# PELVIC FLOOR DISORDERS IN FEMALE CANCER SURVIVORS

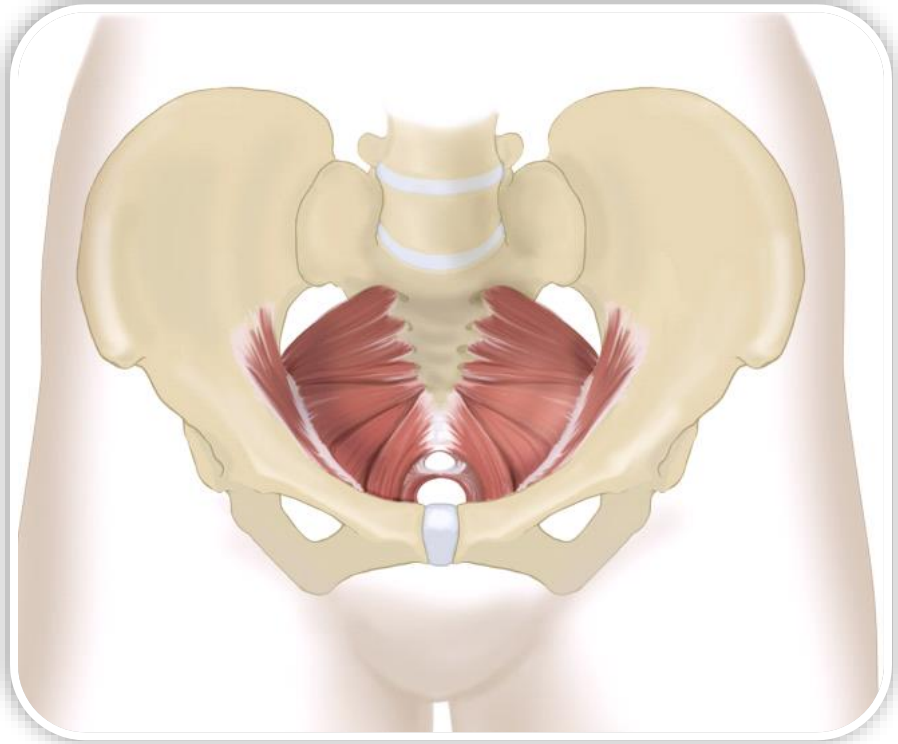
CHRISTOPHER CHUNG, MD

Assistant Clinical Professor
Division of Gynecologic Oncology
City of Hope National Medical Center

# Disclosures

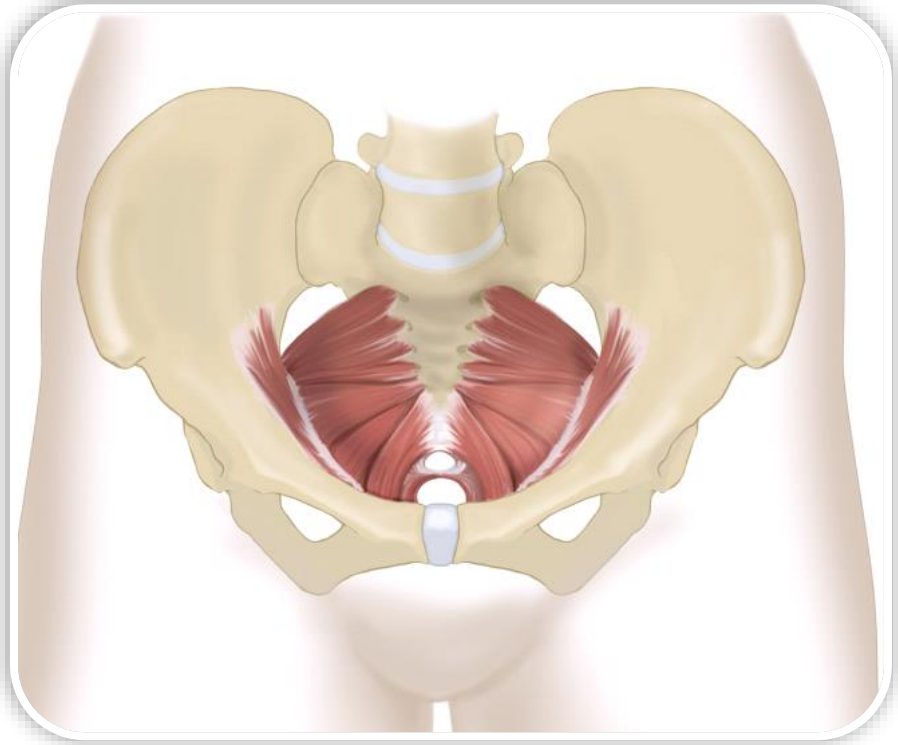
- I have nothing to disclose.

# Pelvic Floor Disorders



- Urinary, fecal and flatal incontinence
- Pelvic organ prolapse
- Fistula
- Pelvic pain disorders

# Pelvic Floor Disorders



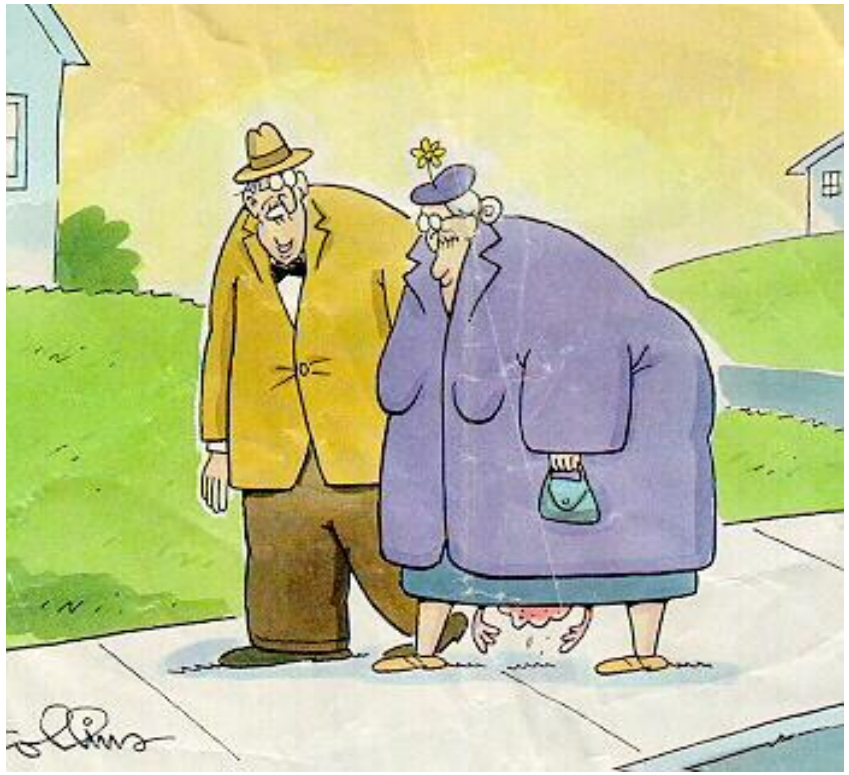
- Urinary, fecal and flatal incontinence
- Pelvic organ prolapse
- Fistula
- Pelvic pain disorders
  - Vulvovaginal symptoms
  - Vaginal stenosis

# 1 in 2-3 women


- One in two to three women will experience a pelvic floor disorder in her lifetime

# Pelvic Organ Prolapse

"Agnes…Your uterus is showing again"



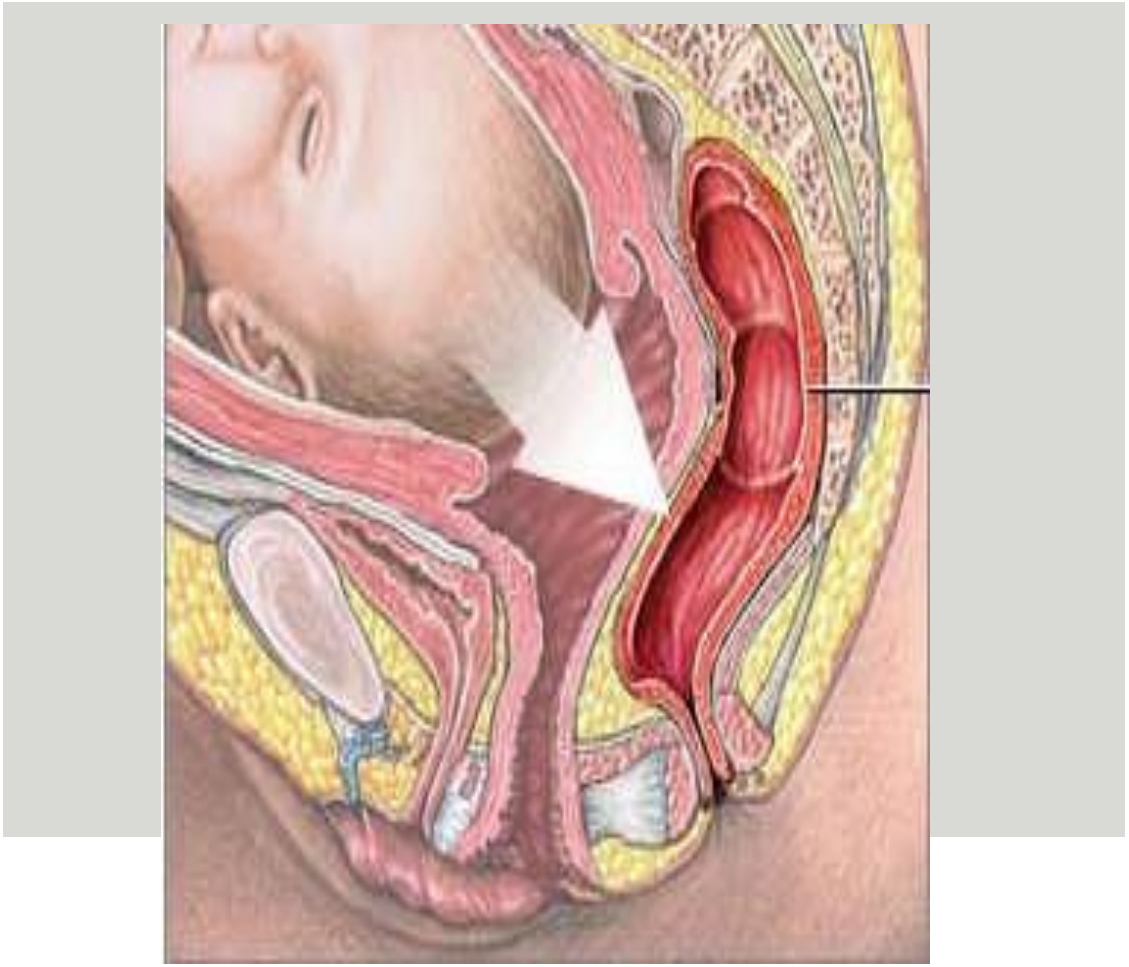
**11%** lifetime risk of prolapse surgery in the U.S. by age 80

- Increases with advancing age
- Risks:
    - older
    - postmenopausal
    - parous
    - overweight
    - tobacco abuse
    - chronic lung disease
    - pelvic surgery

Olsen AL, Smith VJ, Bergstrom JO, Colling JC, Clark AL (1997) Epidemiology of surgically managed pelvic organ prolapse and urinary incontinence. Obstet Gynecol 89(4):501-506

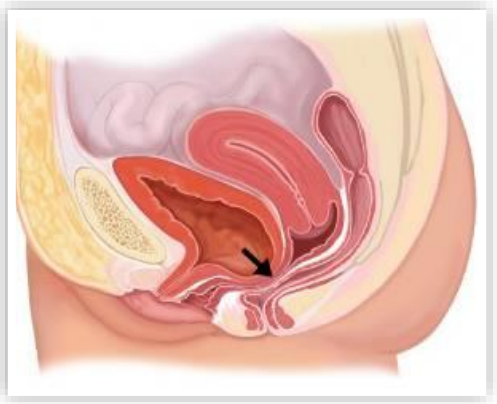
# Etiology

- Distension overstretching of the vaginal wall
- Displacement-elongation or detachment of lateral vaginal wall attachment to the levator ani muscles



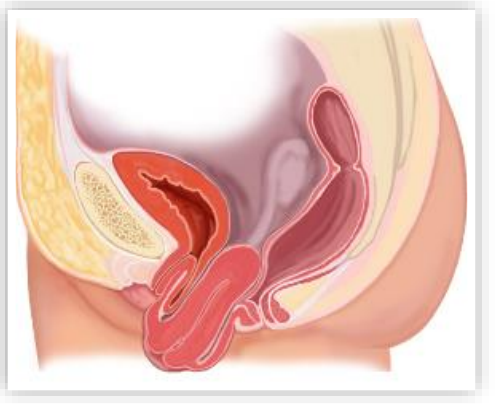
*Nichols DH, Randall CL. Vaginal Surgery, 4th Edition, 1996*

# Pelvic Organ Prolapse – Different Types



**Cystocele**
**34.3%** [2]

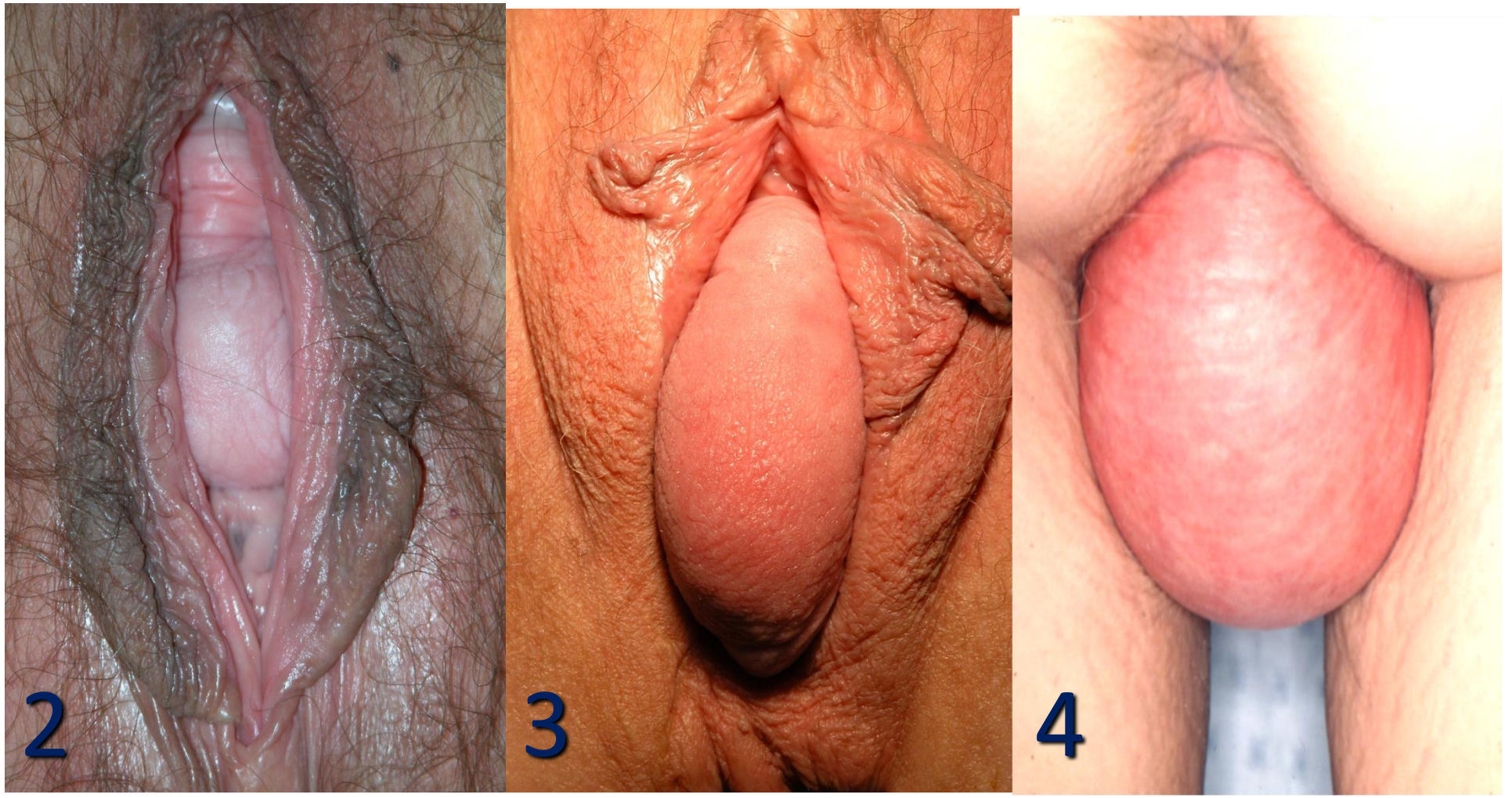
**Rectocele**
**18.6%** [2]



**Apical Prolapse**
**14.2%** [2]

Hendrix SL, Clark A and Nygaard I et al., Pelvic organ prolapse in the Women's Health Initiative: gravity and gravidity, Am J Obstet Gynecol 186 (6) (2002), pp. 1160-1166.

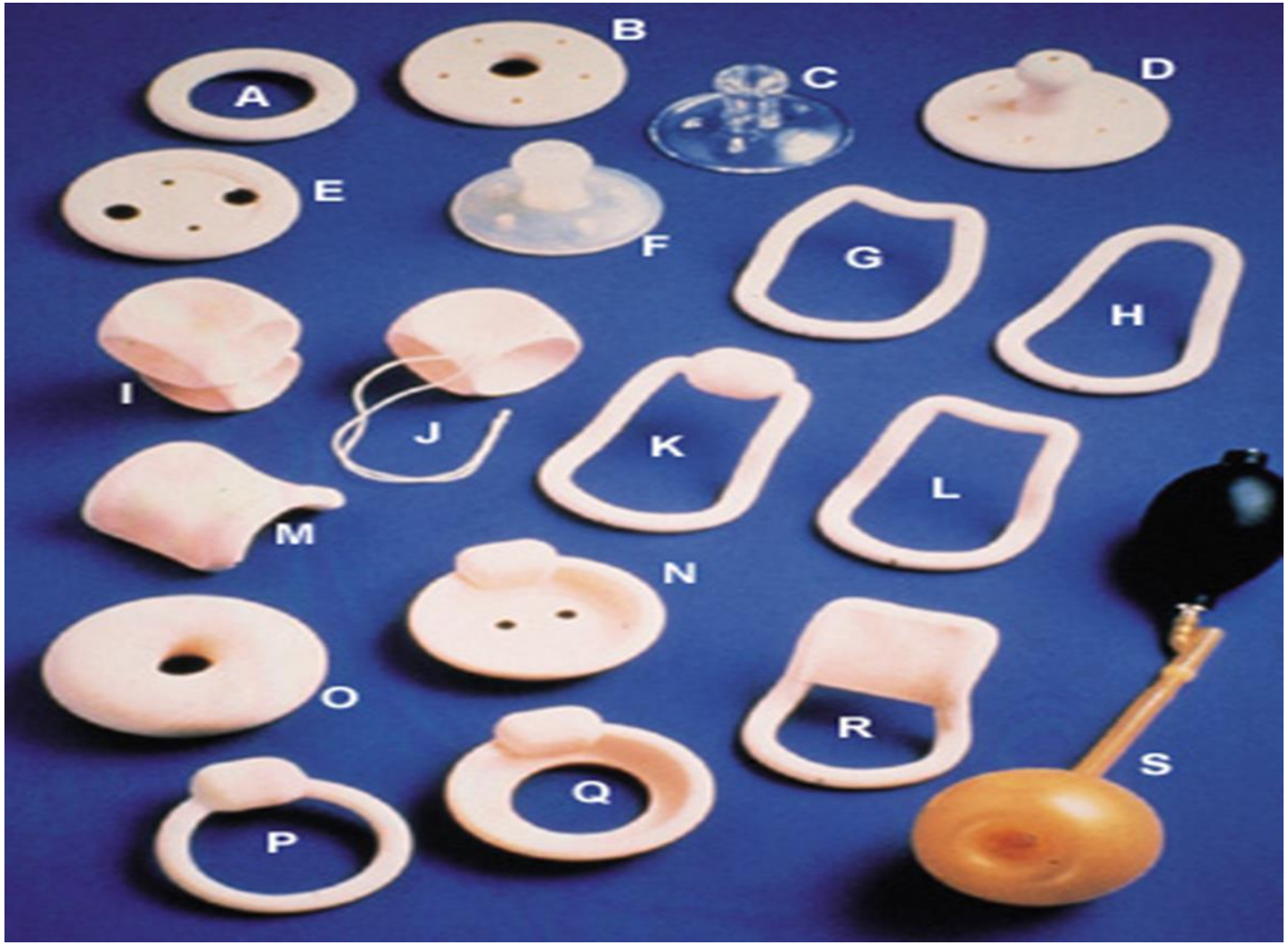
Symptoms
- May or may not correlate with stage of prolapse



# Treatment Options

- **Expectant management**
- **Conservative management**
  - Pelvic floor muscle exercises/pelvic floor physical therapy
  - Losing weight
  - Pessary (a device designed to lift the bladder, rectum and/or uterus)
- **Surgery**

# Pessary

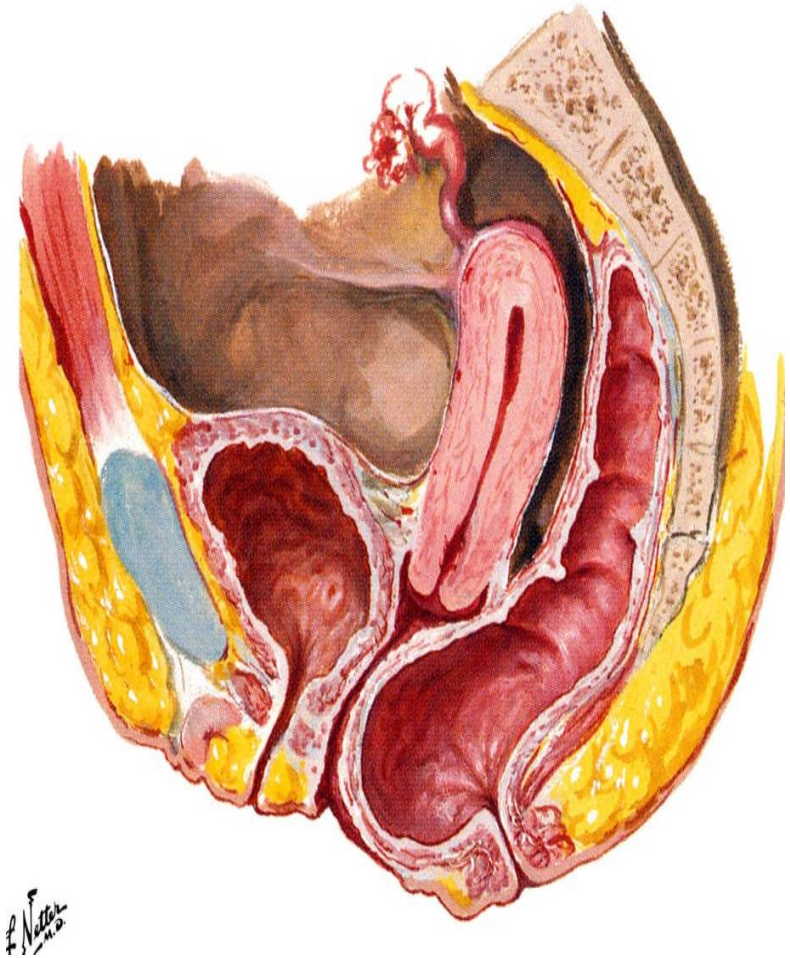


# Goals of Prolapse Surgery

- Provide anatomic correction
- Relieve prolapse symptoms
- Restore bladder, bowel and sexual function without creating new problems

# Anterior Wall Repair

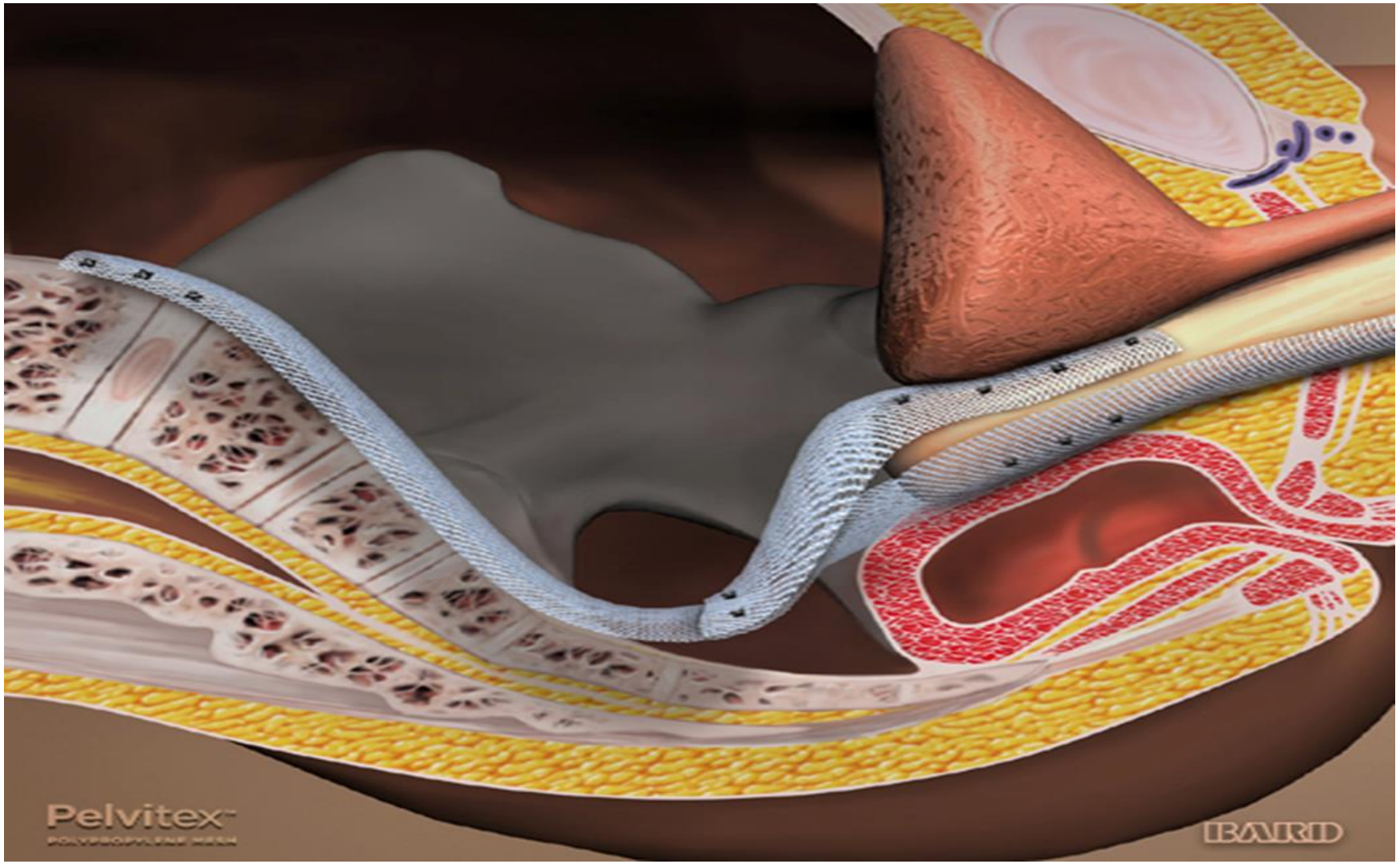

# Posterior Wall Repair



# Apical Prolapse

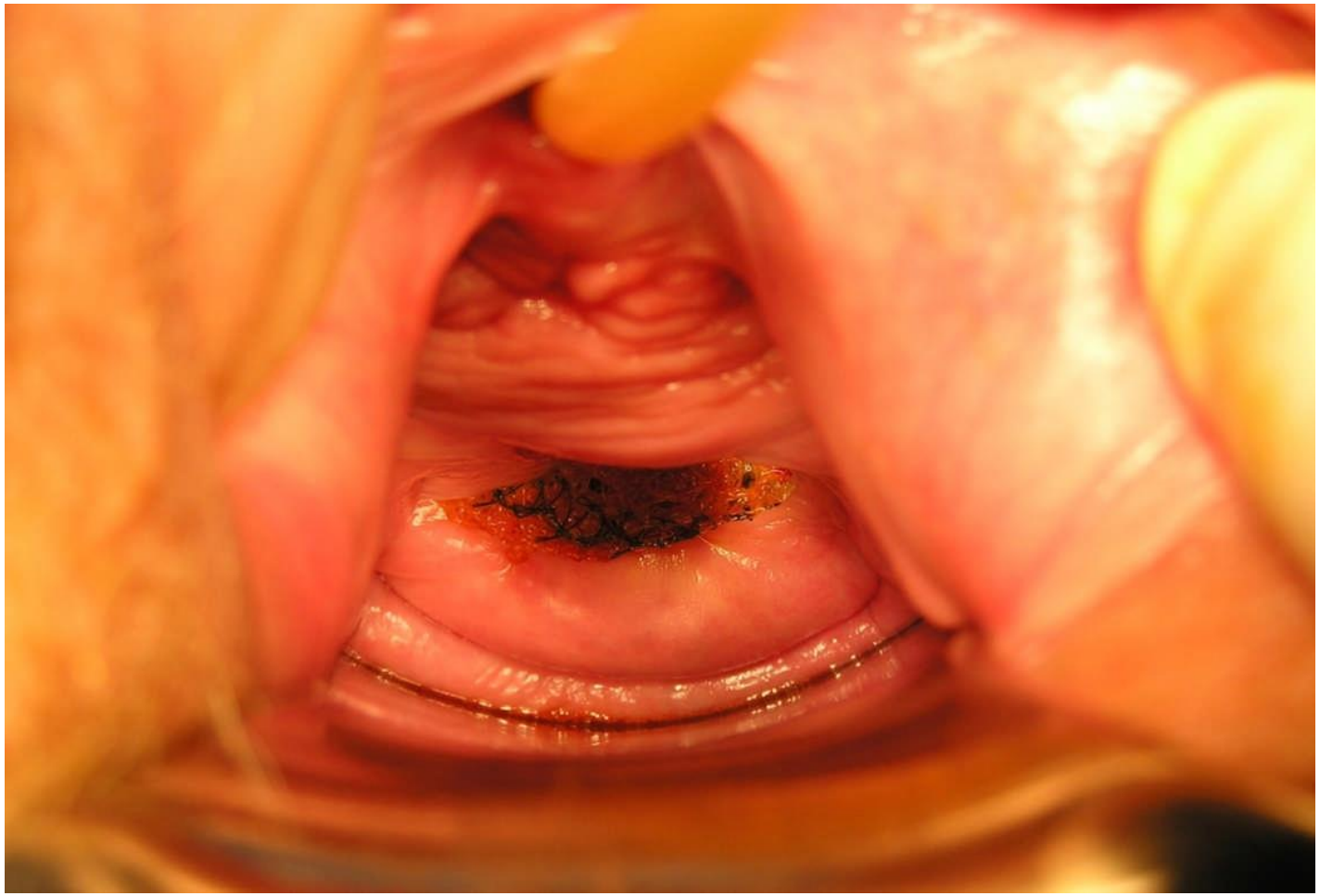
- Recognition of Apical defects
- Suspect apical defect if any POP reaches to the introitus
- ~1/3 upstaged at time of surgical repair

# Abdominal Sacrocolpopexy



# Abdominal Sacrocolpopexy

# Mesh Exposure / Extrusion / Erosion



# Factors Which Increase the Risk of Erosion

- Smoking
- Concomitant hysterectomy
- Significant urogenital atrophy
- Larger incisions
- Scarring from prior prolapse surgery
- Previous pelvic pain/dyspareunia
- Chronic medical illness i.e. diabetes, steroid use, immunosuppressants, pelvic radiation
- Extremes of ages
- Current anticoagulant use

*Boyles and McCrery Obstet Gynecol 2008;111:969-75*

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*Boyles and McCrery Obstet Gynecol 2008;111:969-75*


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Vaginal Mesh Injury
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That Have Caused Pain, Suffering, & Corrective Surgery

# Native Tissue Repairs

1. Sacrospinous Ligament Suspension
2. Uterosacral Ligament Suspension
3. Ileococcygeus Suspension

# Aims of Transvaginal Uterosacral Suspension

- Restoration normal vaginal orientation
- Decrease risk of anterior prolapse
- Preserve vaginal length
- Concurrent repair of site specific vaginal defects using native tissues
- Decrease risk of neurovascular injury
- **Can be done at the time of radical pelvic cancer surgery**

# The Bottom Line

- The etiology of prolapse is complex
- Conservative management should be offered
- Knowledge of pelvic anatomy critical in performing a safe and effective repair
- APEX, APEX, APEX
- Vaginal reconstruction with native tissue repair has good long term outcome
- Avoid the use mesh in cancer patients

# Colpocleisis

- Closure of vagina
- Can be done with or without uterus
- Need to rule out uterine pathology if uterus is not removed
- Patient selection is important
- “Regret” is the most common complication
- Adding levatorplasty and perineoplasty for better outcome

# Urinary Incontinence

- 18 million women in the U.S. live with Urinary Incontinence[1]
- While 40% of women consult a physician within a year of symptoms, 33% waited for 1 to 5 years and 25% waited for more than 5 years[2]
- Almost half of incontinent women are too embarrassed to talk to a general practitioner[2]

Wu, Jennifer et al. Forecasting the Prevalence of Pelvic Floor Disorders. Obstet and Gynecol. Vol 114, No 6, December 2009

Norton, P A et al. Distress and Delay Associated With Urinary Incontinence, Frequency and Urgency in Women. BMJ Vol 297 5 November 1988

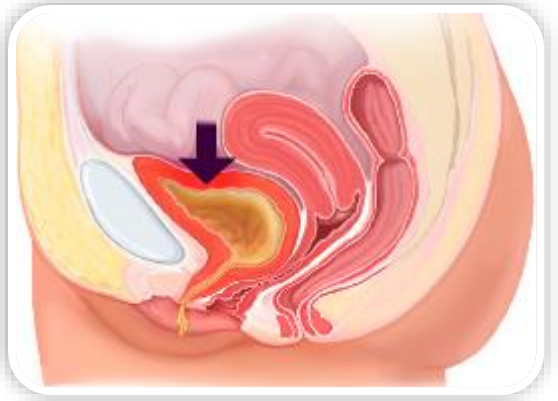
# How Does the Bladder Work?

# Different Types of Urinary Incontinence

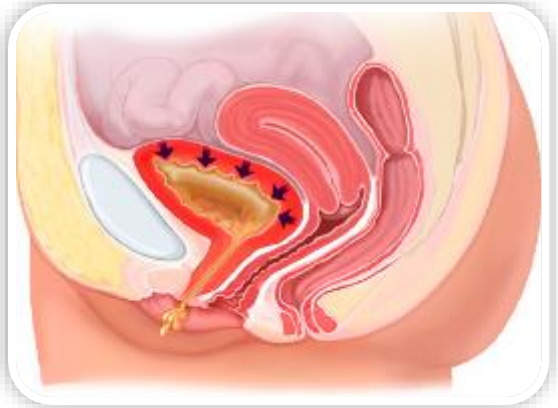
- **Stress Incontinence**
  - Cough, sneeze, laugh, lift, exercise
  - Small volumes
- **Urge Incontinence**
  - Urgency, frequency, nocturia (excessive urination during the night)
  - Large volumes
- **Mixed Incontinence**
  - Stress and urge

- **Continuous / Unpredictable incontinence**
  - Small or large volumes

**Stress Incontinence**



**Urge Incontinence**



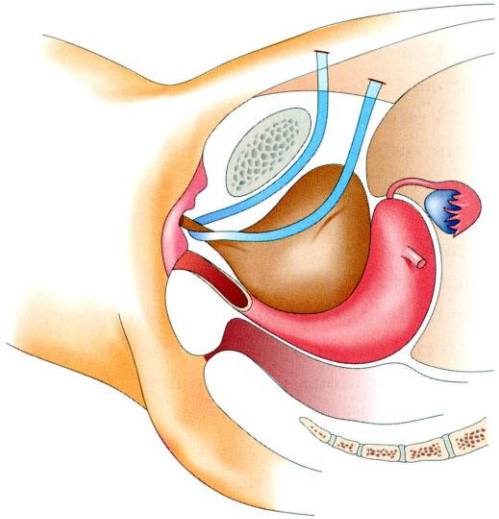
# Stress Incontinence - Symptoms

- Urine leakage
- Leaking with laugh, coughing, sneezing
- Leaking with physical activity

# Stress Incontinence – Treatment options

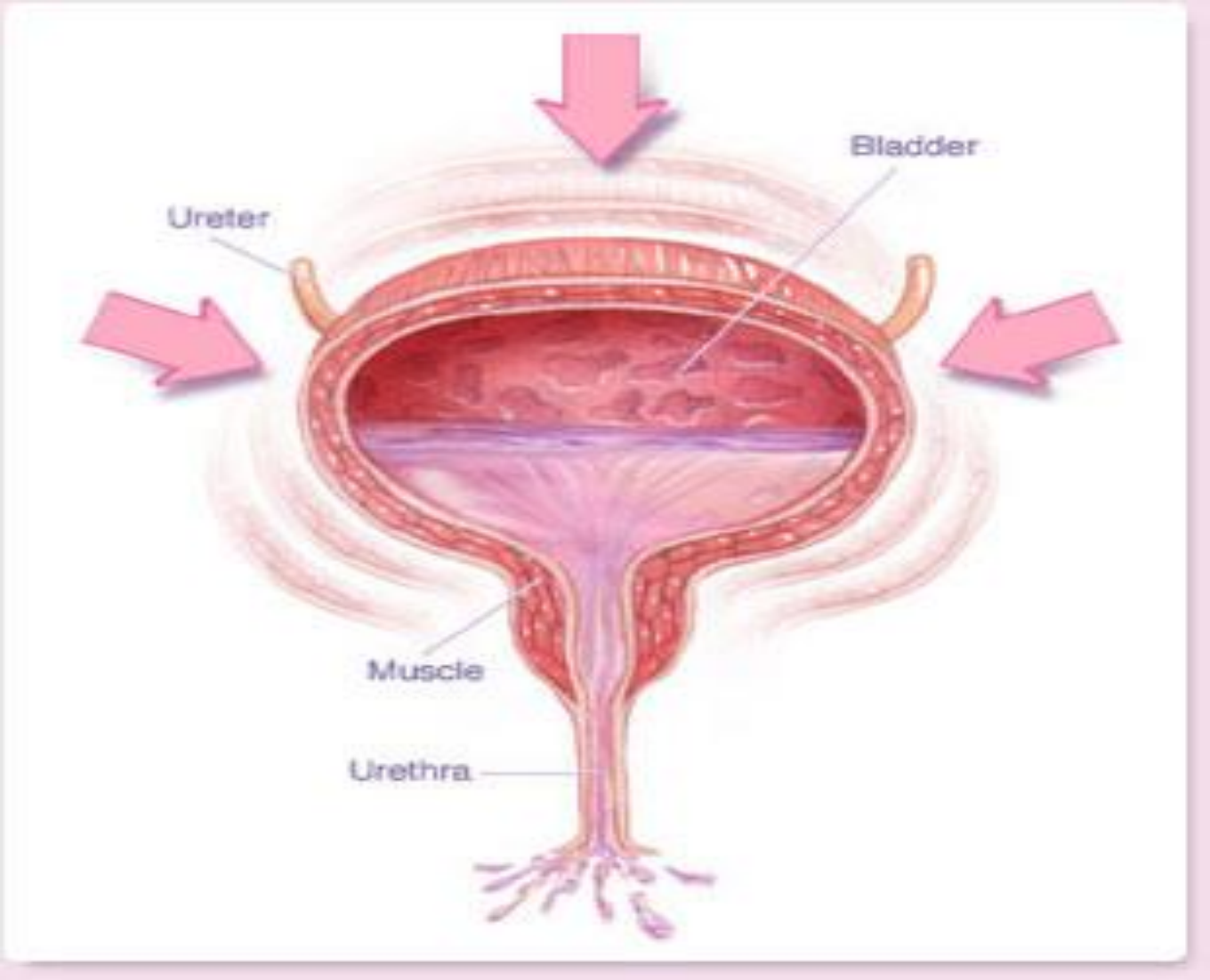
- **Lifestyle Modifications**
  - Losing weight
  - Behavior and diet modification

- **Non-Surgical Treatment Options:**
  - Physical Therapy-Pelvic floor muscle exercises
  - Pessary (a device designed to lift the bladder)



- **Surgical Treatment Options:**
  - Retropubic procedures
  - Midurethral Slings
  - Urethral Bulking

# Overactive Bladder (OAB)



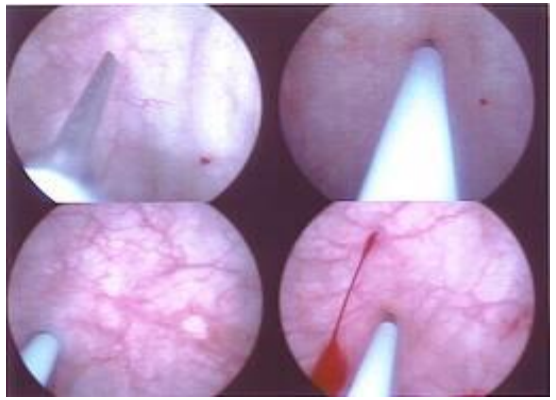
# OAB- Symptoms

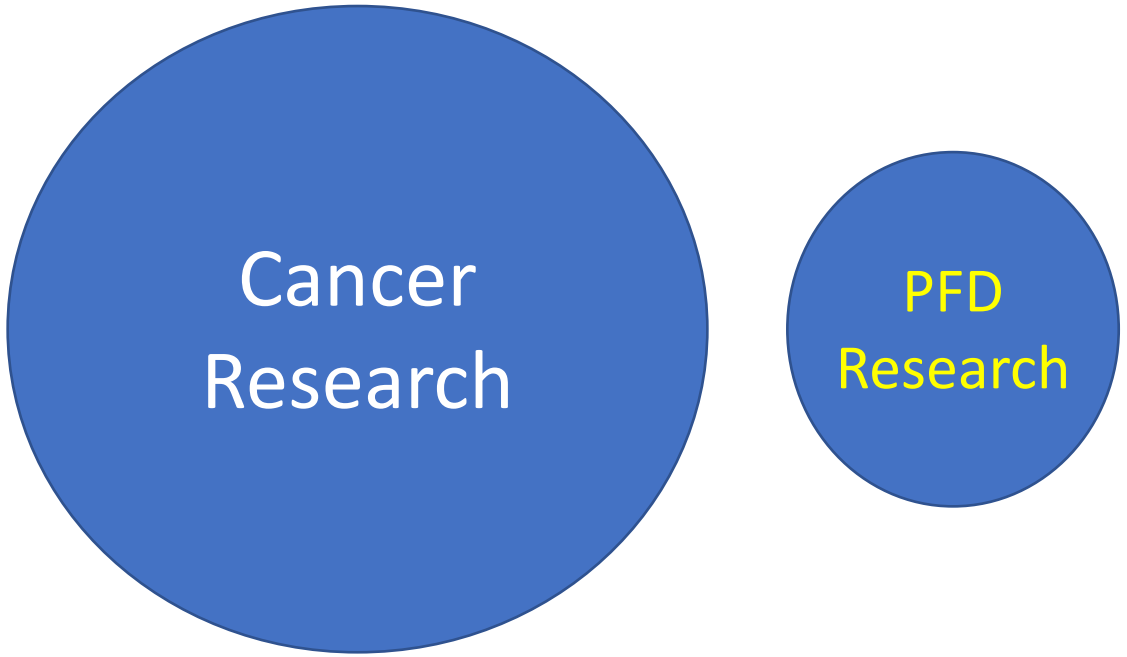
**Symptoms of Bladder Control Problems:**

- Urinary urgency
- Urinary frequency & nocturia
- Difficulty making it to the bathroom in time
- Urine leakage

# OAB– Treatment Options

- **Lifestyle Modification:**
  - **Losing weight**
  - **Diet and behavior modification**
  - **Drinking fewer alcoholic beverages**
  - **Caffeine modulation**
- **Non-Surgical Treatment Options**
  - **Physical therapy-Pelvic floor muscle exercises and bladder retraining**
  - **Medications**
  - **Percutaneous Electrical Nerve Stimulation (Posterior Tibial Nerve)**
  - **Botox**
- **Surgical Treatment Options:**
  - **“Bladder Pacemaker” - Sacral Neuromodulation (InterStim)**



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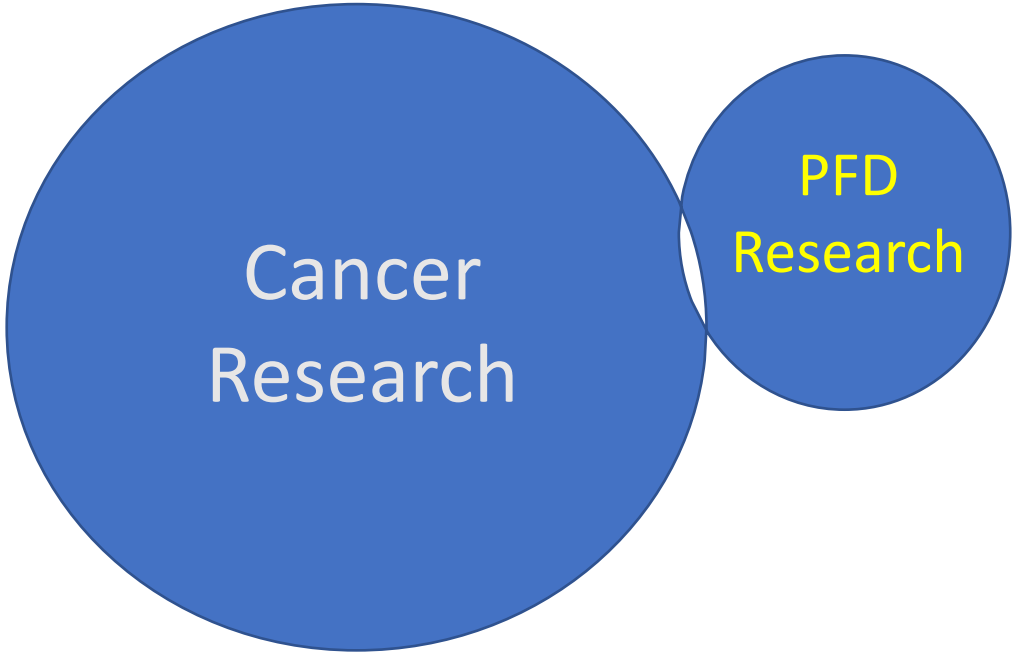


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# Gyneclogic Cancer and PFD

- Pelvic organ prolapse, urinary and fecal incontinence, and sexual dysfunction are significant problems in survivors of gynecologic cancer.

Thomas et al. Obstet Gynecol. 2013 Nov;122(5):976-80.
Rutledge et al. Am J Obstet Gynecol. 2010 Nov;203(5):514

# Urogyn Surgery in Cancer Patients

International Urogynecology Journal
https://doi.org/10.1007/s00192-020-04465-4

IUJ VIDEO

## Prolapse repair after anterior exenteration

Christopher P. Chung[1] · Eizleayne Edrosa[1] · Mark T. Wakabayashi[1] · Thanh H. Dellinger[1] · Stephen J. Lee[1] · Kevin Chan[1] · Ernest S. Han[1]

Received: 13 April 2020 / Accepted: 23 July 2020


SpringerLink

IUJ Video | Published: 18 August 2018

## Concurrent pelvic reconstruction and minimally invasive pelvic cancer surgery

Christopher P. Chung, NhuChi T. Dao, Mark T. Wakabayashi, Thanh H. Dellinger, Stephen J. Lee & Ernest S. Han

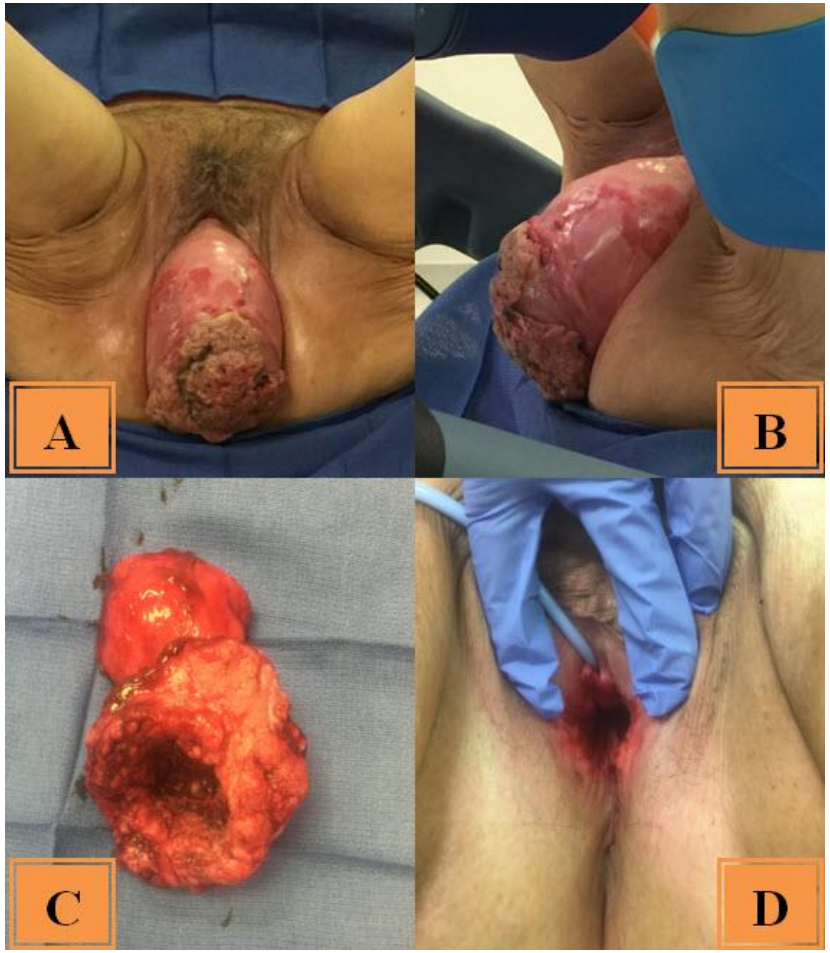
*International Urogynecology Journal* **29**, 1709–1711(2018)

Images in Gynecology ajog.org

# Uterine and cervical cancer with irreducible pelvic organ prolapse

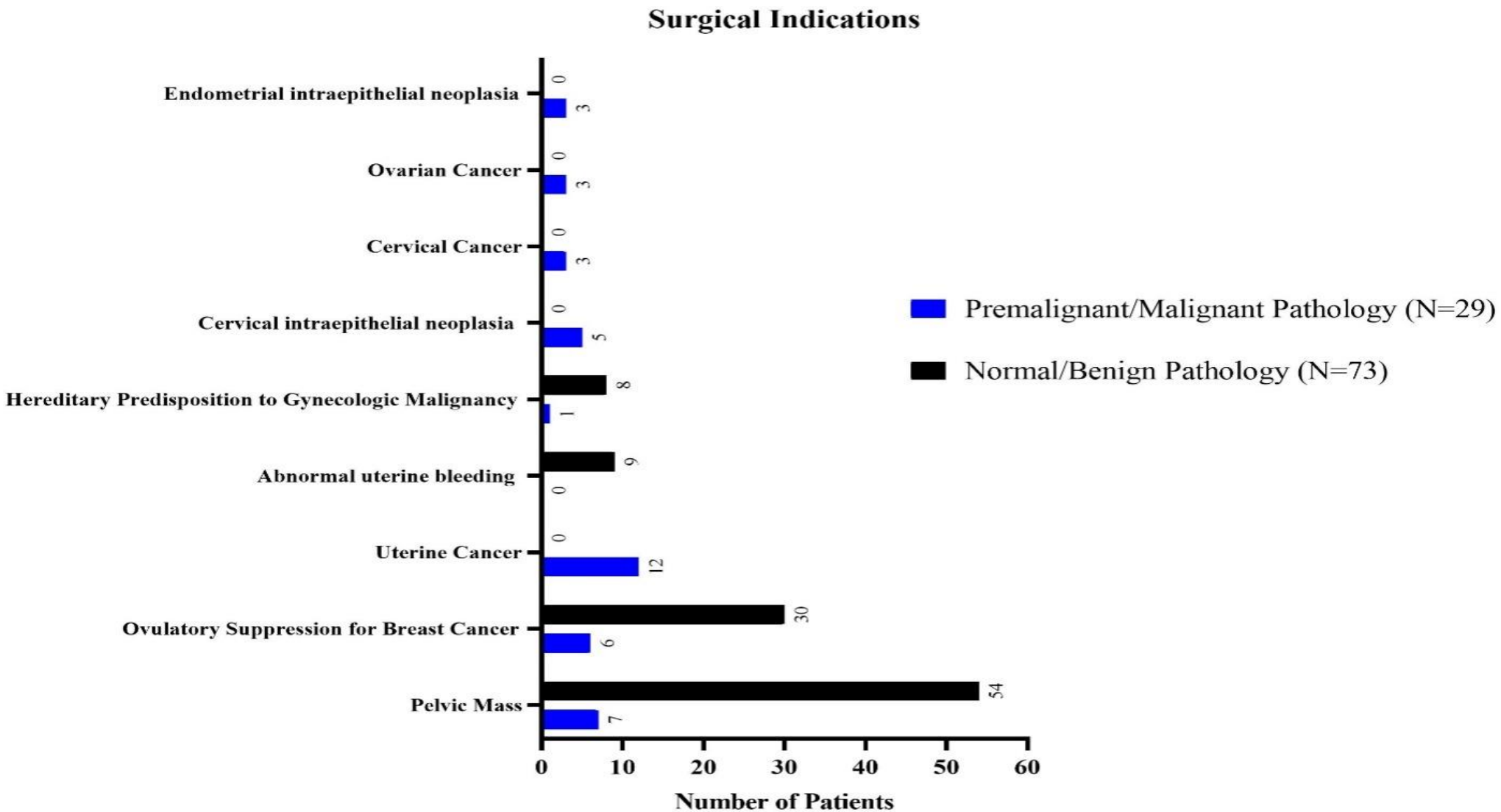
Christopher P. Chung, MD; Stephen J. Lee, MD; Mark T. Wakabayashi, MD, MPH

DECEMBER 2018 American Journal of Obstetrics & Gynecology

# Immediate Pelvic Floor Reconstruction in Gyn Oncology Surgery

- **A demonstration of safety and feasibility in 102 patients undergoing concurrent pelvic reconstruction at the time of gynecologic oncology surgery**
  - Retrospective review of patients undergoing combined surgery by gynecologic oncology and urogynecology services.
  - 102 patients underwent surgery in the division of gynecologic oncology with concurrent surgical repair of pelvic organ prolapse (POP) and stress urinary incontinence (SUI). 73 patients had normal/benign pathologies and 29 with premalignant/malignant pathologies.

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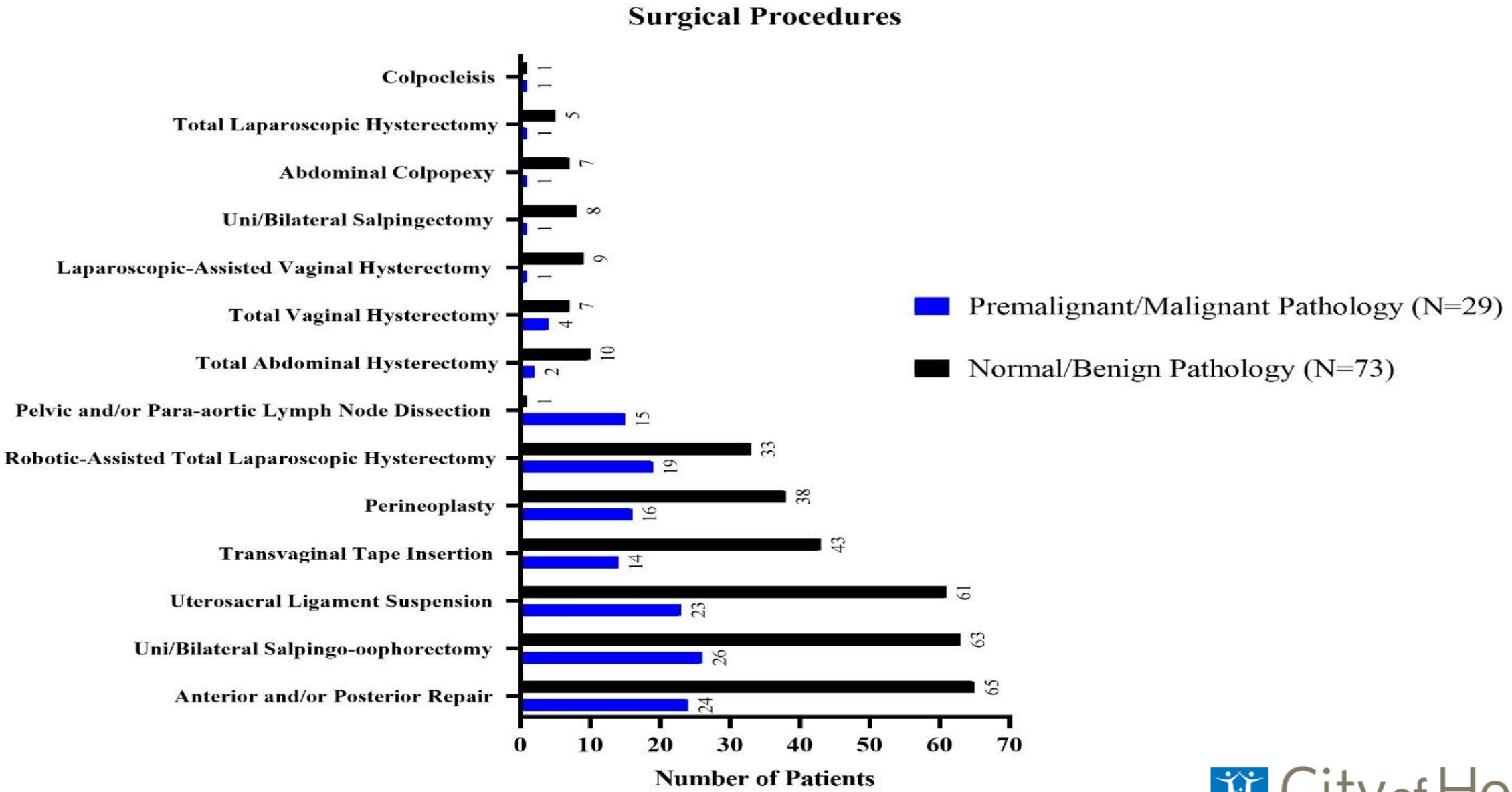


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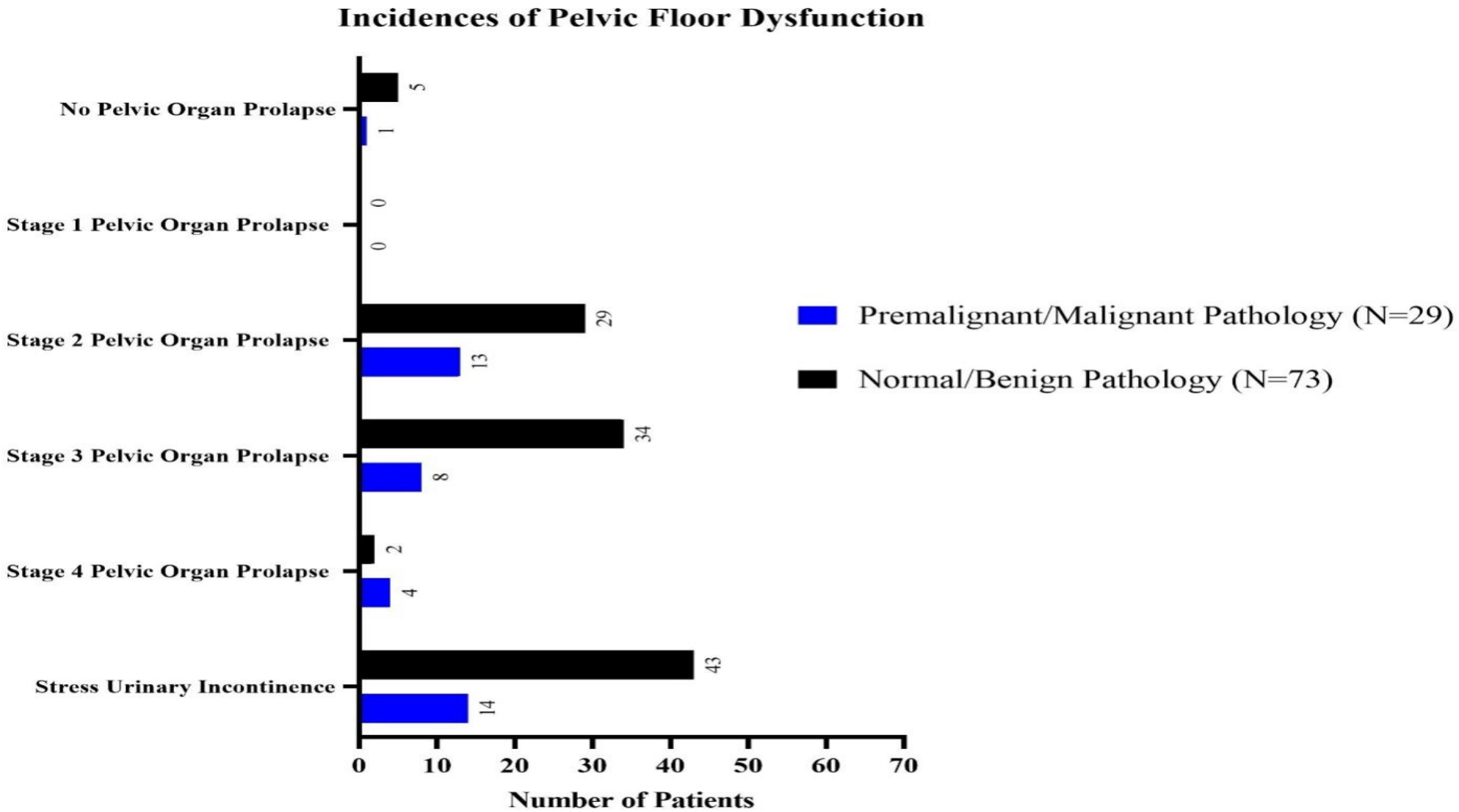


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| Postoperative Complications | | | |
|---|---|---|---|
| **Complication (Clavien-Dindo Grade)** | Premalignant/Malignant Pathology (N=29) | Normal/Benign Pathology (N=73) | p-value |
| **Any Complication (all grades)** | 1 | 9 | 0.952 |
| **Reoperation for exposed mesh (3)** | 0 | 5 | 0.147 |
| **Urinary retention requiring sling release(3)** | 0 | 3 | 0.267 |

# Summary

- 102 cases over 7 years.
- 73 patients had normal/benign pathologies and 29 with premalignant/malignant pathologies.
- 60 to 90 minutes added OR time.
- No major complication

# Other Types of Cancer and PFD

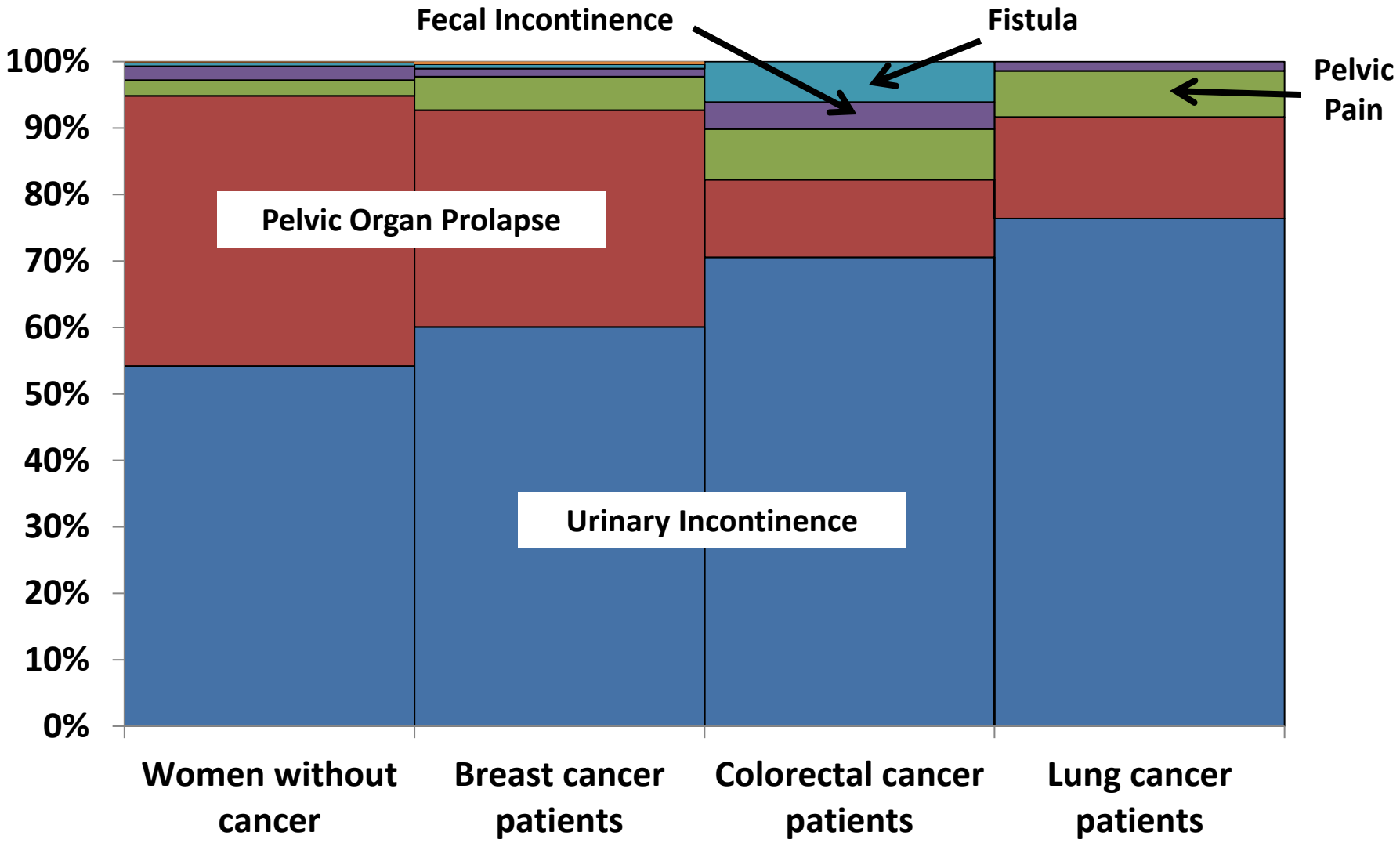
- California Teachers Study (CTS)
  - Prospective observational study of 133,479 female public school professionals
    - Self-administered questionnaires at baseline (1995-1996) and again in 1998, 2000-2001, 2005-2006, & 2012-2013
    - Annually linked with California state hospitalization records

**1995-1996** **1997** **2000-2001** **2005-2006** **2012-2014**

**Inpatient Data Used to Identify Pelvic Floor Disorders in the CTS**

***Up to 25 ICD & DRG codes from all inpatient hospitalizations***
***Up to 21 ICD codes from all inpatient hospital-based procedures***
***Up to 5 ICD codes from other conditions present at diagnosis***

# Distribution of PFDs by Cancer Types



# Relative Risks of PFDs in Cancer Patients vs. Women without Cancer

| | # PFDs | Annual Rate per 100,000 (95% CI) | RR (95% CI) |
|---|---|---|---|
| **Women without Cancer** | 7,346 | 246.3 (205.1 – 287.4) | 1.00 (Reference) |
| | | | |
| **Breast Cancer Patients** | 389 | 288.3 (231.1 – 345.6) | **1.17** (1.06-1.30) |
| | | | |
| **Colorectal Cancer Patients** | 122 | 358.8 (285.3 – 432.3) | **2.11** (1.76-2.53) |
| | | | |
| **Lung Cancer Patients** | 52 | 1234.1 (229.8 – 2238.4) | **2.47** (1.88-3.25) |

RR=Relative Risk based on Cox Proportional Hazard Regression with age as the time scale.
CI=Confidence Interval.
Participants followed from entry or cancer diagnosis until death or censoring on 12/31/2011.

# Conclusion

- Breast, lung and colorectal cancer survivors were each statistically significantly more likely than women without cancer to develop a PFD.


ORIGINAL RESEARCH

# Serial Assessment of Urinary Incontinence in Breast Cancer Survivors Undergoing (Neo)Adjuvant Therapy

Christopher P. Chung, MD[1]; Carolyn Behrendt, PhD[2]; Louise Wong, MSN, NP[3]; Sarah Flores[3]; and Joanne E. Mortimer, MD[3]

J Natl Compr Canc Netw 2020;18(6):712–716
doi: 10.6004/jnccn.2020.7535

Research questions in women with early-stage breast cancer:

- How common is urinary incontinence
- Does systemic therapy impact the incidence
- How does urinary incontinence impact quality of life

# Study Design

Women with Stage I-III breast cancers prior to initiation of (neo)adjuvant therapy approached for study participation

Eligibility determined
Consent signed

Urinalysis and Culture
Urogenital Distress Inventory
Incontinence Impact Questionnaire

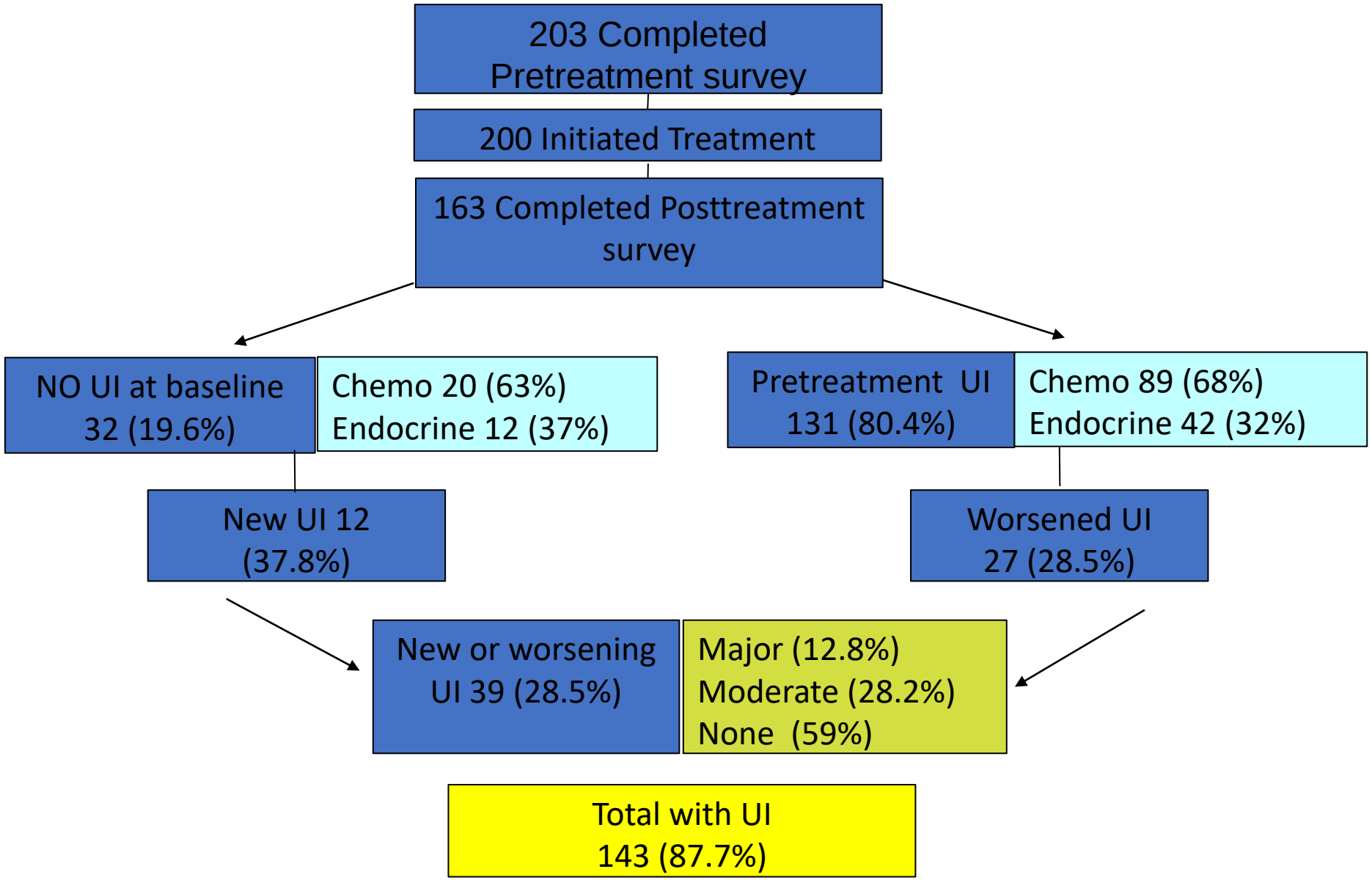
3 months of chemotherapy or endocrine therapy

Urogenital Distress Inventory
Incontinence Impact Questionnaire

# Results: Prevalent UI PRE-Treatment

| PRE-treatment 162 (79.8%) reported prevalent UI | % |
|---|---|
| Overactive bladder | 59 (29.1%) |
| Stress Incontinence | 22 (10.8%) |
| Both (mixed UI) | 81 (39.9%) |
| None | 41 (20.2%) |
| **Impact of prevalent UI on QoL** | |
| Major | 13.6% |
| Moderate | 29.6% |
| No Impact | 56.8% |

# Summary of Findings



# Conclusions

- Urinary Incontinence is a common problem in breast cancer survivors and adversely impacts quality of life.

Biology of Blood and Marrow Transplantation

journal homepage: www.bbmt.org

Brief Articles

# Graft-versus-Host Disease—Associated Vulvovaginal Symptoms after Bone Marrow Transplantation

Christopher P. Chung [1,*], Rachel E. Sargent [1], Nadia T. Chung [2], James V. Lacey Jr. [2], Mark T. Wakabayashi [1]

[1] Division of Gynecologic Oncology, Department of Surgery, City of Hope Medical Center, Duarte, California
[2] Department of Population Sciences, Beckman Research Institute, City of Hope Medical Center, Duarte, California

- To present our clinical experience in treating graft-versus-host disease (GVHD) associated vulvovaginal symptoms in patients who receive bone marrow transplantation (BMT) to treat blood and immune system disorders.

# Results

- Between 2010 and 2014, 180 patients were referred to the gynecologic clinic after BMT.

- 124 (69%) patients had GVHD
  - 51 (41%) experienced dyspareunia
  - 43 (35%) had vaginal stenosis

# Results

- GVHD patients
  - significantly more likely to have vaginal stenosis ($P<0.0001$)
  - more likely to have used a vaginal dilator ($P=0.0008$)
  - less likely to have urinary incontinence ($P<0.001$)

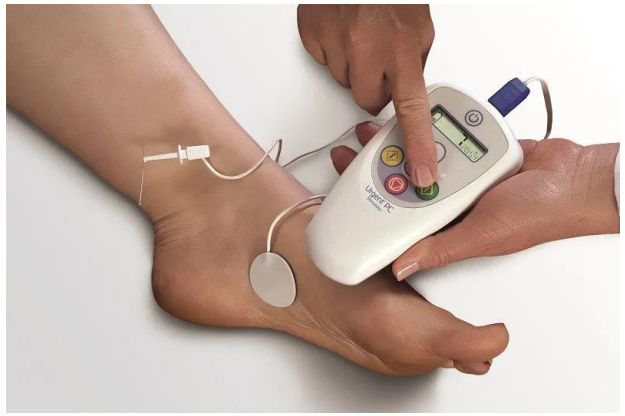
- There was no difference in developing pelvic organ prolapse (POP) in patients with or without GVHD ($P=0.4373$).

# Conclusion

- GVHD is a common complication after allogenic BMT.
- Patients with BMT were more likely to have vulvovaginal symptoms, such as dyspareunia and pelvic pain.
- Patients with GVHD are at high risk for vaginal stenosis requiring the use of a vaginal dilator. However, they are at low risk for developing UI and POP.

# Future Studies

- Percutaneous Tibial Nerve Stimulation (PTNS)



# Future Studies

- Vaginal laser
  - Breast cancer patients
  - Patients who received pelvic and vaginal pelvic radiation
  - Patients with vaginal GVHD