



*Diseases of Female  
Genital Tract and Breast*

女性生殖系統及乳房疾病

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# 學習目標

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- 能說明女性生殖系統常見的疾病
- 能說明乳房常見的疾病
- 能說明子宮頸癌、子宮內膜癌症、卵巢癌及乳癌的危險因子、組織分類及臨床表現

參考資料: Pathology for the Health-Related Professions,  
Ivan Damjanov, Saunders, Co. 3rd. ed. 2006, Chap 15, 16



## *Overview of Major Diseases*

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- **Infections:**
  - Direct contact with the external world
  - Many infections are venereal in nature
  - Infections are an important cause of infertility
- **Hormonal disorders:** abnormal secretion of estrogen and progesterone
- **Benign or malignant tumors**
  - Related to sexually transmitted diseases or hormonal influence
  - Screening reduced the mortality of cervical ca.
- **Disorders related to pregnancy**

# *Inflammatory Diseases*

- **Anatomic classification**
  - Vulvitis, Vaginitis, Cervicitis, Endometritis, Salpingitis, Oophoritis
  - **Pelvic Inflammatory Disease (PID):** inflammation of entire female genital tract
- **Pathogenetic classification:** ascending, hematogenous
- **Chronologic classification:** acute, chronic or recurrent
- **Etiologic classification**
  - **Bacteria:** Neisseria gonorrhoeae (gonorrhoea) Treponema pallidum (syphilis)
  - **Virus:** HPV: Condyloma acuminatum HSV
  - **Chlamydia**
  - **Fungus:** Candida albicans (DM, pregnancy)
  - **Protozoal:** Trichomonas vaginalis



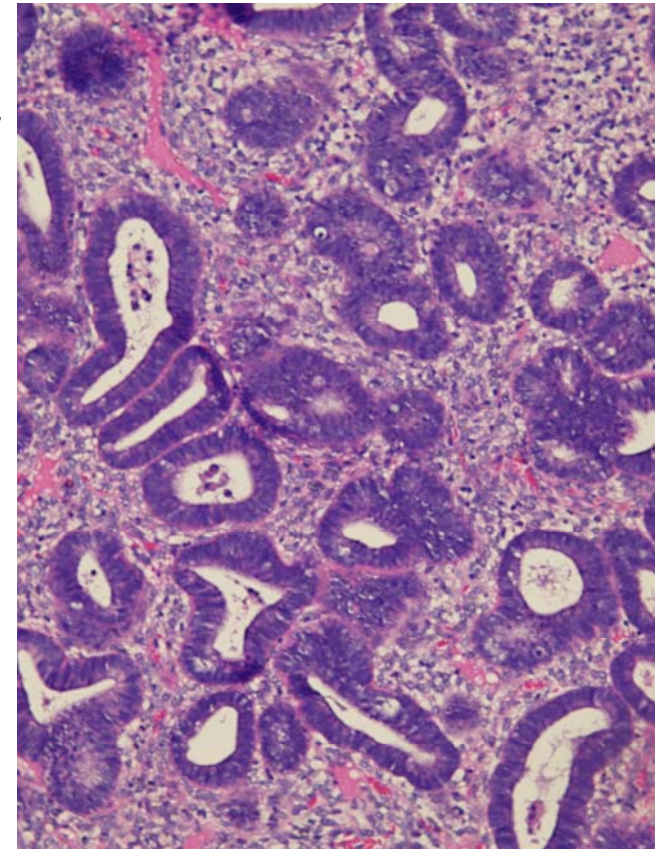
# *Pelvic Inflammatory Disease*

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- Salpingo-oophoritis
- Tuboovarian abscess
- Pyosalpinx
- Hydrosalpinx
- **Complications:** peritonitis, bacteremia, infertility

# *Hormonally Induced Lesions*

- **Endometrial hyperplasia**
  - abnormal vaginal bleeding
  - 長期estrogen刺激:無排卵週期,停經,肥胖,長期服用
  - 分類:
    - Simple hyperplasia (cystic, mild hyperplasia)
    - Complex hyperplasia (adenomatous hyperplasia)
    - Atypical hyperplasia



Simple hyperplasia with no atypia



# *Neoplasia and related disorders*

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- Carcinoma of the Cervix
- Carcinoma of the Vulva
- Carcinoma of the Vagina
- Tumors of the Uterus
  - Endometrial Carcinoma
  - Leiomyoma
- Endometriosis
- Tumors and tumorlike conditions of the ovary
  - Ovary cysts
  - Ovarian Neoplasms



*Cervix*

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# *Risk Factors of Cervical Carcinoma*



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- ♣ **Early age at first intercourse**
- ♣ **Multiple sexual partners**
- ♣ **Presence of cancer associated HPV**
- ♣ **Persistent detection of high risk HPV**
- **HPV**
  - **low-risk: 6, 11, 42, 44**
  - **high-risk: 16, 18, 31, 33**



# *Intraepithelial Squamous Neoplasia of the Cervix*

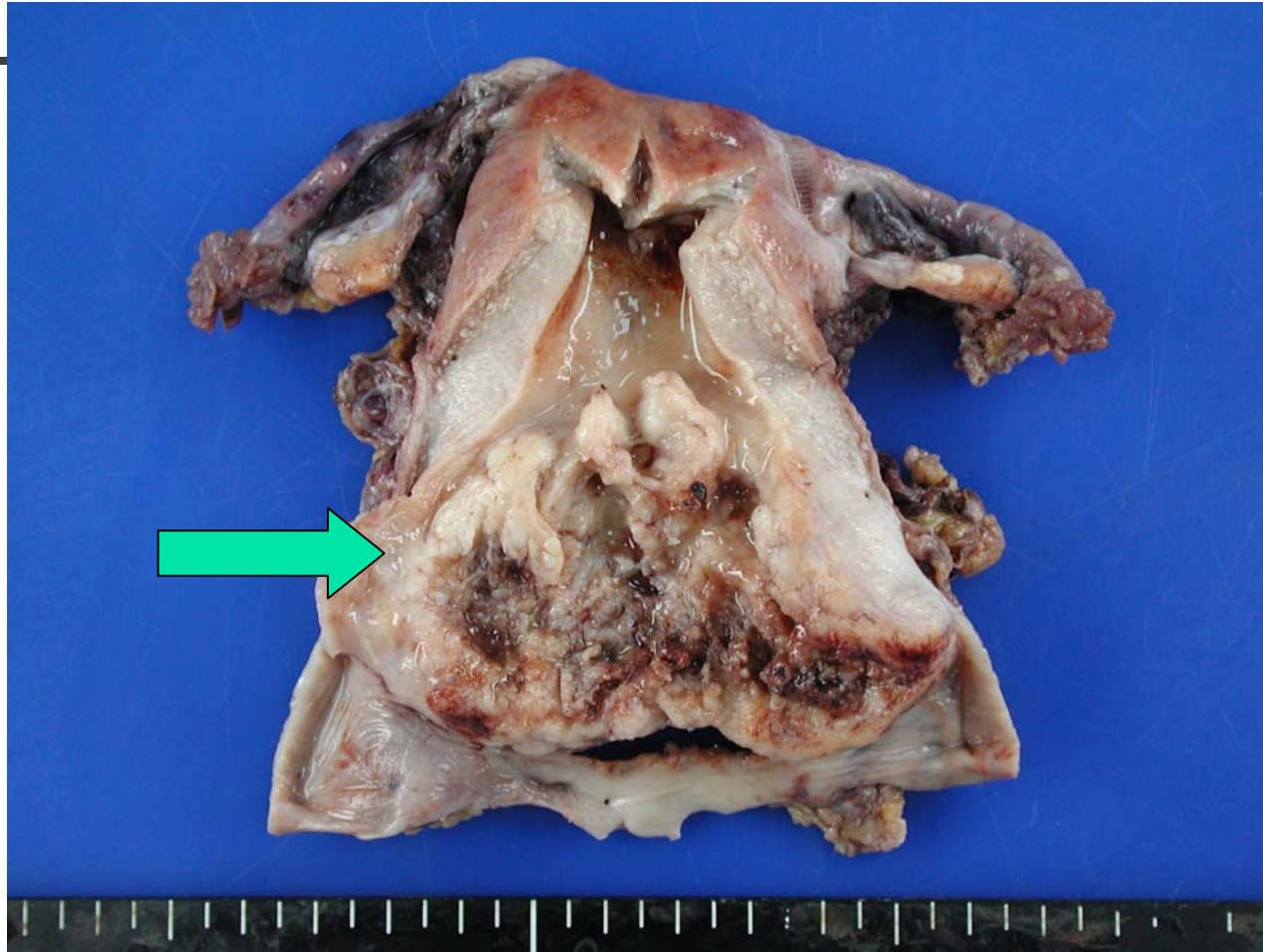
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## ■ **Classification**

- **Dysplasia/CIS system:** mild, moderate, severe dysplasia, carcinoma in situ
- **CIN system:** CIN I, CIN II, CIN III
- **Bethesda system (NCI, 1988):** squamous intraepithelial lesion (SIL)
  - low-grade SIL: condyloma, CIN I
  - high-grade SIL: CIN II, CIN III

# *Squamous Cell Carcinoma of the Cervix*

40~50 y/o



Adenocarcinoma: 10~15%; HPV-16,18; 可與CIN並存

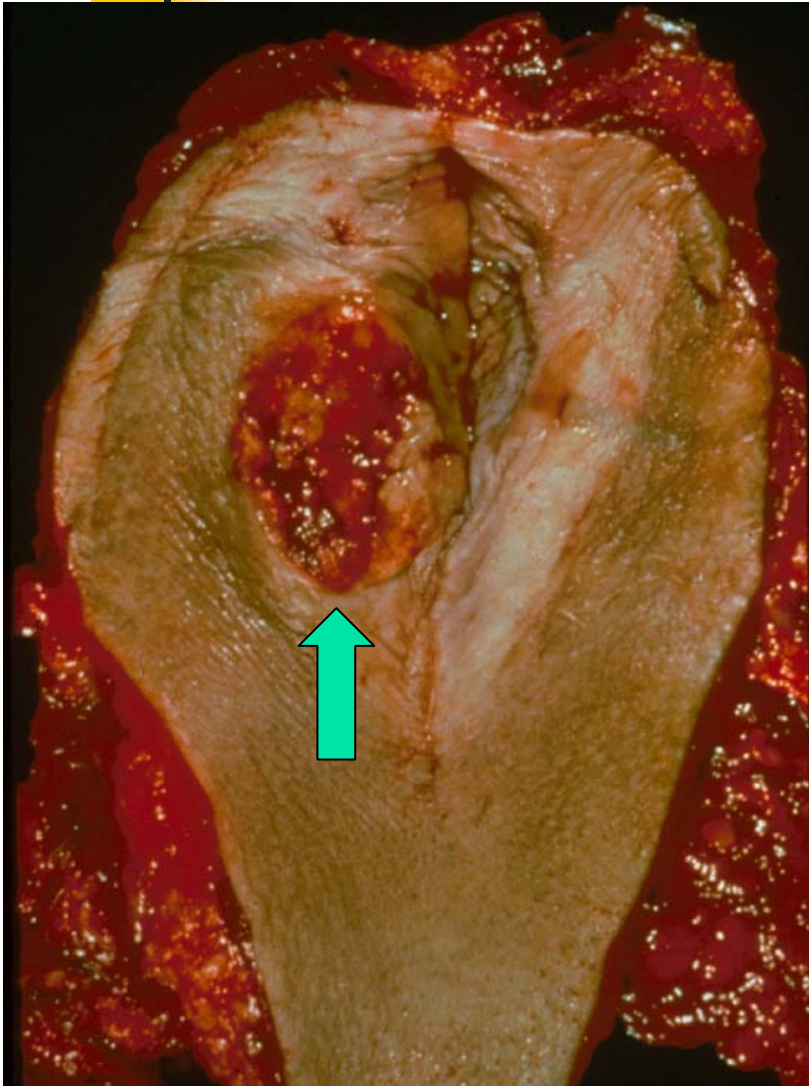


## *Staging of Cervical Cancer*

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- **Stage 0: CIS**
- **Stage I: Confined to uterus**
- **Stage II: Extend beyond the uterus but not onto pelvic wall. Carcinoma involves the vagina but not lower 1/3.**
- **Stage III: Extend onto pelvic wall or lower 1/3 of vagina**
- **Stage IV: Extend beyond true pelvis or involved mucosa of bladder or rectum**

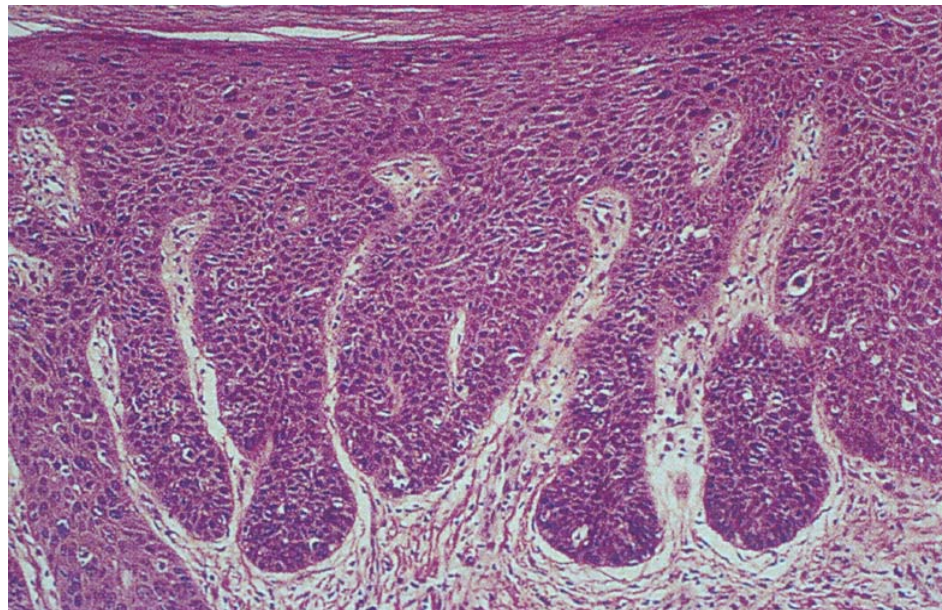
# *Carcinoma of the Vulva*



- Older women
- 85% squamous cell carcinoma
- 15% adenocarcinoma
- Preceded by carcinoma in situ and by preneoplastic lesion (vulvar intraepithelial neoplasia, VIN)

# *Carcinoma of the Vagina*

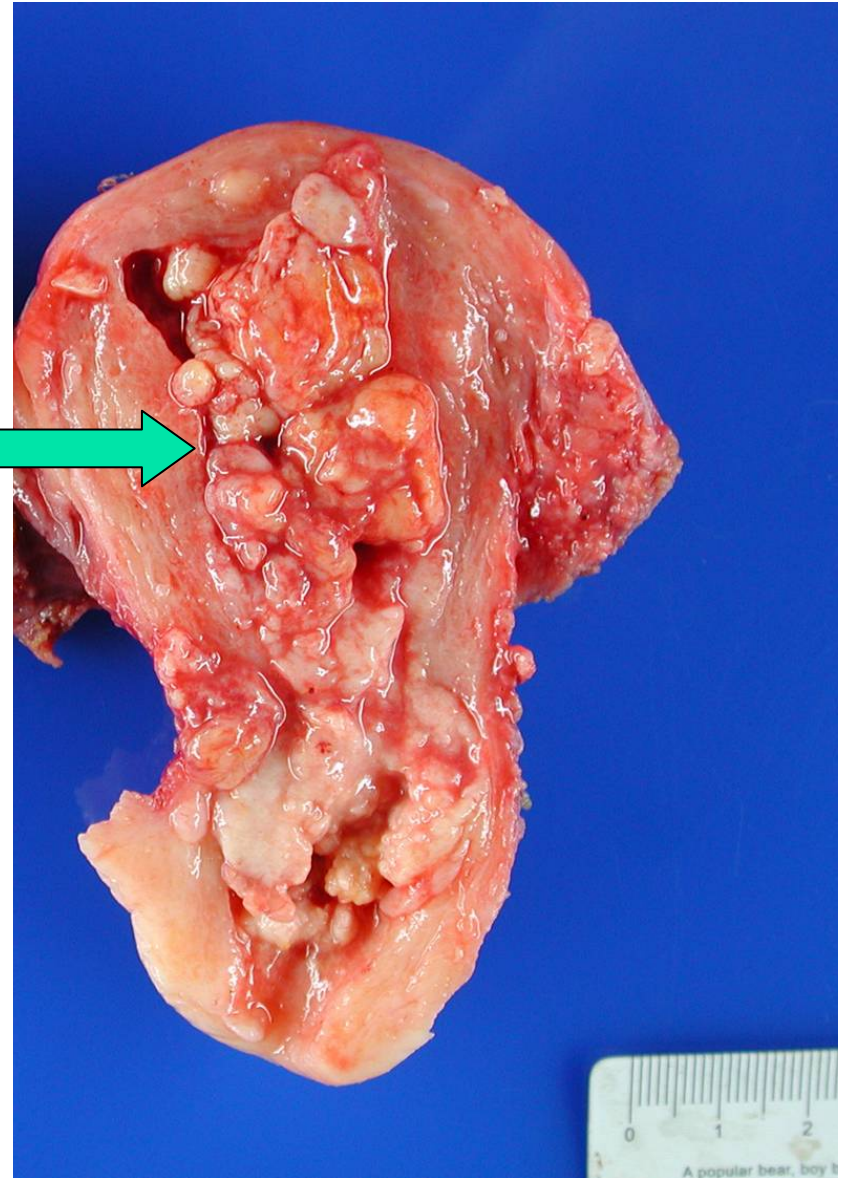
- Older women
- Squamous Cell Carcinoma, preceded by vaginal intraepithelial neoplasia (VAIN)



# *Tumors of the Uterus*

## Endometrial Carcinoma

- 55~65 y/o
- 危險因子: 肥胖, 糖尿病, 不孕, 高血壓
- **Symptom:** vaginal bleeding
- **Diagnosis:** Endometrial biopsy, diagnostic D & C
- 組織分類:
  - endometrioid carcinoma: > 75%
  - serous, clear cell, squamous, mixed carcinoma





## *Staging of Endometrial Carcinoma*

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**I:** confined to the corpus

**II:** involved in the corpus & the cervix

**III:** extend outside the uterus

**IV:** extend outside true pelvis or  
involved mucosa of bladder or rectum





# *Tumors of the Myometrium*

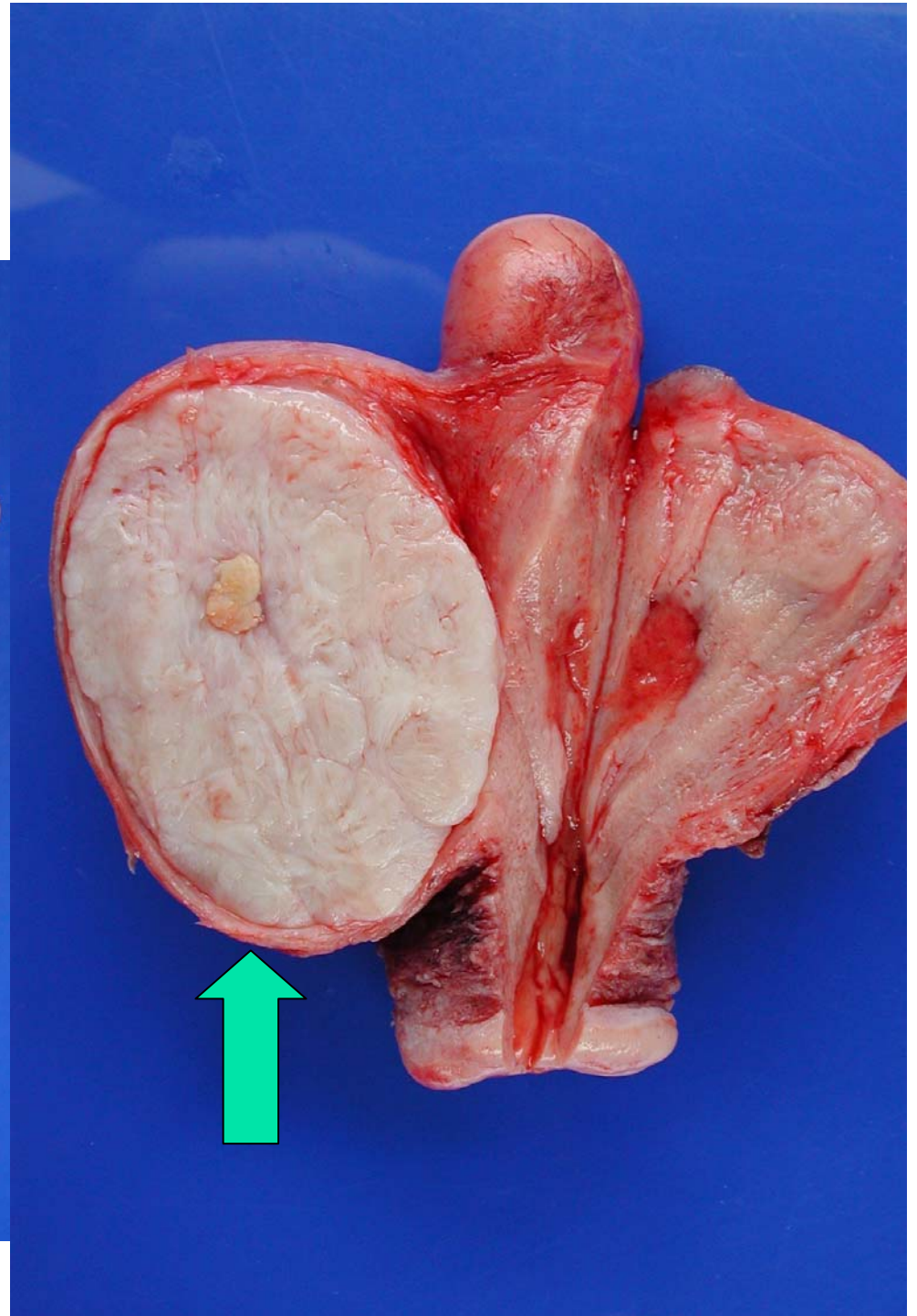
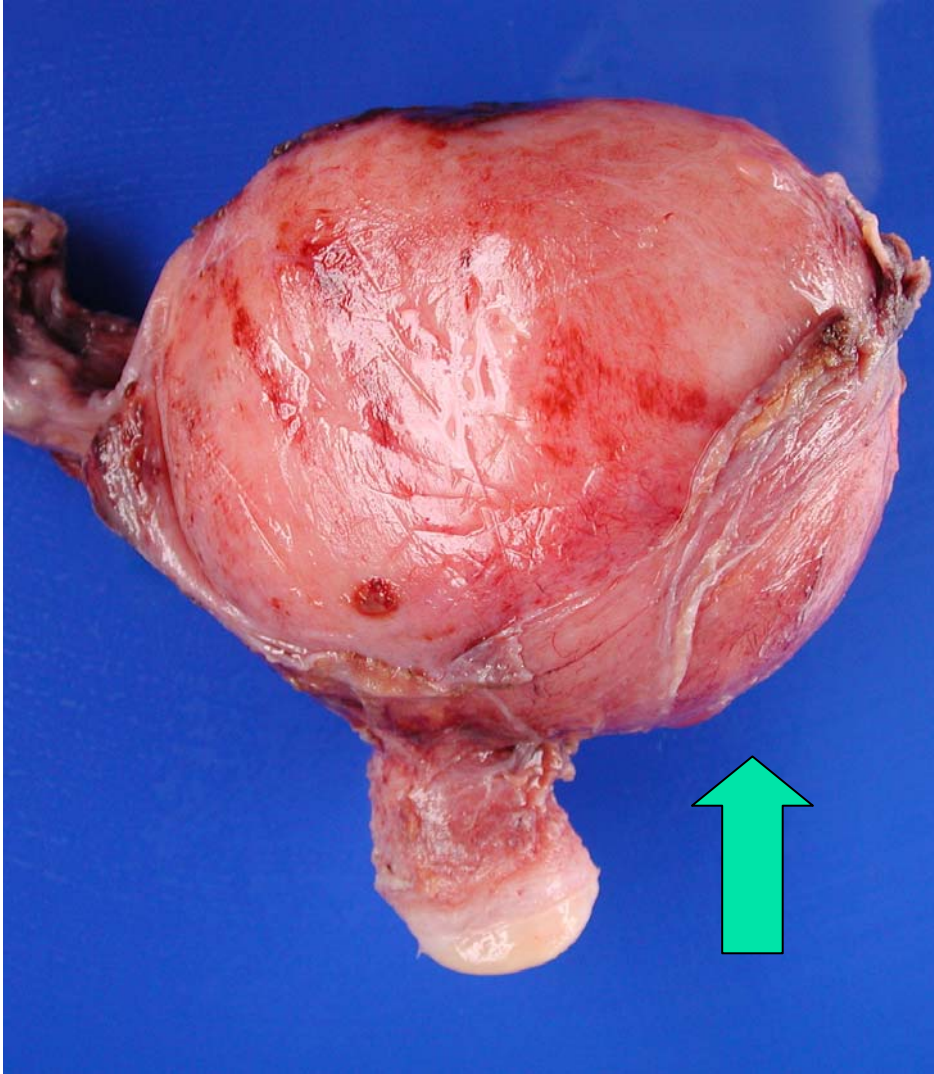
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- **Leiomyoma**

- 25%，生育期婦女
- 最常見良性腫瘤
- 成因未明
- 分類：**Intramural**、**Submucosal**、**Subserosal**

**Symptom: depend on size and location,  
'mass effect', bleeding**

# *Leiomyoma*



# *Endometriosis*

- **Definition:** presence of **endometrial glands** or **stroma** in locations outside the uterus
- **Locations:**  
ovary (chocolate cyst),  
uterine ligament,  
pelvic peritoneum,  
op scar, umbilicus, etc.
- **S/S:** dysmenorrhea,  
pelvic pain  
infertility(30 ~ 40%)





## *Potential Origins of Endometriosis*

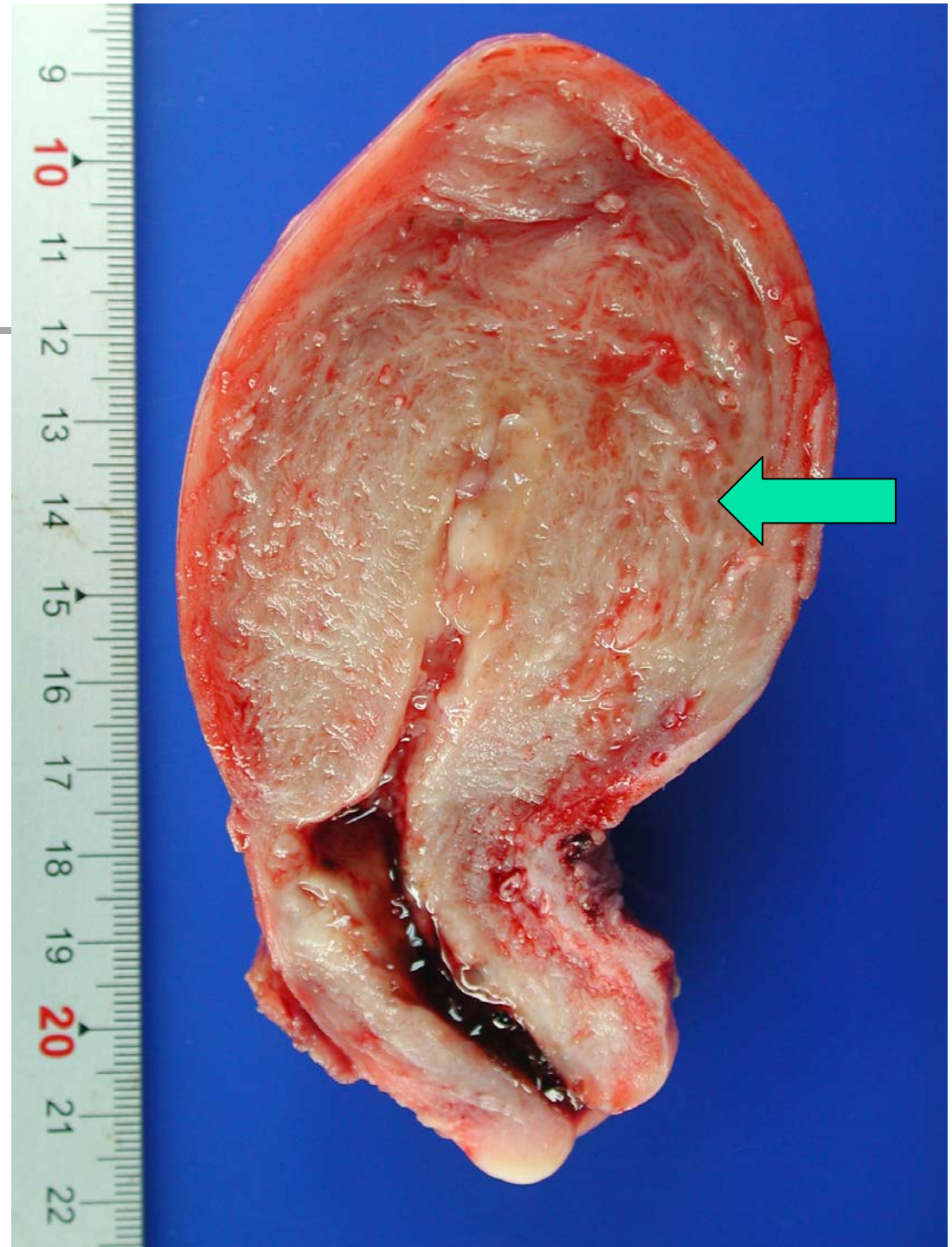
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- **Regurgitation**
- **Metaplastic**
- **Vascular or lymphatic dissemination**
- **Intraoperative implantation**

# *Adenomyosis*

肌層腺體症

Presence of  
endometrial glands  
or stroma in  
myometrium





# *Ovary*

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# *Ovary cysts*

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- **Follicular cyst and luteal cyst**
- **Polycystic Ovarian Disease  
(Stein-Leventhal Syndrome)**
  - 年輕女性，肥胖 (40%)
  - 多毛症 (50%)，無排卵週期，不孕



## *Tumors of Ovary*

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- **Benign:** 80%, 20~45 yrs
- **Malignant:** 20%, 40~65 yrs, high mortality
- **S/S:** abdominal pain, abdominal distension, ascites, GI and GU discomfort
- Peritoneal seeding (0.1 ~ 0.5 cm. nodules)
- **CA-125:** 80% serous & endometrioid ca.
- **Risk factors:** nulliparity, family history (BRCA1 gene)
- **Cystadenoma; cystadenocarcinoma**



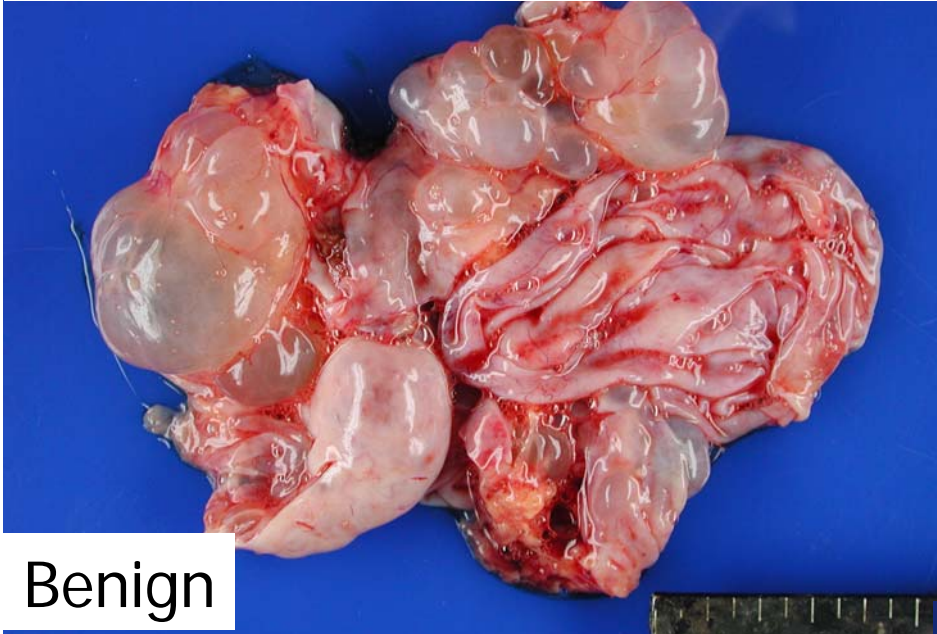


# *Tumors of Surface Epithelium*

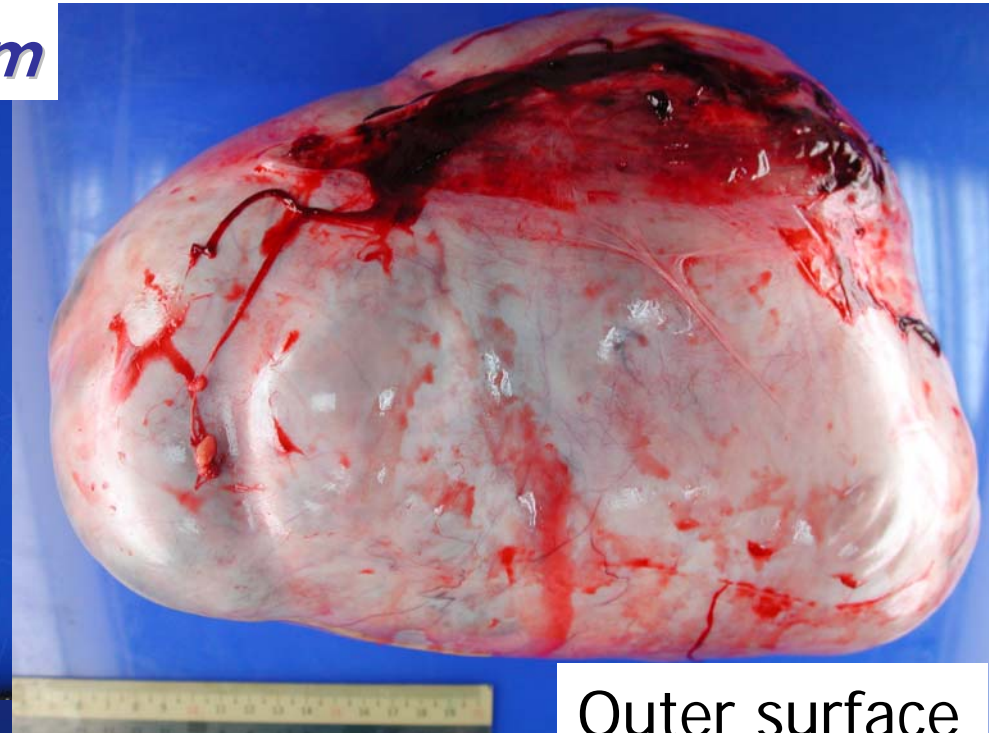
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- **Incidence:** 65 – 70% of ovarian tumors
- **Micro:**
  - Benign, Borderline malignant, Malignant
- **Classification:**
  - Serous tumors (53%)
  - Mucinous tumors (31%)
  - Endometrioid tumors (6%)
  - Others

# *Tumors of Surface Epithelium*



Benign



Outer surface



Malignant



Borderline

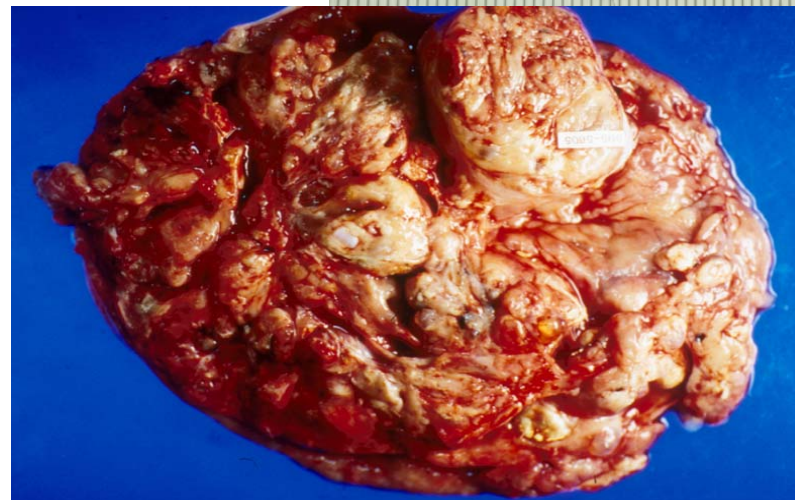
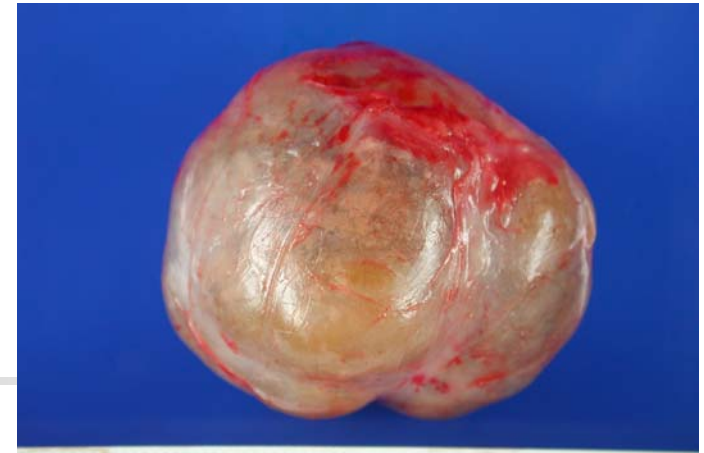
# Teratoma

## ■ Mature Teratoma

- 發生於生育年齡期
- 含三胚層構造
- 俱成熟性分化
- 大部分是囊狀
- 又稱dermoid cyst

## ■ Immature Teratoma

- 含 immature tissue
- < 20 y/o
- 生長快速, 會轉移



## ■ Dysgerminoma

- = seminoma of testis
- 75% 10~30 y/o
- most common in malignant germ cell tumor (1/2)



## ■ Endodermal Sinus Tumor (Yolk Sac Tumor)

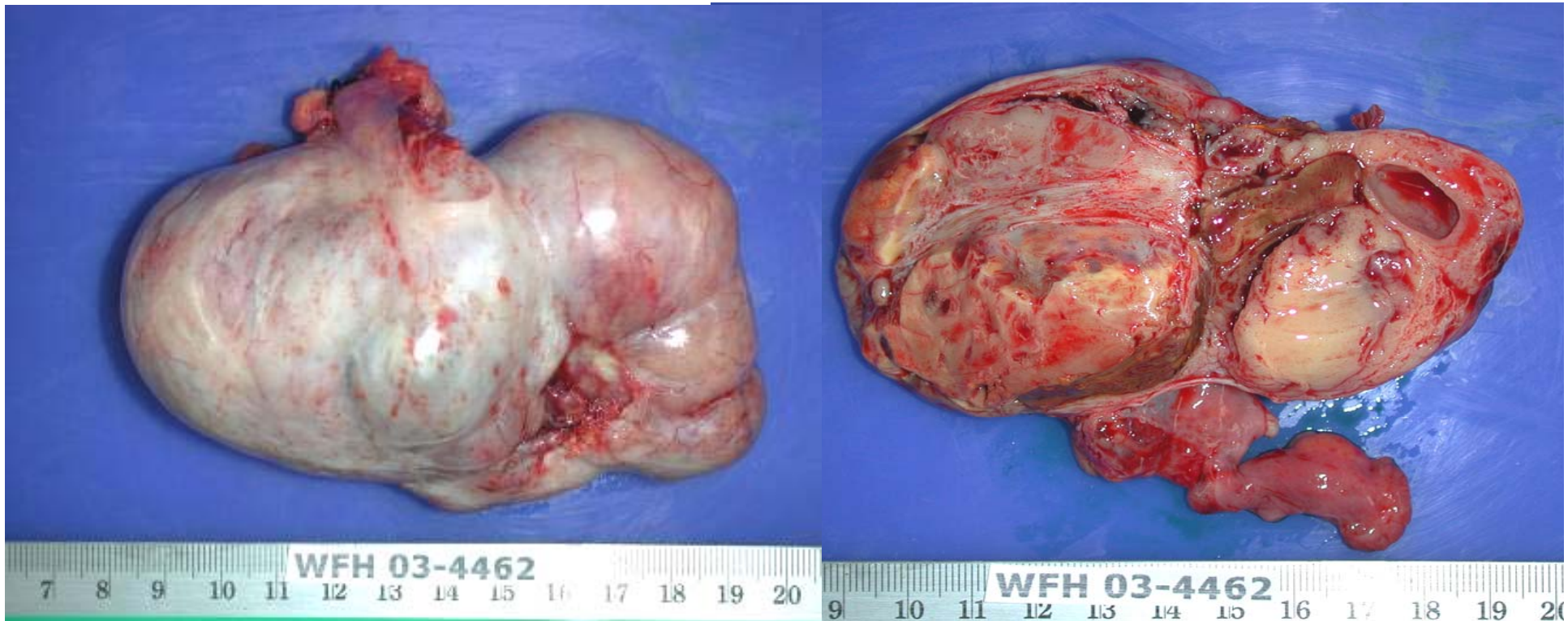
- 小孩及年輕婦女
- $\alpha$ -fetoprotein ( $\alpha$ -FP)  $\uparrow$
- 生長快速, 相當具侵襲性



# *Sex Cord-Stromal Tumors*

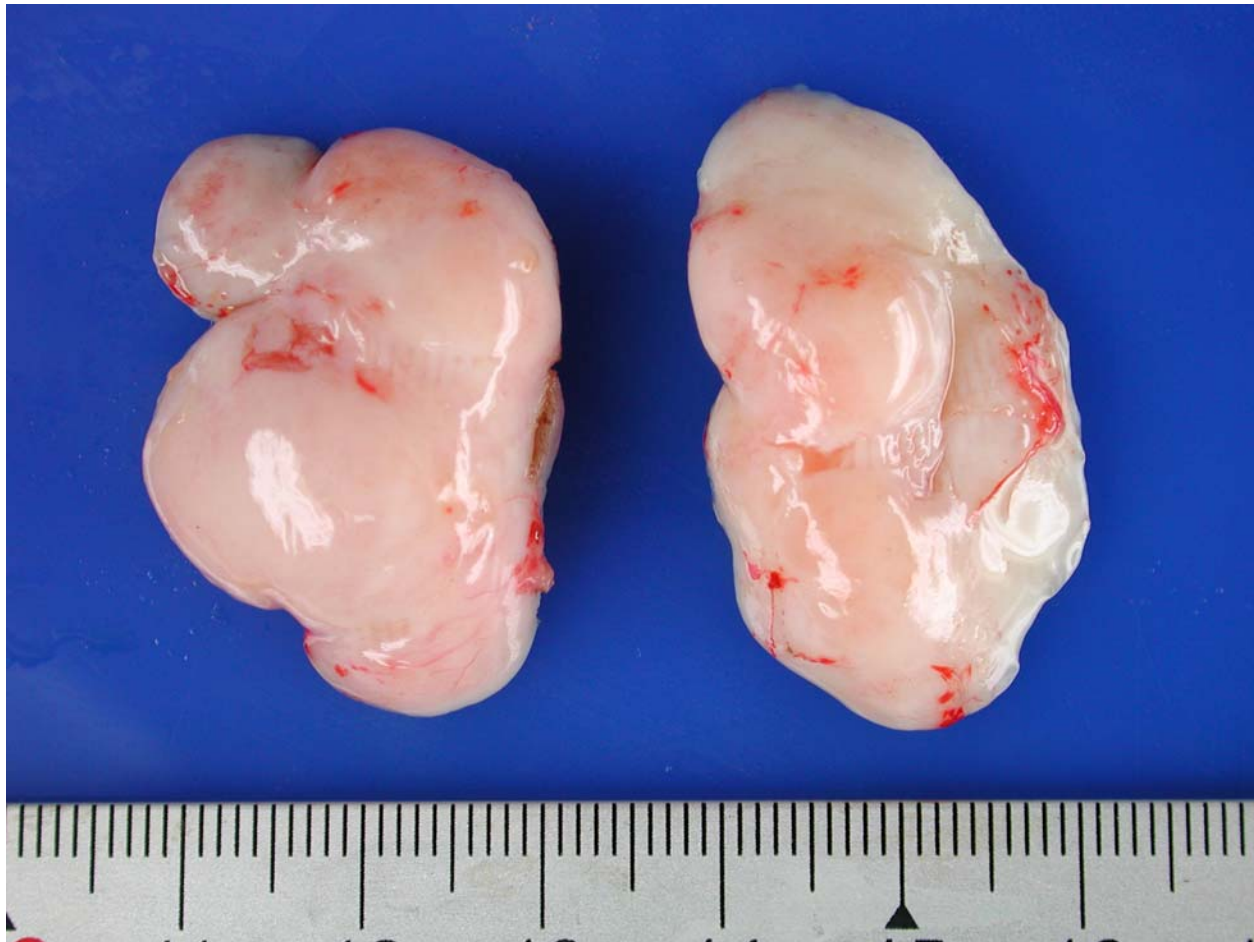
## **Granulosa Cell Tumor**

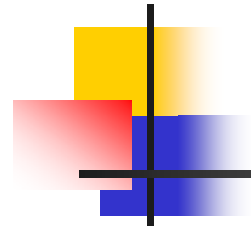
- ■ 2/3 postmenopause, *estrogen effect*
- Malignant potential (5 ~ 25%)
- Prognosis: good, 10 yrs survival rate: 85%



# *Metastatic Tumors*

- **Krukenberg's tumor:** GI tract, bilateral, mucin-producing signet-ring cells





# ***Gestational and Placental Disorders***

- **Pathology of fertilization**
- **Pathology of implantation**
- **Pathology of placentation**
- **Abortion**
- **Gestational trophoblastic disease**
- **Toxemia of pregnancy**



# *Pathology of Fertilization*

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- **Ovum-related factors: older women**
- **Sperm-related factors: azoospermia, oligospermia**
- **Genital organ factors: PID**
- **Systemic factors: immune mechanism, etc.**



# *Pathology of Implantation*



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## **Ectopic Pregnancy**

- 1/150

- fallopian tube (90%)

- ovary

- abdominal cavity

- **Causes:** PID, IUD, peritubal adhesion, normal (50%)

- **S/S:** severe abdominal pain

- **Diagnosis:** HCG, U/S, laparoscopy, endometrial Bx



# *Pathology of Placentation*

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- **Placental anomalies**

  - size, shape

- **Placental accreta:**

  - Absence of the decidua with adherence of the placenta directly to the myometrium

- **Placenta previa:**

  - Implantation in the lower segment of the uterus



# *Abortion*

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- **Interruption of pregnancy prior to the term of fetal viability (500gm or 20wks)**
- **Spontaneous or Induced**

## *Gestational Trophoblastic Diseases*

# Hydatidiform Mole

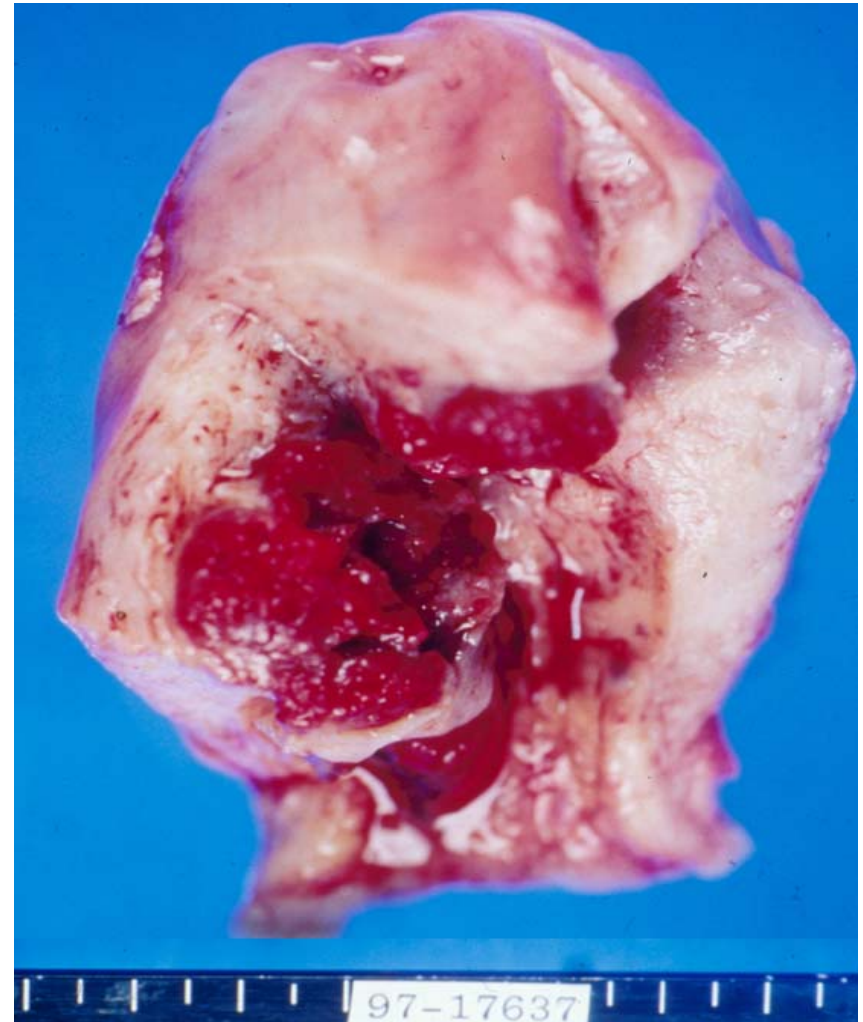
- 1/2000 pregnancy
- Complete mole:
  - 46, XX, paternal origin
- Incomplete mole:
  - oocytes fertilized with two spermatozoa, 69
- 陰道出血, HCG↑, 超音波
- 2.5% choriocarcinoma



# *Choriocarcinoma*

- **Malignant tumor** composed of cytotrophoblasts & syncytiotrophoblasts

- 50% hydatidiform mole  
25% abortion  
25% normal pregnancy
- **HCG**↑
- Bulky hemorrhagic nodules
- Invades the vein
- Metastasizes to lung, brain, liver
- Responds well to chemotherapy





# *Toxemia of Pregnancy*

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- **Preeclampsia: hypertension, proteinuria, edema**
- **Eclampsia: more severe, convulsion, coma**
- 初產婦較常見
- 妊娠第三期, 但有高血壓, 腎臟病, hydatidiform mole較早發生
- 治療: 輕度: 臥床休息, 飲食, 抗高血壓藥  
嚴重: 誘導分娩

# *Diseases of the Breast*

## 乳房疾病

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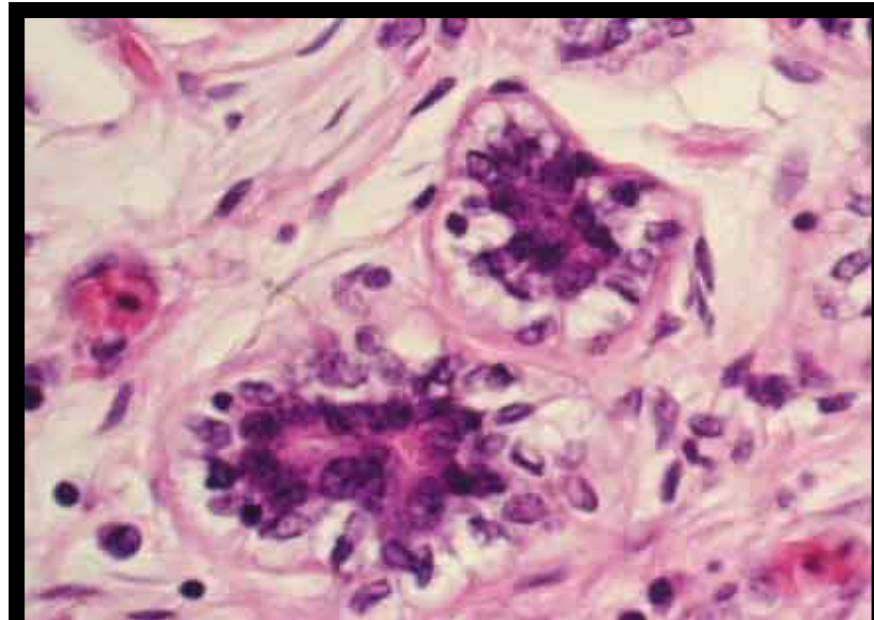
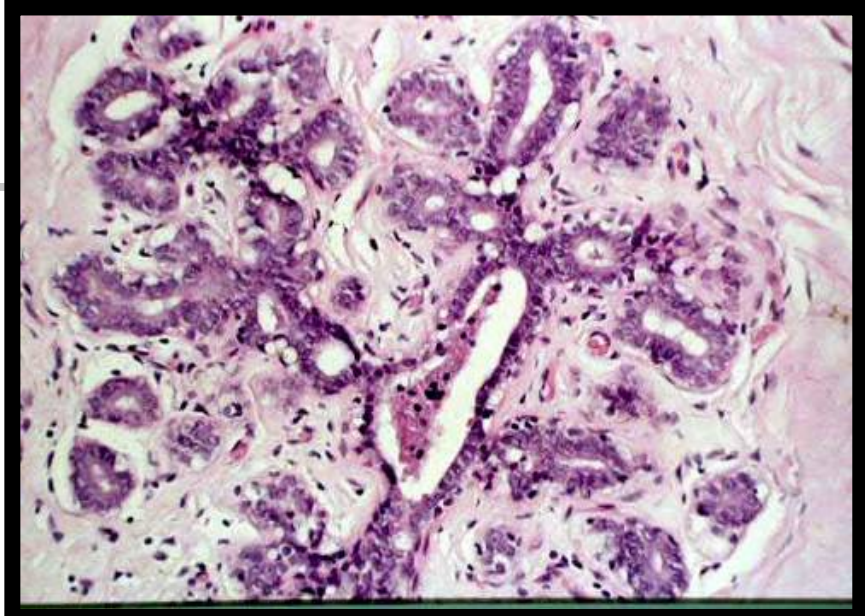
## *Overview of major disease*

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- **Tumors:** cancer is the most important disease affecting the breast
- **Hormonally induced diseases**
- **Inflammatory diseases**



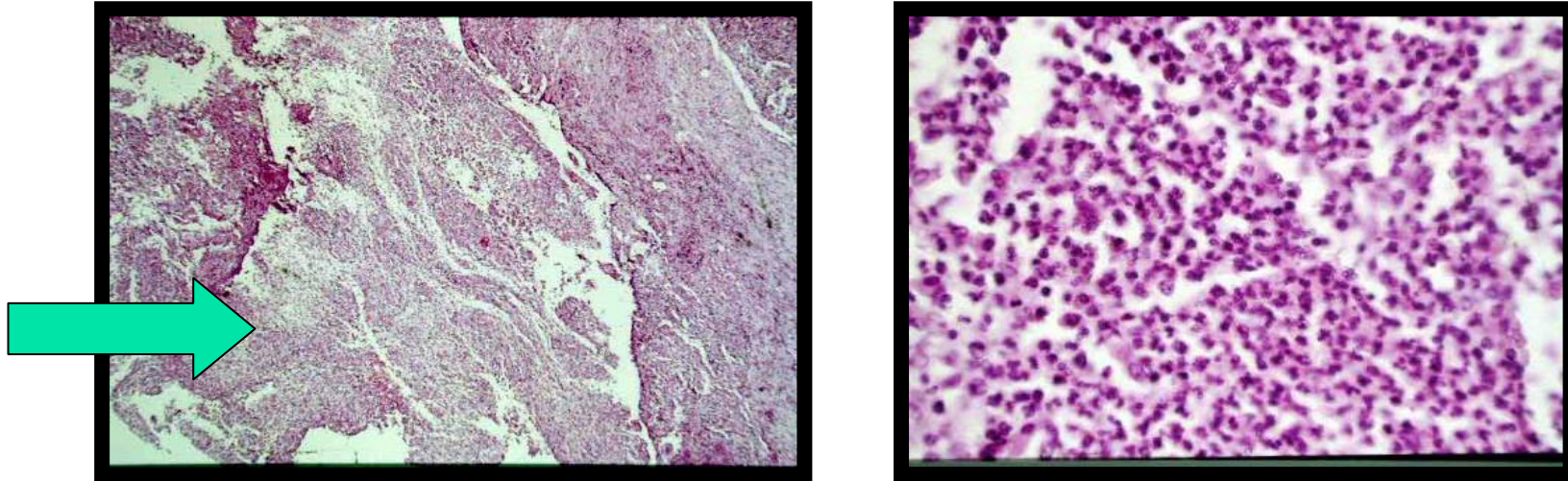
# *Histology of the Breast*



# *Inflammations*

- **Acute mastitis**

- Lactating period, staphylococcus aureus, streptococcus

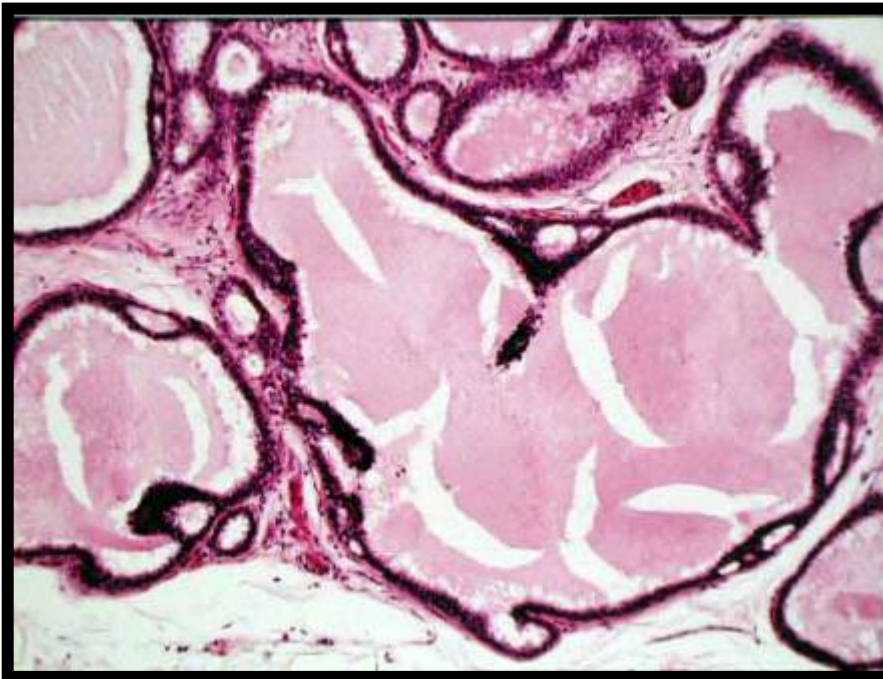


**Breast abscess**

- **Chronic inflammation**

# *Hormonally induced changes*

- **Pubertal change:** juvenile hyperplasia of the breast
- **Fibrocystic changes**
  - Most common change, hormone imbalance
  - Three dominant patterns of morphologic changes: **Cyst, Fibrosis, Adenosis**

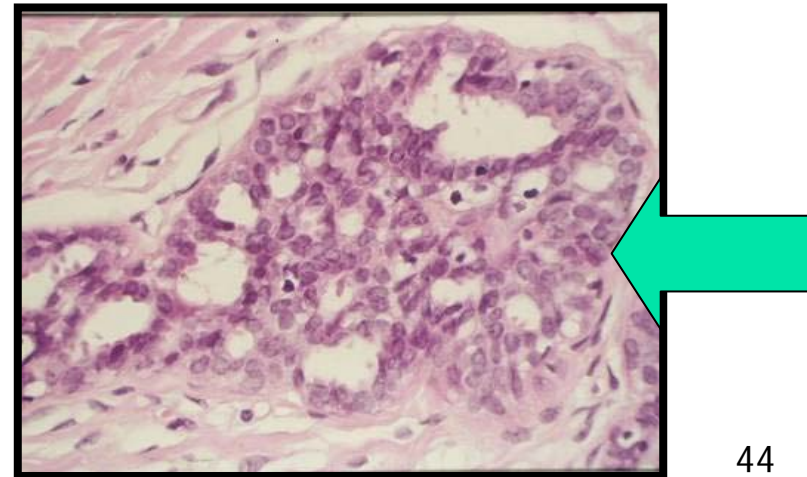
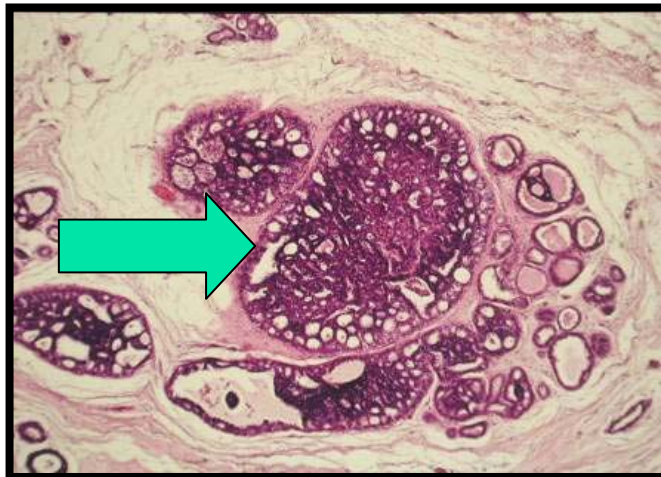


# *Epithelial Hyperplasia*

- Mild hyperplasia: no increased risk
- Moderate and florid hyperplasia: 1.5 ~ 2X
- Atypical hyperplasia: 5X

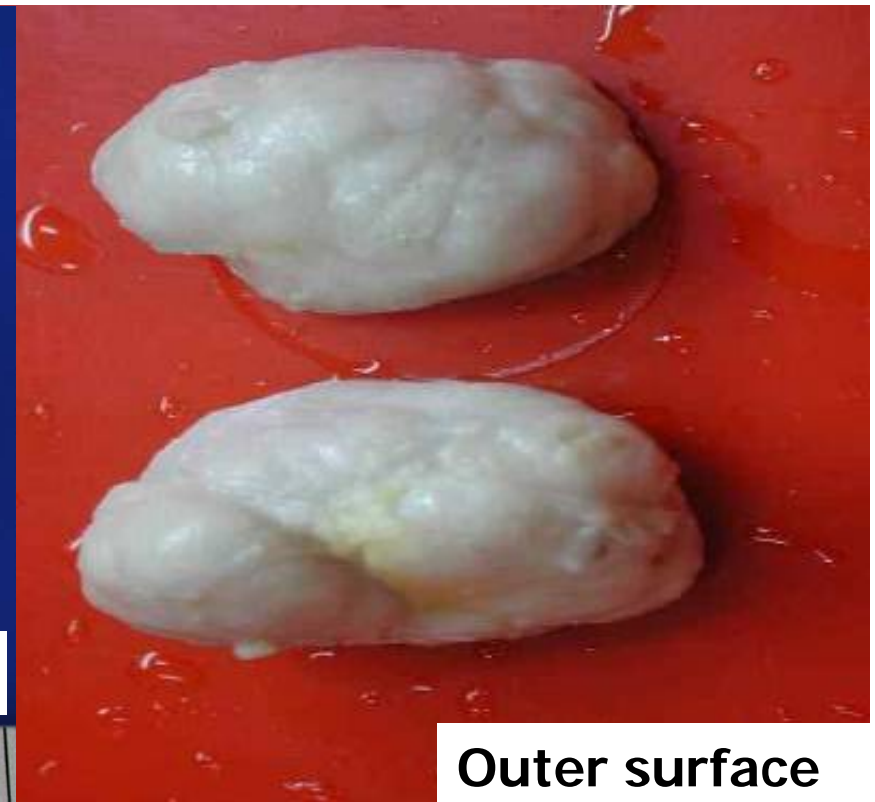
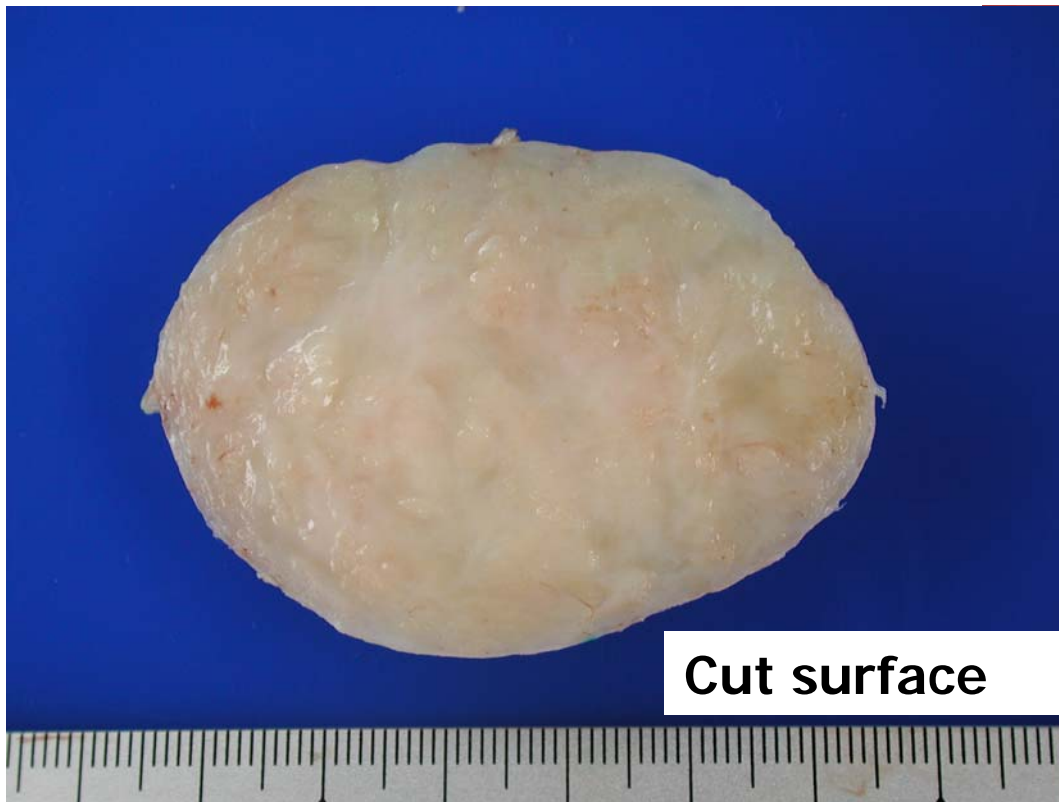
## Clinical significance

- Elevate the risk of developing carcinoma
- Differentiation from carcinoma



# *Fibroadenoma*

- Most **common** benign tumor
- Occurring at any age within the reproductive period, mainly in **young women** (<30 y/o)
- Well circumscribed





# *Risk Factors of Breast Cancer*

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- **Age**
- **Age at Menarche**
- **Pregnancy: first full-term pregnancy**
- **First degree relatives with breast cancer**
- **Proliferative breast disease**
- **Race**
- Exogenous estrogens
- Radiation exposure
- Ca. of contralateral breast or endometrium
- Geographic factors
- Diet
- Obesity
- Cigarette smoking



# *Clinical Presentation of Breast Carcinoma*

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- Breast mass discovered by palpation
- Tumor discovered by mammography
- Pain (mastodynia) or painful breast mass
- Nipple retraction, eczematoid reaction, or discharge
- Distant metastases



# *Classification of Breast Carcinoma*

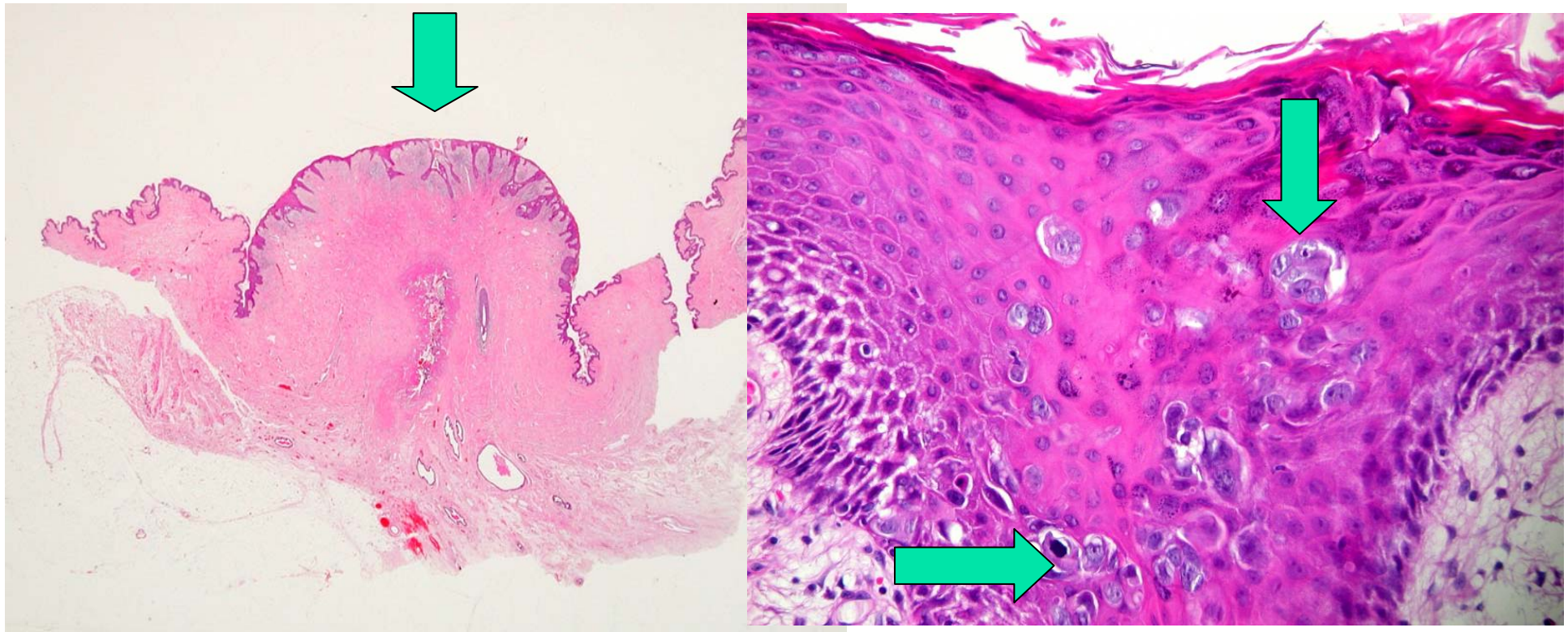
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- **Carcinoma in situ**
  - **Ductal Carcinoma In Situ (DCIS, Intraductal carcinoma)**
  - **Lobular Carcinoma In Situ (LCIS)**
- **Invasive**
  - **Invasive (infiltrating) ductal carcinoma: 80%**
  - **Invasive lobular carcinoma**
  - **Others**



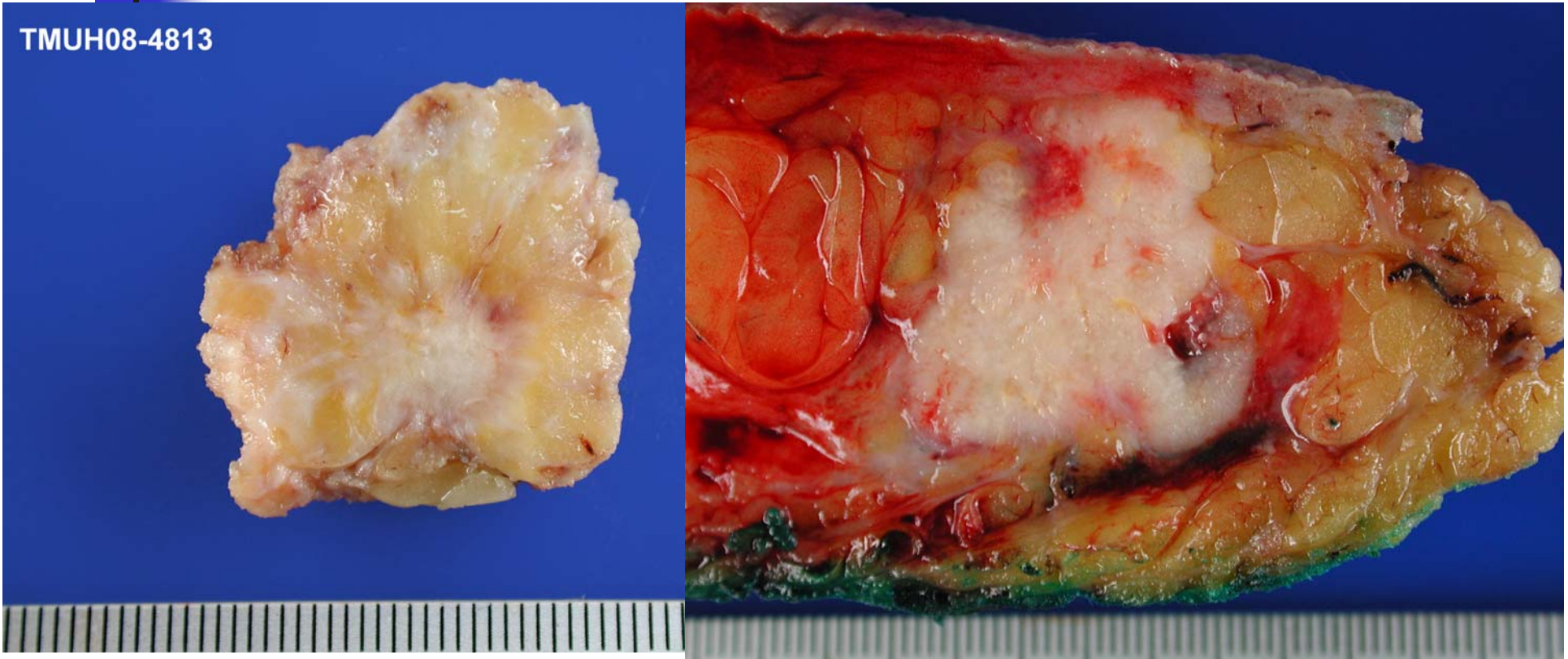
# *Paget's disease of the nipple*

- Rare manifestation of breast cancer



# *Invasive ductal Carcinoma*

TMUH08-4813



**Usually firm to hard in consistency, irregular border**



# *Prognostic and Predictive Factors*

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- 1. Invasive carcinoma or in situ disease**
- 2. Distant metastases**
- 3. Axillary LN status**
- 4. Tumor size**
- 5. ER & PR**
- 6. Histologic type**



# *Pathology of Male Breast*

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## **Gynecomastia:**

- **Unilateral or bilateral**
- **Causes: indicator of hyperestrinism**
  - **Liver cirrhosis**
  - **Functioning testicular tumor**

## **Carcinoma**



# Summary (I)

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- **Cervical cancer** is one of the common cancer in women. Nearly all cervical cancer is HPV-related.
- **Endometriosis** refers to location of endometrial glands and stroma outside the uterus. It occurs commonly in the ovary.
- **Adenomyosis** refers to growth of endometrium into the myometrium.
- **Endometrial carcinoma** is associated with estrogen excess and endometrial hyperplasia.



## Summary (II)

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- The most common benign tumor of female genital tract is **leiomyoma**.
- The **neoplasms of ovary** may be of epithelial, germ cell and sex-cord stromal origin.
- **Fibroadenoma** is the most common benign tumor of the breast.
- The prognosis of **breast cancer** is related to the stage, histological type, estrogen receptor status, etc.