Gynecologic Pathology Lab I:  
Trophoblastic Diseases, Fallopian Tube, & 
Endometriosis

Goals, Objectives and Recommended Readings: refer to lecture outlines  
Slides 138, 145, 146, 132, 147, 139

I. Fallopian Tube:  
Slide 138
Case History:  23 yo sexually active G₀ presents with an acute abdomen. Birth Control – none reported. Symptoms began in the week following her menses and have gradually worsened. She is febrile and guards on examination of her lower abdomen. Pelvic exam demonstrates a mucopurulent discharge from her cervical os and positive cervical motion tenderness.

What is the differential diagnosis based upon the history provided?

Assuming this histologic slide resulted from an emergent surgical procedure on the patient noted above, what is your diagnosis?

What is the pathophysiology of this condition?

What are the long term complications of the histopathologic effects seen in your slide on the fallopian tube and surrounding anatomy (assuming that surgical removal, usually a last resort, is not performed)?

II. Fallopian Tube:  
Slide 145
Case History:  Same patient as in the first case of this lab exercise, only this time she undergoes medical treatment of her condition, with resolution of her symptoms. Time passes and she conceives. She presents to her obstetrician at around 8 weeks gestational age with right lower quadrant pain and vaginal bleeding. On exam, her cervical os is closed with a small amount of blood noted. Her uterus is “6-8 weeks size” and she has some right lower quadrant “fullness”.

What clinical approaches might her obstetrician take to help make a diagnosis?

Review the gross photograph along with the microscopic sections.  
What is your diagnosis?  
If not recognized, what potential complication might you expect?
III. Uterine Contents: 132 (uterine contents - hysterectomy)

Case History: 30 yo G2P1 initially presents to her obstetrician at around 8 weeks gestational age with vaginal bleeding. On exam, her cervical os is closed with a small amount of blood noted. Her uterus is “12 weeks size.” Ultrasound shows intrauterine contents without obvious evidence of a fetus. Serum $\beta$-hCG is 170,000 IU/ml. A suction curettage is performed (formerly slide 146). Weeks pass

Please use slide 132 for the important features of this case (see footnote).

What are the diagnostic possibilities based upon history alone?

What if the serum $\beta$-hCG was 4,000IU/ml?

Weeks pass and the patient’s serum $\beta$-hCG plateaus, then rises. She is placed on Methotrexate, but continues to have elevated serum $\beta$-hCG. A hysterectomy is performed.

Review your slide and determine the most likely diagnosis based upon the histology.

What are the histogenetic theories of hydatidiform moles (molar pregnancy)?

Re-review slide 145. Some hydropic change (villous edema) is present in most sections. Why isn’t this a molar pregnancy?

IV. Endometrial Curettings: Slide 147

Case History: Our patient in the previous case is followed carefully by her Ob/Gyn physician with serial serum $\beta$-hCG tests. After a steady decline in her serum titers, her levels first plateau, then begin to rise. Ultrasound shows intrauterine echoes, and a curettage is performed.

What are the diagnostic possibilities based upon history alone?

Additional information: Her chest x-ray shows multiple ill defined masses. With this information and your glass slides from the curettage, what is your diagnosis?

What is the relationship between molar gestation (complete vs. partial) and gestational choriocarcinoma?

* Due to inconsistencies in slide 146, please review only slide 132 for this case. The villi present within the myometrium of this slide demonstrate all of the important histologic features that would have been seen in a suction curettage on this patient.
What are the major differences between gestational and non-gestational choriocarcinoma?

V. Ovary: Slide 139
Case History: A 34 yo nulligravida presents to the Reproductive Endocrinologist because she has been unable to conceive for the 4 years she has been married. She has no history of STD, but does relate severe dysmenorrhea and dyspareunia. On pelvic examination, a tender left adnexal mass is noted (~10cm) along with uterosacral nodularity.

Review the gross photos and histologic sections of the ovarian mass. What is your diagnosis?

What other anatomic locations can be affected by the process that resulted in this patient’s ovarian mass?

What are the theories of histogenesis of this process?
Gynecologic Pathology Lab II: Vulvar, Cervical, and Uterine Pathology

Goals, Objectives and Recommended Readings: refer to lecture outlines
Slides 130, 133, 135, 134, 137, 136

I. Vulvar Biopsy: slide 130
Case History: 42 yo G6P4024 with a remote history of genital warts presents to her gynecologist relating that she has noticed a white patch (leukoplakia) that “recently” appeared in her genital area. A shave biopsy is performed.

What is the differential diagnosis based upon her history?

After reviewing your slides, what do you think this lesion represents?

II. Cervix, cone biopsy: slide 133
Case History: 36 yo with a PAP smear report of HSIL. She relates a history of “dysplasia” which was treated by cryotherapy (freezing the cervix). Attempts at colposcopy are deemed “inadequate” as the clinician is unable to see the transformation zone (T-Z) in its entirety. A cone biopsy was performed.

In your slides you should see areas of normal and abnormal epithelial growth. Determine the grade of dysplasia (cervical intraepithelial neoplasia - CIN) present in your slide.

What HPV sub-types might be responsible for this lesion?

III. Uterus, endometrial biopsy: slide 135
Case History: 48 yo on Megace (medroxyprogesterone acetate) for endometrial hyperplasia. A follow-up endometrial biopsy was performed to assess her treatment status.

What other medications might also explain the findings seen in this slide?

Could this histology be seen in pregnancy?

IV. Uterus, hysterectomy: slide 134
Case History: 50 yo with an ultrasound demonstrating thickening of the endometrial stripe.

Based upon the histopathologic findings in your slide, think of some clinical scenarios with which this patient might present.
If these changes were noted on endometrial biopsy, would you tell the patient her risk for developing endometrial cancer was: a) about 1 in 4, b) about 1 in 100, c) about 1 in 2, d) No increased risk.

V. Uterus, hysterectomy: slide 137
Case History: 48 yo with an endometrial biopsy demonstrating complex atypical hyperplasia undergoes a hysterectomy.

This slide represents endometrial carcinoma. In light of the preoperative diagnosis describe the features that make this “carcinoma” and not just residual “complex atypical hyperplasia”.

Provided there is no carcinoma in the cervix or outside of the uterus, assess the surgical stage of this patient based upon your histologic section.

VI. Uterus, hysterectomy: slide 136
Case History: 28 yo with a history of infertility and an enlarged uterus. The patient underwent myomectomy in an effort to preserve fertility.
Gynecologic Pathology Lab III: Ovarian and Testicular Pathology

Goals, Objectives and Recommended Readings: refer to lecture outlines
Slides ovary 141, 142, 143a, 144; testis 119, 120, 121, 131, 122

I. Ovary: slide 141
Case History: 18 yo with an adnexal mass noted on her first pelvic examination. She relates no symptoms.
This section IS from the ovary, but may bear no histologic resemblance to "normal" ovarian histology. What is this entity?
Ectoderm, mesoderm, endoderm: Try to identify examples of each in your section.

II. Ovary: slide 142
Case History: 30 yo with a protuberant abdomen and 50 pound weight gain over two years. A large, smooth walled, multiloculated ovarian cyst is removed, filled with mucoid material.
What is the histologic type of this epithelial neoplasm?
Is it benign, LMP (borderline), or malignant? Justify your designation.

III. Ovary: slide 143a
Case History: A 52 yo presents to you with an elevated CA-125. On physical exam she has ascites and a pelvic-abdominal mass.
The histology of the ovary on your slide is representative of the histology seen in multiple implants throughout the abdominal cavity and omentum. No other disease is noted outside the abdominal cavity.
What is your diagnosis?
What is the surgical stage, based upon the description above?
What other conditions/entities can cause elevation of CA-125?
IV. Ovary:  
*slide 144*

**Case History:** 50 yo with an endometrial biopsy demonstrating hyperplasia. A hysterectomy was performed and an incidental enlargement of the left ovary was noted. Cut section revealed a solid-yellow tumor with areas of hemorrhage.  
*(Please see slide 134 from Gyn Pathology Lab II).*

What is the ovarian cell-line from which this neoplasm arose? 

What is the diagnosis? Are there any characteristic “microscopic keys” with which this tumor is associated? 

Why does the patient have endometrial hyperplasia? 

Name some other ovarian functioning tumors.

V. Testis:  
*slide 119*

**Normal testis:** From the tunica propria of seminiferous tubules to the lumen one sees spermatogenic cells in the following order: 
1. Spermatogonia (small dark nucleus) 
2. Primary spermatocyte (largest cell in series) 
3. Secondary spermatocyte (relatively transient cell) 
4. Spermatids 
5. Spermatozoa. 

Sertoli cells are difficult to identify in tubules with normal spermatogenesis, which tends to obscure them. 

Interstitial cells (Leydig cells) possess eosinophilic cytoplasm and are located between tubules.

VI. Testis:  
*slide 120*

**Case History:** 25 yo man with pain in the right testicle of five weeks duration. Serum human chorionic gonadotropin and alpha-fetoprotein were negative. 

**Testicular Infarction:** Only ghosts of seminiferous tubules and their cellular contents remain indicating there is extensive coagulative necrosis. A few neutrophils are seen in the interstitium. Some of the slides show the tunica of the testis along one border of the necrotic zone. Hemorrhage is seen in this area along with granulation tissue consisting of fibroblastic and angioblastic proliferation, indicating organization of the hemorrhage and necrosis is occurring. 

What is the most likely cause of this infarction?
VII. Testis: slide 121
Case History: 40 yo man noted swelling and tenderness of his right testicle for several months prior to orchiectomy.

*View in conjunction with slide 131*

VIII. Ovary: slide 131
Case History: 18 yo with abdominal pain. A solid pelvic mass is noted on sonography. Human ß-hCG and AFP are negative. CA-125 is slightly elevated. A unilateral ovarian mass is noted at surgery with no evidence of extra-ovarian pathology. The tumor is 15cm, solid with “lobulations” and focal hemorrhage.

How does the histology of this specimen compare with that of the previous case?

What is each patient’s diagnosis?

Make a table of the germ cell tumors seen in the ovary and testis along with their associated tumor markers.

IX. Testis: slide 122
Case History: This patient had received radiation and cytotoxic drug therapy for a systemic neoplasm. The analysis of his semen revealed azospernia.

Also called the “Sertoli cell only” syndrome because all or most of the spermatogonia are absent, this represents germinal aplasia of the testis. There is no evidence of maturation of germ cells. The decrease in number of germ cells has unmasked the Sertoli cells which are the most prominent cells in the tubules. The tubular tunica propria is not significantly thickened.

Is this a reversible form of infertility?