Learning Objectives:
For diseases of the vulva, vagina, cervix, uterus, and ovaries:
1. Understand the presentation of disease
2. Understand the evaluation of disease
3. Understand the basic treatment of disease

Overlying Themes:
1. Age of patient
2. ? Pregnant
3. History and symptoms
4. Physical exam and pertinent findings
5. Diagnostic testing
6. Medical versus Surgical management
7. Future fertility concerns

DISEASES OF THE VULVA

Presentation:  Irritation/pruritis/burning
   Lesions

Evaluation:   History
   Inspection
   Palpation
   Culture
   Biopsy

Infections:
   Candida
   Condyloma acuminatum
   Herpes simplex
   Bartholin’s gland abscess
   Molluscum contagiosum
   Pthirus pubis (crab louse)
   Sarcoptes scabiei (itch mite)

Dermatologic conditions:
   Chemical irritation/contact dermatitis
   Melanoma
   Squamous cell hyperplasia
   Lichen sclerosis
   Psoriasis
   Nevi
Seborrheic dermatitis

Fibromas/lipomas

**VIN/Vulvar Carcinoma:**

Most common in women aged 60-70
Fourth most common gyn malignancy
Pruritis most common symptom
Can also present with a mass, pain, ulceration

Increased relative risk associated with:
>2 cups of coffee/day
occupation (laundry/dry cleaning)
history of vulvitis
HPV implicated as possible causative agent

Spread by local invasion then via lymphatics in ipsilateral fashion
Treatment by excision of lesions
Good prognosis

**DISEASES OF THE VAGINA**

**Presentation:** abnormal vaginal discharge

What is normal vaginal discharge?
Physiologic
Normal pH 3.5-4.5 ie, acidic lactobacilli
Variation with menstrual cycle
Variation with hormonal levels

**Evaluation:**
History
Wet prep
Culture
Biopsy

**Infections:**
Bacterial vaginosis: symbiotic infection of anaerobic bacteria
Lack of lactobacilli
Grey, non-inflammatory discharge
Amine odor with addition of 10% KOH
Clue cells
Treatment with metronidazole/clindamycin

Candida: Vulvovaginal yeast
Pregnancy, diabetes, obesity, immunosuppression, antibiotic use
Pruritis, erythema, irritation, dyspareunia
Thickened, adherent discharge
Hyphae and buds on KOH prep
Treatment with anti-fungals

Trichomoniasis: Protozoan T. vaginalis, sexually transmitted
Diffuse, malodorous discharge, dyspareunia
“Frothy”, yellow-green discharge
Flagellated protozoa, +WBCs on wet prep
Treatment with metronidazole

Atrophic vaginitis: Due to low estrogen levels
Itching, irritation, burning, dyspareunia, bleeding
Immature squamous cells on wet prep
Estrogen therapy?

Vaginal Carcinoma: rare, mean age 60-65
In patient < 5 yo.: Sarcoma botryoides: red-tan grape clusters
Clear cell carcinoma and DES exposure
Squamous cell carcinoma as metastatic spread
Most present with vaginal bleeding, foul discharge
Biopsy, rule out metastatic disease
Radiation, possible surgical excision
Prognosis disease dependent

DISEASES OF THE CERVIX

Cervicitis: Presents as vaginal discharge, pain, post-coital bleeding
Chlamydia trachomatis: Intracellular bacterium
Sexually transmitted
Presents with gonorrhea
Infertility, ectopic pregnancy
Neonatal conjunctivitis
Antibiotic therapy

Neisseria gonorrhoea: Sexually transmitted
Disseminated infection
Antibiotic therapy treat for Chlam too
**Herpes Simplex Virus:**  
Importance in pregnancy  
Anti-viral therapy

**Trichomonas**

**Cervical polyps:**  
Most common benign growth of cervix  
Cause irregular spotting, post-coital bleeding  
Polypectomy

**Cervical dysplasia:**

Area at risk for dysplasia/infection is the squamocolumnar junction  
Location of SCJ varies with age and hormonal status

Risk factors for cervical dysplasia:  
- Early coitarche  
- Multiple partners  
- Tobacco use  
- HPV 16,18,31,33,35,39  
- Immunosuppression/HIV  
- Other STDs

**Cervical cytology (Papanicolaou smear)**

Exfoliative cytology  
First Pap at age 21 or when sexually active  
Bethesda system of classification  
SCREENING tool  
False negative rates as high as 10-30%  
**Biopsy** a visible abnormality for diagnosis

**Evaluation:**  
Colposcopy with directed biopsies  
Visualize cervix under magnification  
Requires visualization of entire transformation zone  
Acetic acid application  
Assess for vascular changes  
Endocervical curretage

**Treatment:**  
Ablative  
Excisional  
- Cone biopsy  
- Loop electrosurgical excision procedure

**Subsequent follow-up of cervical cytology:**

Dependent on diagnosis and risk factors  
80% of CIN I will regress within one year
High grade abnormalities likely to progress
Evaluation for AGUS
Ensure compliance
Observation vs. Treatment of lesions
Smoking cessation

**Cervical cancer:**
65-85% is squamous cell carcinoma
HPV
Present with AUB, post-coital bleeding, most often painless
Late symptoms include back pain, weight loss, foul discharge
Pap smear screening with high false negative rate therefore BIOPSY
Spread via local invasion and lymphatics
Early stages may be treated surgically
Later stages treated with radiation

**ENDOMETRIOSIS**

Presence of endometrial glands and stroma outside of the uterus
1-2% of general population
30-50% of infertile women
20% of patients with chronic pelvic pain

Endometrioma: tumor of endometriosis within the ovary
Adenomyosis: endometrial implants within the myometrium

Pathogenesis:
- Retrograde menstruation
- Vascular/lymphatic dissemination
- Coelomic metaplasia
- Hereditary
- Iatrogenic

**Location of endometriotic lesions:** dependent portions of pelvis
ovaries typically bilateral
uterosacral ligaments and rectovaginal septum
endometrioma = “chocolate cyst”
outside of the pelvis: lungs, surgical scars
**Presentation:**
- Pelvic pain
- Infertility
- Dysmenorrhea
- Dyspareunia
- GI symptoms
- 15-20% with AUB

Severity of disease does NOT correlate with symptoms

**Exam Findings:**
- Fixed retroverted uterus
- Uterosacral nodularity
- Enlarged tender ovaries

**Diagnosis:**
- Laparoscopy
- Ablation of lesions at time of laparoscopy
- No lab studies
- Imaging not helpful

**Treatment:**
- Chronic, progressive disease
- Treatment is temporizing
- Consider symptoms, severity, location of disease
- Discuss future fertility desires

Goal is amenorrhea
- OCPs
- Progestins
- Danazol
- Lupron
- Surgical

**Adenomyosis:**
- Incidental finding on pathological evaluation of uterus
- Enlarged, “soft” uterus, globular, tender with menses
- ?pathogenesis
- Age 35-50, dysmenorrhea/menorrhagia
- Treat with NSAIDs, hormonal suppression, hysterectomy

**DISEASES OF THE UTERUS**

**Endometrial polyps:**
- Overgrowth of endometrial glands/stroma
- Peak incidence age 40-49
- ?etiology, associated with endometrial hyperplasia
- Unopposed estrogen
- Present with irregular/abnormal uterine bleeding
- Ultrasound with sonohysterogram
Consider endometrial biopsy
Treatment by hysteroscopy, dilatation & curettage

**Leiomyomata:**
Monoclonal smooth muscle cell tumor - benign
“Fibroids”
Most frequent pelvic tumor
Incidence varies with ethnicity

Location: Intramural
Subserosal
Submucosal
Broad ligament
Cervical

**Symptoms:** AUB, dysmenorrhea, menorrhagia, pain, pressure, infertility

**Diagnosis:** Pelvic exam
Ultrasound
CT/MRI
Size described like weeks of pregnancy
CBC

**Treatment:** Hormonal
Surgical
Myomectomy
Hysterectomy
Uterine artery embolization

**Endometrial hyperplasia/carcinoma:**
Most common gyn malignancy
Adenocarcinoma
Peri/Post-menopausal women
Increased risk associated with unopposed estrogen
  - obesity, HTN, diabetes, anovulation, nulligravid, Tamoxifen
Peripheral conversion of androgens to estrone
Progesterone is protective

Endometrial hyperplasia: continuum of simple → complex → carcinoma

**Presentation:** Post-menopausal bleeding
Abnormal uterine bleeding

**Diagnosis:** Endometrial biopsy
Dilation and curettage

**Treatment of endometrial CA:** Surgical staging
   Extent of myometrial invasion
   Prognostic factors: tumor grade, depth of invasion, spread
   Lymphatic spread to pelvic LN→periaortic LN and direct extension via fallopian tubes
   Possible radiation therapy
   Possible progesterone therapy

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**DISEASES OF THE OVARIES AND FALLOPIAN TUBES**

**Ovaries:**
Adnexa = ovaries, fallopian tubes, upper portion of broad ligament

**Presentation:**
   Asymptomatic
   Pain
   Irregular menses
   Mass on exam
   Bloating
   Constipation
   Vague abdominal discomfort

**Evaluation:**
   Expect ovaries to be NON-palpable in adolescents and post-menopausal women
   Otherwise, ovaries palpable 50% of the time
   Evaluate size, shape, consistency on exam
   Imaging modalities—USN, CT, MRI

**Other actors:**
   Urinary tract infections
   Renal calculus
   Appendicitis
   Pregnancy complications
   Inflammatory bowel disease
   Myomas
   Ovarian torsion
   Pelvic kidney

**Functional Ovarian Cysts:** “it is not a tumor”

   Anatomic variations due to normal ovarian function
May be as large at 5-8 cm
Most regress spontaneously

**Follicular cyst:**
- Anovulation, amenorrhea, granulosa cells
- Presents with unilateral pain, irreg. menses
- On exam—unilateral mass, tenderness
- USN eval—simple cystic structure
- Expect spont. regression 6-8 weeks
- NSAIDs, OCPs
- Rupture can cause acute pain

**Corpus luteum cyst:**
- Prolonged luteal phase, delayed menses
- Dull lower quadrant pain
- Adnexal mass
- Rule out ectopic

**Hemorrhagic CL:**
- rapidly enlarging cyst which bleeds
- Ruptures late in luteal phase
- Acute onset of pain
- Hemoperitoneum
- Check CBC, orthostatics
- Analgesics, possible laparoscopy

**Ovarian Neoplasms:**

Benign neoplasms are more common than malignant tumors
Risk of malignancy increases with age
Appearance/characteristics on imaging helpful in management
Management most often surgical because of risk of malignancy
Consider future reproduction desires, risk of malignancy

**Tumor frequencies:**
- Adolescents: dermoid
- Reproductive age: serous cystadenoma
- Peri/Postmenopausal: 25% malignant

**Epithelial:**
- 65% of all ovarian tumors
- SEROUS CYSTADENOMA is most common
- MUCINOUS CYSTADENOMA can become very large
- ENDOMETRIOMA

**Germ cell:**
- 20-25% of all ovarian tumors
BENIGN CYSTIC TERATOMA/DERMOID
Asymptomatic, unilateral cyst, anterior in pelvis
Comprised of all three germ cell layers
Hair, sebum, teeth, etc.
STRUMA OVARI—functional thyroid tissue
Less than 1% malignant, bilateral 10-20%
Rupture→ chemical peritonitis

**Stromal:**
Solid tumors of sex-cord stroma
Can produce hormones
MEIG’S SYNDROME:
Benign ovarian fibroma
Ascites
Right unilateral hydrothorax

**Ovarian Carcinoma:**

1 in 70 lifetime risk
Highest mortality rate: lack of useful screening, late detection
Early disease asymptomatic, 2/3 with advanced disease at time of diagnosis
Vague symptomatology
Peak incidence 50-60 year old
Risk factors:
+ family history
+ history of breast carcinoma
nulliparity
talc
obesity

Incessant ovulation
Oral contraceptive use protective

Genetics:
Autosomal dominant with variable penetrance
Site-specific familial ovarian CA
Breast/ovarian familial cancer syndrome
BRCA-1
Lynch II syndrome: colon, ovarian, endometrial, breast

Ovarian cancer spreads to peritoneal surfaces by direct extension
Bowel obstruction

Surgical staging aimed at tumor debulking/cytoreduction
Peritoneal washings, TAH/BSO, pelvic and periaortic LN sampling, omentectomy
Adjuvant chemotherapy, possible intraperitoneal treatment, rarely XRT

**Fallopian Tubes:**
- Ectopic pregnancy
- Salpingitis
- Hydrosalpinx
- Tubo-ovarian abscess
- Paratubal cyst/hydatids of Morgagni
- Paraovarian cysts

**Fallopian tube carcinoma:**
- Rare
- Classic triad: watery vaginal discharge, pain, pelvic mass

**For an enhanced understanding peruse this supplemental reading:**

Cervical dysplasia, Bethesda system, guidelines for management of CIN:
[www.asccp.org](http://www.asccp.org) (American Society for Colposcopy and Cervical Pathology)