br>1-3C /1-3D (*b-e*) if surgery related pain | **3D** = Abscess |
| 4 | **Urinary Tract**: compromise or perforation<br>Include fistula and calculus | **4A**: Small intraoperative defect e.g. bladder perforation | **4B**: Other lower urinary tract complication or urinary retention | **4C**: Ureteric or upper urinary tract complication | |
| 5 | **Rectal or Bowel**: compromise or perforation<br>include perforation and fistula | **5A**: Small intraoperative defect (rectal or bowel) | **5B**: Rectal injury or compromise | **5C**: Small or Large bowel injury or compromise | **5D** = Abscess |
| 6 | **Skin and / or musculoskeletal**: complications<br>including discharge, pain, lump or sinus tract formation | **6A**: Asymptomatic, abnormal finding on clinical examination | **6B**: Symptomatic e.g. discharge, pain or lump | **6C**: Infection e.g. sinus tract formation | **6D** = Abscess |
| 7 | **Patient**: compromise<br>including hematoma or systemic compromise | **7A**: Bleeding complication including hematoma | **7B**: Major degree of resuscitation or intensive care* including septic hematoma | **7C**: Mortality *<br>*(additional complication - if no site is applicable - **S 0**) | |

**TIME (clinically diagnosed)**

**T1**: Intraoperative to 48 hours **T2**: 48 hours to 2 months

**SITE**

**S1**: Vaginal: area of suture line **S2**: Vaginal: away from from area of suture line **S3**: Adjoining vis e.g. bladder or b

**N.B.**
1. **Multiple complications may occur in the same patient. There may be early an same patient. i.e. All complications to be listed. Tables of complications may**
2. **The highest final category for any single complication should be used if there**
3. **Urinary tract infections and functional issues (apart from 4B) have not been ir**

**CATEGORY**

| | General Description | A (Asymptomatic) | B (Symptomatic) | C (Infection) | D (Abscess) |
|---|---|---|---|---|---|
| 1 | **Vaginal**: no epithelial separation<br>Include prominence (e.g. due to wrinkling or folding), mesh fibre palpation or contraction (shrinkage) | **1A**: Abnormal prosthesis or graft finding on clinical examination | **1B**: Symptomatic e.g. unusual discomfort / pain; dyspareunia (either partner); bleeding | **1C**: Infection (suspected or actual) | **1D** = Abscess |
| 2 | **Vaginal**: smaller ≤ 1cm exposure | **2A**: Asymptomatic | **2B**: Symptomatic | **2C**: Infection | **2D** = Abscess |
| 3 | **Vaginal**: larger >1cm exposure, or any extrusion | **3A**: Asymptomatic<br>1-3Aa if no prosthesis or graft related pain | **3B**: Symptomatic<br>1-3B (*b-e*) if prosthesis or graft related pain | **3C**: Infection<br>1-3C /1-3D (*b-e*) if prosthesis or graft related pain | **3D** = Abscess |
| 4 | **Urinary Tract**: compromise or perforation<br>Including prosthesis (graft) perforation, fistula and calculus | **4A**: Small intraoperative defect e.g. bladder perforation | **4B**: Other lower urinary tract complication or urinary retention | **4C**: Ureteric or upper urinary tract complication | |
| 5 | **Rectal or Bowel**: compromise or perforation<br>including prosthesis (graft) perforation and fistula | **5A**: Small intraoperative defect (rectal or bowel) | **5B**: Rectal injury or compromise | **5C**: Small or Large bowel injury or compromise | **5D** = Abscess |
| 6 | **Skin and / or musculoskeletal**: complications<br>including discharge pain lump or sinus tract formation | **6A**: Asymptomatic, abnormal finding on clinical examination | **6B**: Symptomatic e.g. discharge, pain or lump | **6C**: Infection e.g. sinus tract formation | **6D** = Abscess |
| 7 | **Patient**: compromise<br>including hematoma or systemic compromise | **7A**: Bleeding complication including haematoma | **7B**: Major degree of resuscitation or intensive care* | **7C**: Mortality *<br>*(additional complication - no site applicable - **S 0**) | |

**TIME (clinically diagnosed)**

**T1**: Intraoperative to 48 hours **T2**: 48 hours to 2 months **T3**: 2 months to 12 months **T4**: over 12 months

**SITE**

**S1**: Vaginal: area of suture line **S2**: Vaginal: away from from area of suture line **S3**: Trocar passage Exception: Intra-abdominal (**S5**) **S4**: other skin or musculoskeletal site **S5**: Intra-abdominal

**N.B.**
1. **Multiple complications may occur in the same patient. There may be early and late complications in the same patient. i.e. All complications to be listed. Tables of complications may often be procedure specific.**
2. **The highest final category for any single complication should be used if there is a change over time. (patient 888)**
3. **Urinary tract infections and functional issues (apart from 4B) have not been included.**

IUGA ICS

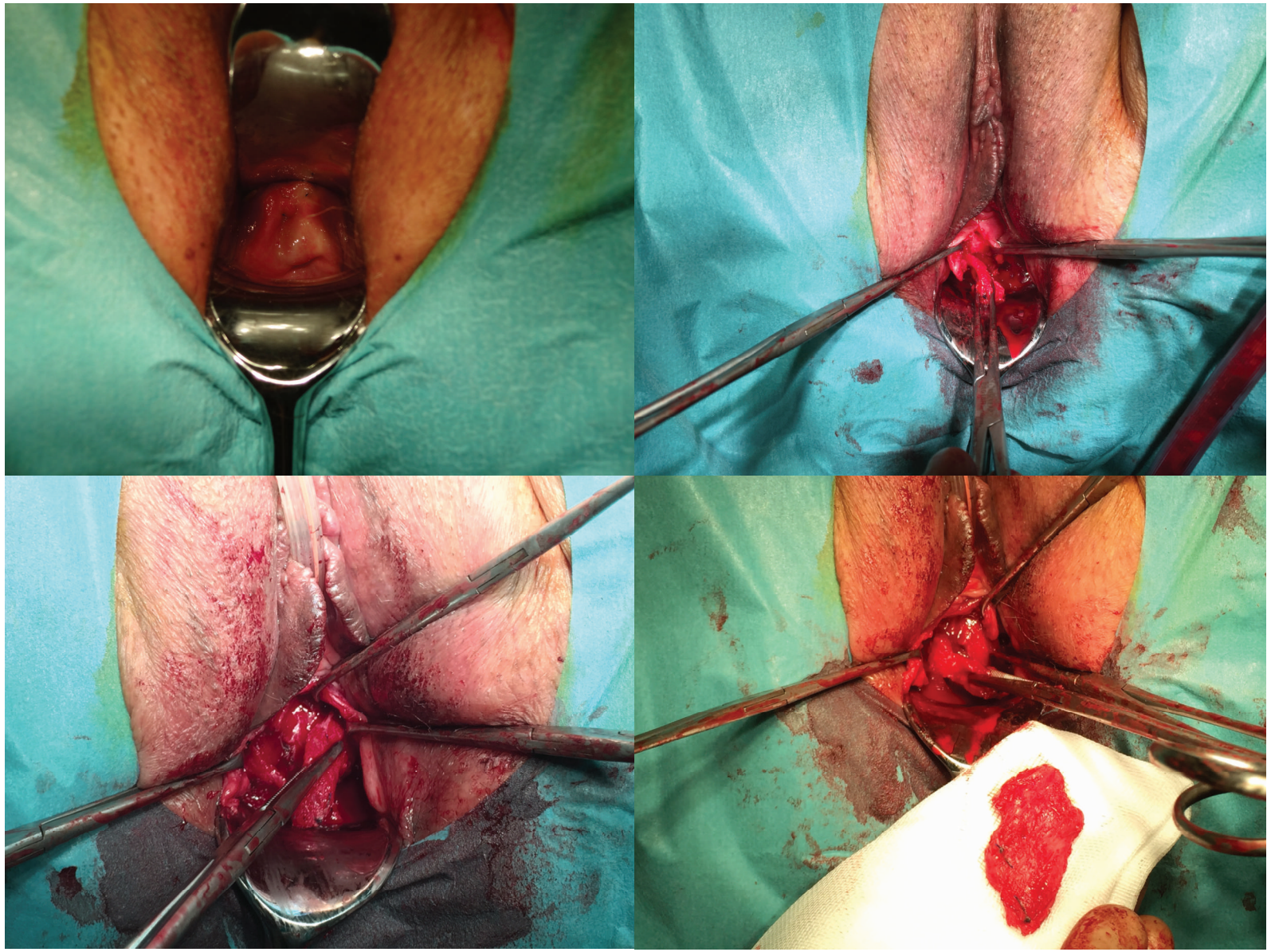
**CODE** ☐☐☐ - **T** ☐ - **S** ☐

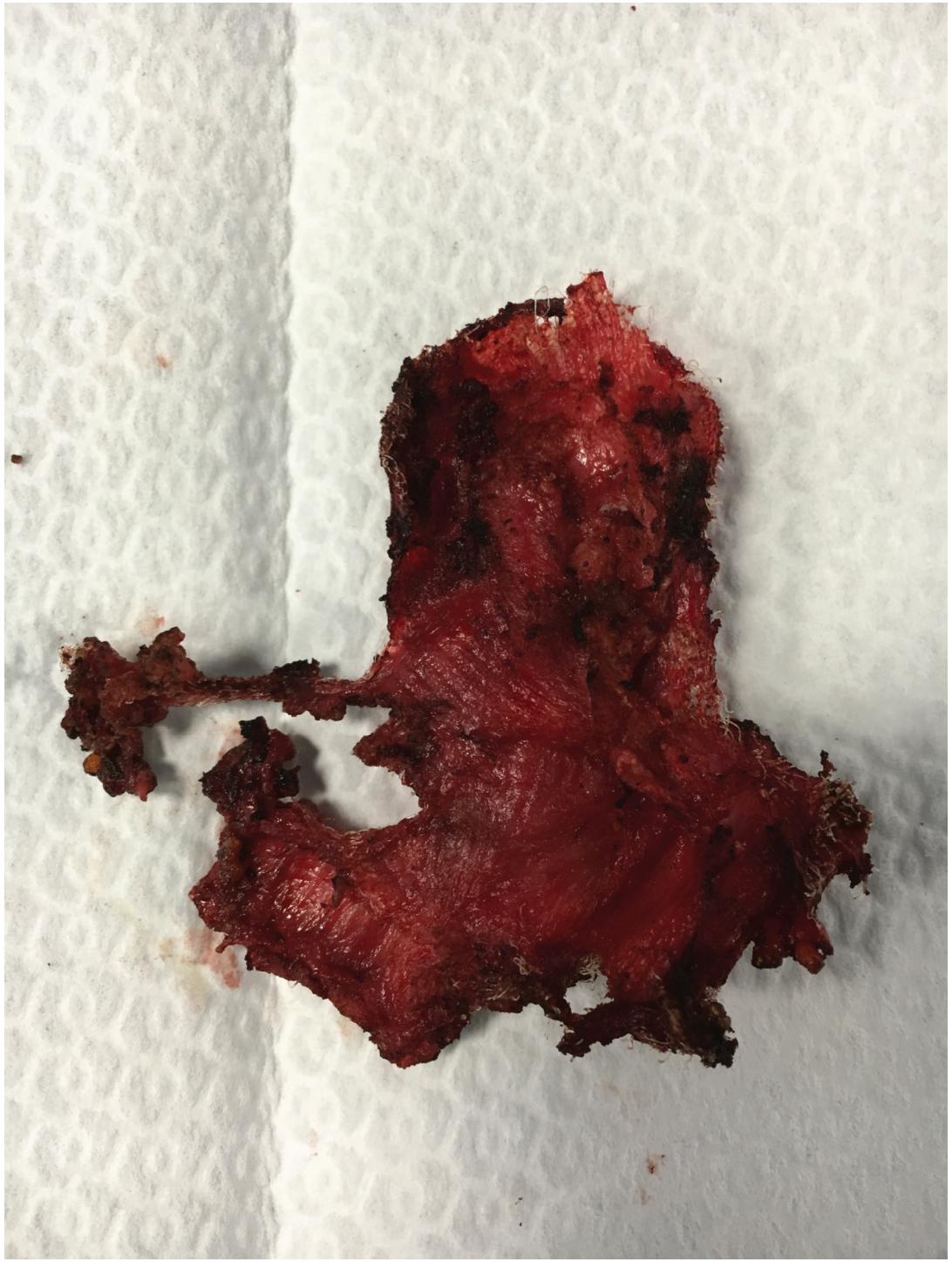


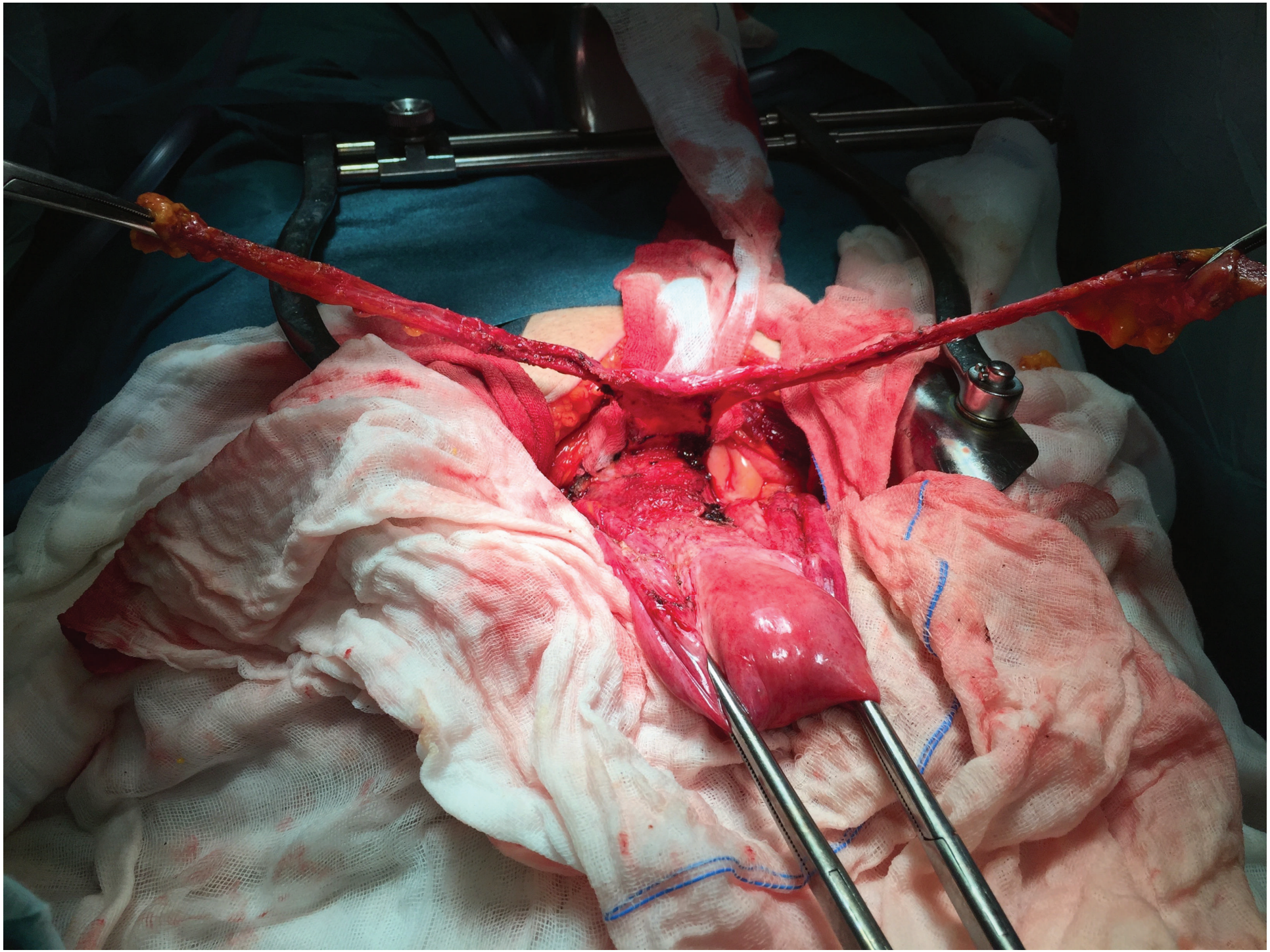
# IUGA/ICS Subclassification of Complication Categories to Specify the Presence of Pain Associate

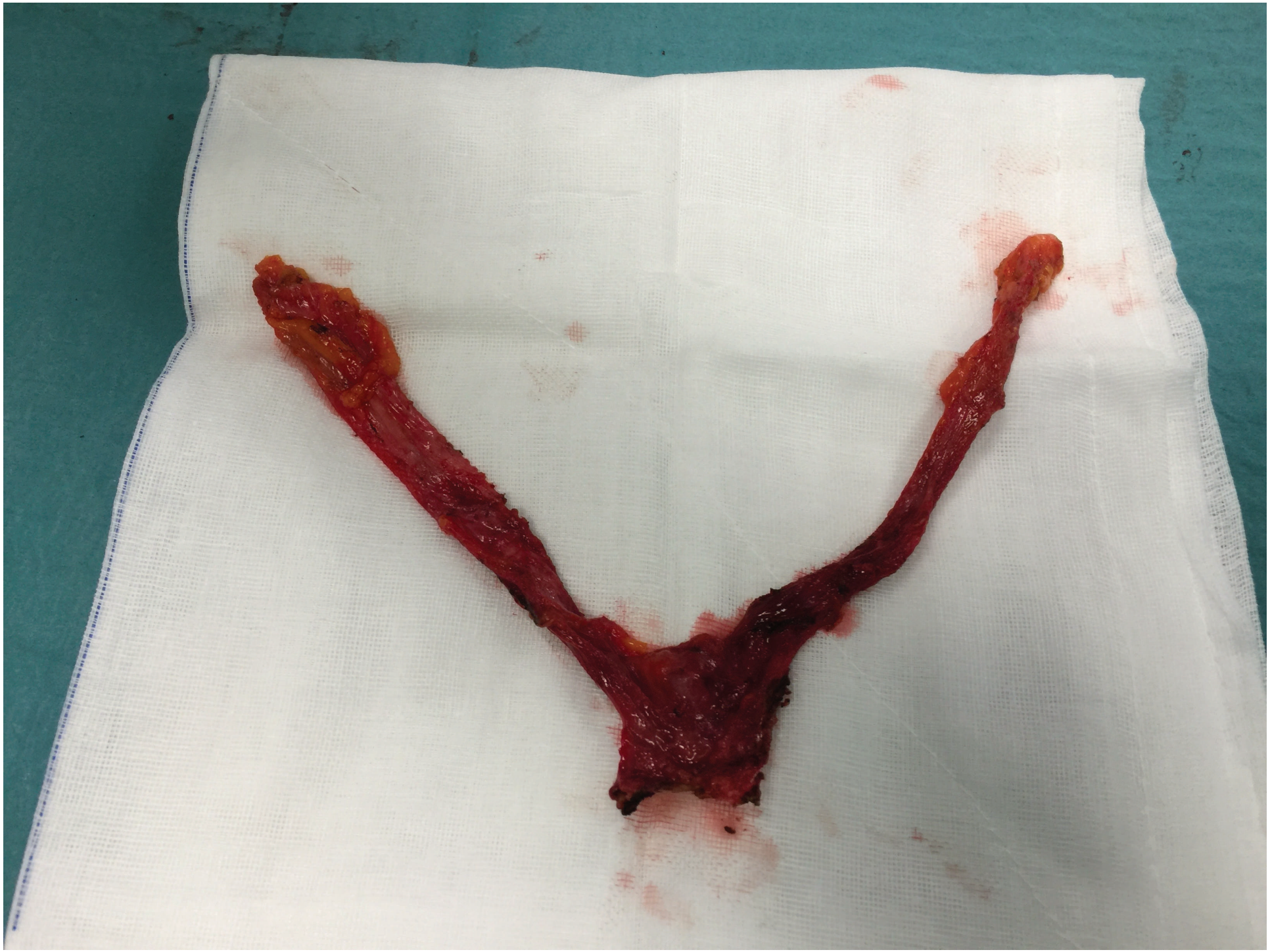
| GRADE OF PAIN | SYMPTOMS |
|---|---|
| a | Asymptomatic or no pain |
| b | Provoked pain only (during vaginal examination) |
| c | Pain during intercourse |
| d | Pain during physical activities |
| e | Spontaneous pain |











# Prevention of pain

Subtle symptoms of chronic pain are all possible manifestations of a pre-existing pain disorder that might involve central sensitization

Surgery is just ONE of the pain triggers

TABLE 2. Risk Factors for PPOP

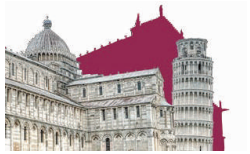
| | |
|---|---|
| Chronic pain disorders | Bladder symptoms |
| IC/PBS | Urinary hesitancy |
| Vulvodynia | Urinary frequency |
| Chronic pelvic pain | Recurrent UTIs |
| Levator myalgia | Childhood bladder disorders |
| History of | Urodynamic findings of |
| Primary dyspareunia | Elevated urethral pressures (>130) |
| Tampons causing pain | Hesitancy w/pseudo dyssynergia |
| Prolapse symptoms worse than examination | Urethral allodynia (during or after) |
| Pessary use caused pain | Miscellaneous |
| Functional obstructed defection | Repeated surgeries |
| Dyschesia or anal fissures | Genetic predisposition/family Hx |
| Life-long constipation | Younger age |
| Previous surgery with poor PO pain experience | |
| Anxiety/PTSD/catastrophizing | |
| Voiding dysfunction after surgery | |

IC indicates interstitial cystitis; Hx, history; PBS, painful bladder syndrome; PTSD, post traumatic stress disorder; UTI, urinary tract infection.

- ***If preoperative pain, this should be treated before surgery***
- ***Consider that if the patient has low grade pain, it can worsen after surgery***
- ***Surgical procedures done for pain should be preceded by nonsurgical pain treatment***

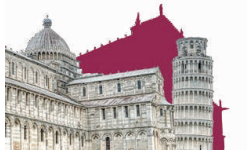
# ITEMS

- PATHOPHISIOLOGY OF CHRONIC PAIN
- CHRONIC PELVIC PAIN SYNDROMES (CPPS)
- POST-OPERATIVE PELVIC PAIN (PPOP)
- CPSS MANAGEMENT



# CPP TREATMENT

**Multimodal approach**



# PHARMACOTHERAPY: TARGET SITES

Lymbic System

Tricyclics, SSRI, SNRI, Melatonin, Ondansetron

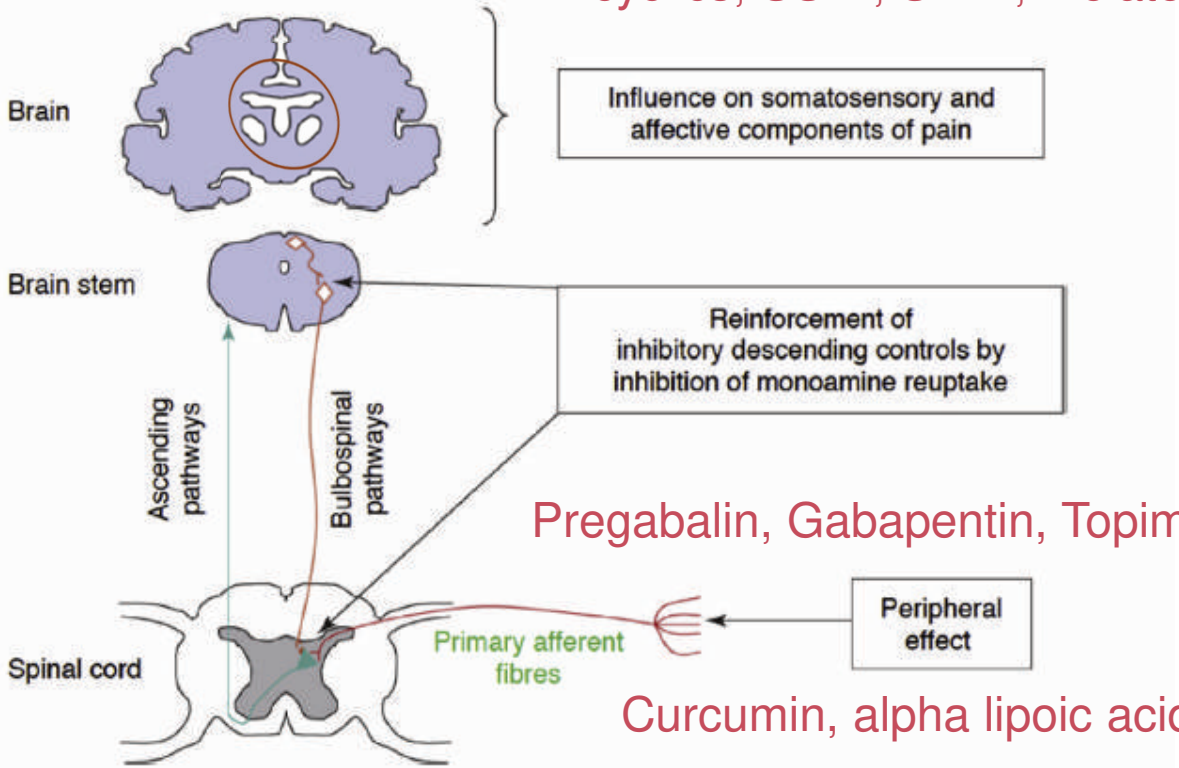



Fig. 2. Descending inhibitory pain system. (*From* Mico JA, Ardid D, Berrocoso E, et al. Antidepressants and pain. Trends Pharmacol Sci 2006;27:352; with permission.)

Pregabalin, Gabapentin, Topimarate, Dextro-methorphane

Curcumin, alpha lipoic acid, B12, anti oxidants …



# NEUROPATHIC PAIN TREATMENT

MAYO CLINIC

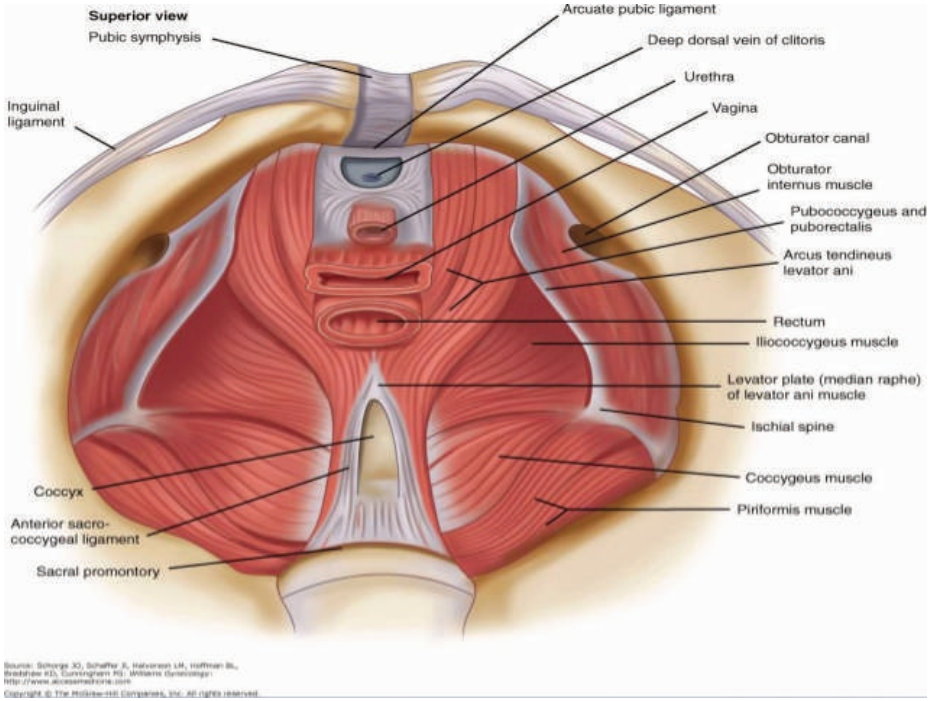
**TABLE 3. Neuropathic Pain Treatment Tiers[a]**

| Agent | Dosing | Maximum dosage | Precautions | Common and notable adverse effects | Comorbid conditions treated | Comments |
|---|---|---|---|---|---|---|
| Tier 1 | | | | | | |
| Anticonvulsants | | | | | | |
| Gabapentin[b] | 300 mg at bedtime, increase every 4-7 d by 300-mg increments initially to 3 times daily, then to goal of 1800 mg/d as necessary to 3600 mg/d | 3600 mg/ d (split TID) | Renal insufficiency (dosage adjust); risk of seizure if abruptly stopped | Sedation, dizziness, confusion, edema, tremor | Seizure disorder, sleep disturbance, chronic migraine, hot flashes | 100-mg increments available for slower titration; no notable drug interactions |
| Pregabalin[b] | 75 mg twice daily; after 4-7 d, increase by same dosage to goal of 300 mg/d as necessary to 600 mg/d | 600 mg/d (split BID) | Renal insufficiency (dosage adjust); risk of seizure if abruptly stopped; psychiatric disease or addiction history (euphoria risk) | Sedation, dizziness, confusion, edema, tremor, euphoria (Schedule V controlled substance) | Seizure disorder, sleep disturbance, fibromyalgia, central pain related to spinal cord injury, anxiety | Can split 3 times daily but better compliance with 2 times daily dosing with similar efficacy; 25- and 50-mg dosing available for slower titration; no notable drug interactions |
| Antidepressants | | | | | | |
| Amitriptyline, nortriptyline[b] | 10-25 mg at bedtime, increase every 4-7 d to goal of 100 mg at bedtime | 150 mg/d | Risk of serotonin syndrome; caution if cardiac disease or dysrhythmia history | Sedation, dry mouth, orthostatic hypotension, confusion, weight gain, urinary retention, constipation, blurred vision | Depression, fibromyalgia, chronic migraine, sleep disturbance, irritable bowel syndrome | Goal dosing for pain usually inadequate for mood effect; higher dosages (~100 mg/d) often necessary for neuropathic pain; secondary amine TCAs (nortriptyline, desipramine) have lower adverse effect profile than tertiary amine TCAs (amitriptyline) |
| Duloxetine[b] | 20-30 mg once daily, then increase weekly by same dosage to goal of 60 mg/d | 120 mg/d (split BID) | Risk of serotonin syndrome; increased bleeding risk (care with anticoagulants), withdrawal syndromes with abrupt discontinuation, caution with hepatic failure | Sedation, fatigue, nausea, hyperhidrosis, dizziness, modest hypertension | Depression, anxiety, fibromyalgia, chronic musculoskeletal pain, urinary incontinence | Dosing for neuropathic pain is adequate for treatment of depression/anxiety |
| Supplements | | | | | | |
| α-Lipoic acid | 600 mg once daily | 600 mg/d | Caution if tendency toward hypoglycemia | Nausea, rash, hypothyroidism | None | Generally well tolerated |
| Acetyl-L-carnitine | 1000 mg 3 times per day | 3000 mg/d (split TID) | None | Nausea, bloating, agitation | None | Generally well-tolerated |
| Topicals | | | | | | |
| Lidocaine (5%) patch | Apply patch for 12 h | 3 patches per application | Avoid over broken skin | Localized skin irritation; no notable systemic toxicity | None | May cut patch to shape |

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# MUSCLE SPASM TREATMENT

***- Deep heat and massage***
***- Muscle relaxants***
***- Stress management and muscle relaxation techniques***
***- Transcutaneous electrical nerve stimulation (TENS)***

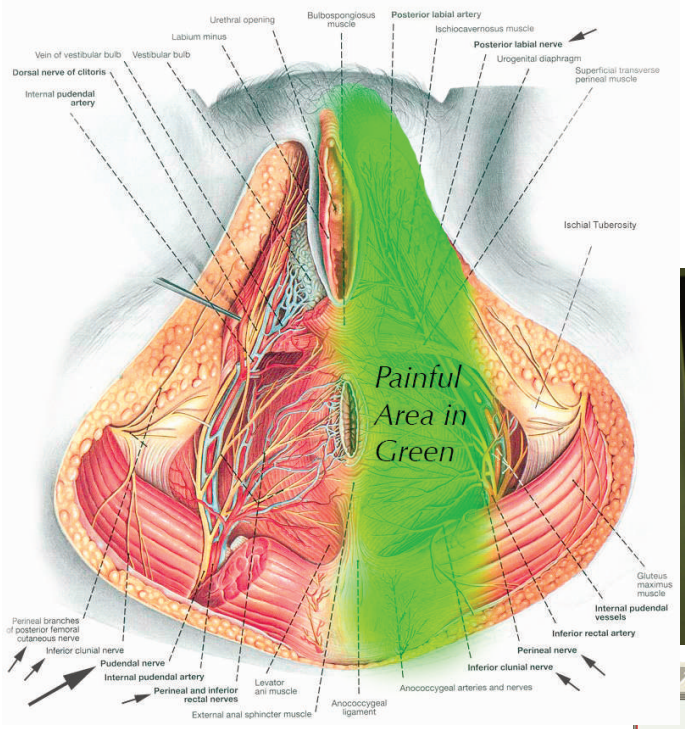


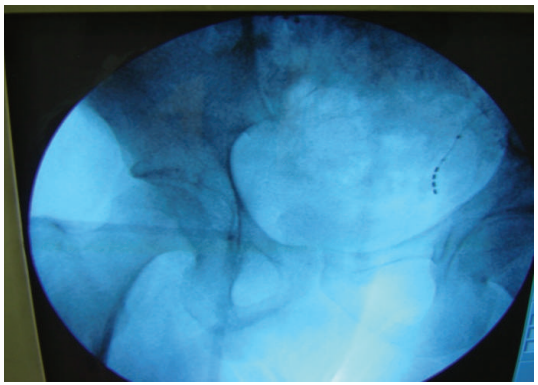


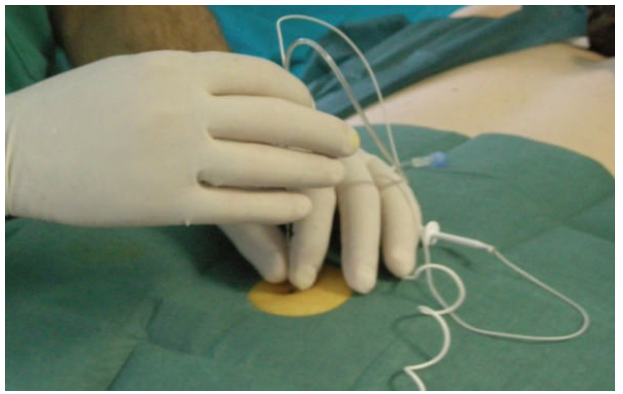


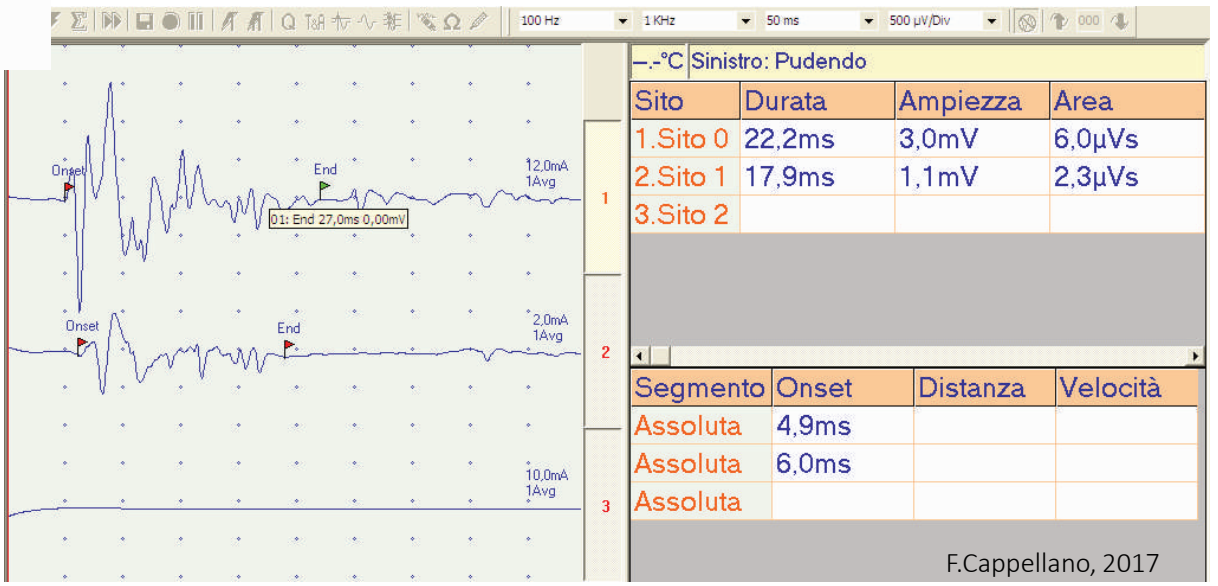

# NERVE BLOCKS

## *Pudendal nerve block*








–.-°C Sinistro: Pudendo

| Sito | Durata | Ampiezza | Area |
|---|---|---|---|
| 1.Sito 0 | 22,2ms | 3,0mV | 6,0µVs |
| 2.Sito 1 | 17,9ms | 1,1mV | 2,3µVs |
| 3.Sito 2 | | | |

| Segmento | Onset | Distanza | Velocità |
|---|---|---|---|
| Assoluta | 4,9ms | | |
| Assoluta | 6,0ms | | |
| Assoluta | | | |



# SACRAL NEUROMODULATION



*Aust N Z J Obstet Gynaecol* 2018; 58: 102–107

DOI: 10.1111/ajo.12752

ANZJOG

ORIGINAL ARTICLE

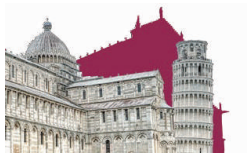
## Sacral neuromodulation for pelvic pain and pelvic organ dysfunction: A case series

Thierry Vancaillie[1,2,3], Lauren Kite[1,2], Elizabeth Howard[2] and Jason Chow[1,2,4]

52 patients had SNM

**32 patients reported pelvic pain improvement (95%CI:2.60-4.27, p<0.0001)**

**35 patients reported quality of life improvement**



# CPP TREATMENT

