Sheets Pathology

Number	6
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This sheet written based on record 13 on website

Cover slide(95- 117)

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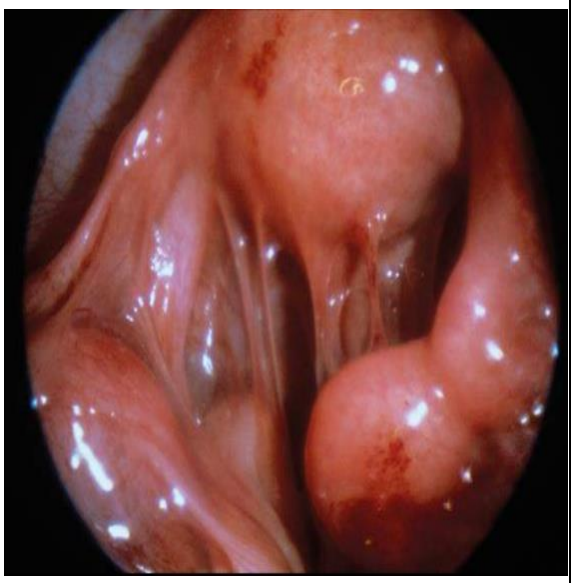
FALLOPIAN TUBE PATHOLOGY

In general fallopian tube diseases are not that common



SALPINGITIS

- Inflammation of the fallopian tube
- the most common significant pathology in fallopian tube ; almost part of PID –pelvic inflammatory disease (the figure show PID)
- The most common causes : Gonorrhea, Chlamydia, Mycoplasma, coliforms, Strep and staph . TB salpingitis is less common but occurs with TB endometritis.
- Symptoms : Fever, abdominal Pain and sometimes masses (abscess formation = tubo-ovarian abscesses)
- May lead to adhesions, infertility and ectopic pregnancy.

FALLOPIAN TUBE CARCINOMA

It is BAD tumor, usually the patient come in late stage, stage 3 or 4, it is caught after metastasis to ovaries and peritoneum cavity. However, luckily they are RARE tumor.

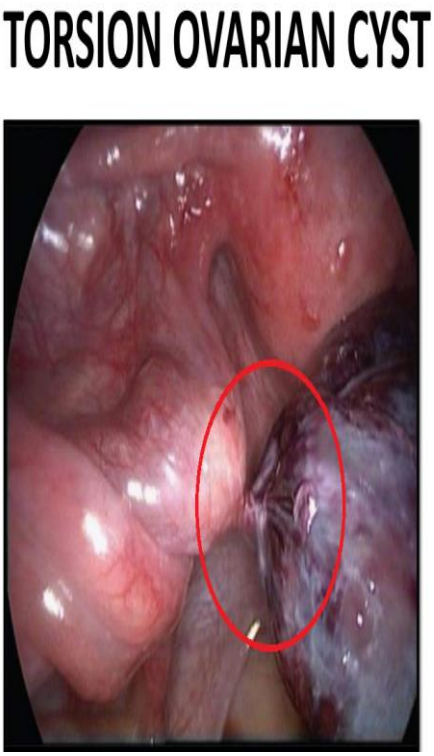
Usually they are high grade serous type carcinoma (it is like that of the high grade serous carcinoma of endometrium and ovary, because of that, usually when we diagnose it we don't know if it came originally from the tube, ovary or endometrium)

It Can be preceded by carcinoma in situ known as serous tubal intraepithelial carcinoma (STIC) .

Patients have tumor suppression gene mutations BRCA1 and BRCA2 mutations which are also common mutations in breast cancer. Many of patients also have TP53 mutation.

OVARIAN PATHOLOGY

FOLLICULAR AND LUTEAL CYSTS

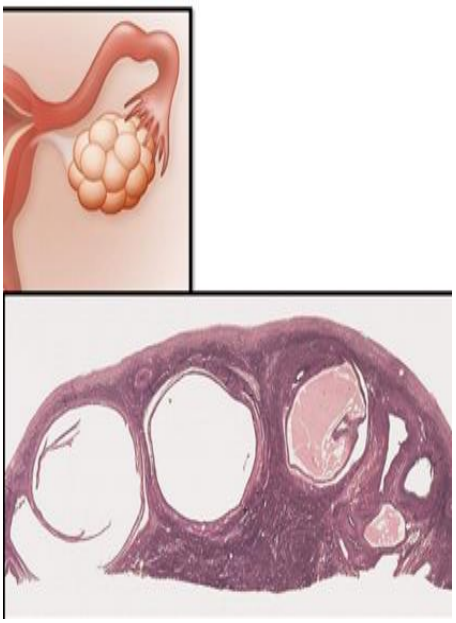


They are Very common and most of them are benign with Unruptured Graafian follicular cyst .

These cyst can be Single or multiple, and they are variable in size, clinical symptoms depend on their size and nature, in case of large cyst it May twist and cause acute abdomen "torsion". It May ruptures causing acute abdomen and intraperitoneal bleeding. And we can see it in the pedunculated cyst (cyst connecting with surface of the ovary by a peduncle), peduncle twist cause reduction in blood supply, which lead to infraction and abdominal pain , we call it torsion cyst , if it present in the right side it may confuse with appendicitis .

NOTE: torsion also occurs in testes and it is very painful, if it infract we have to remove it. If the patient was lucky we discover it before the torsion.

POLYCYSTIC OVARIAN SYNDROME



Old name: Stein-Leventhal syndrome

It characterized by:

- a lot of cyst in the ovary, PCO(polycystic ovary).
- Hyperandrogenism
- slight increase in testosterone level which cause **hirsutism**, too much hair .
- menstrual abnormalities , anovulatoy cycle
- chronic anovulation and decreased fertility
- usually these patients are obese
- the etiology is unknown
- some people believe there is imbalance of LH/FSH ratio
- It happens to young females after menarche.
- Usually bilateral

** usually we do not do cystectomy unless we are afraid of other things .

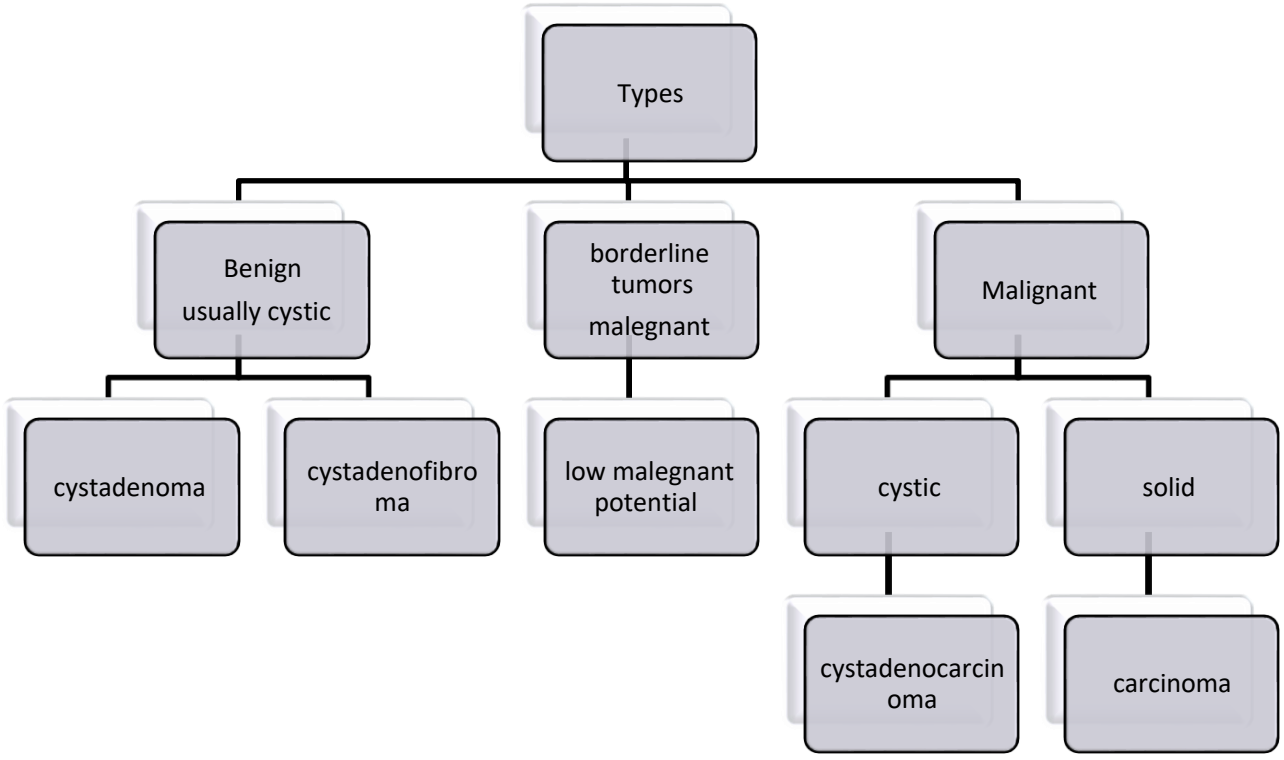
OVARIAN TUMORS:

General facts：

- Relatively common tumors; many are lethal
- 5th leading cause of mortality in women (the 1st one is lung cancer then breast cancer)
- Tumors of ovary Can arise from 3 cell lines:
  1) Multipotent coelomic (surface) epithelium (70-80%)
  2) totipotent germ cells (dysgerminoma) : like seminoma, which sensitive to chemotherapy and radiotherapy, high cure rate
  3) sex cord-stromal cells : usually benign tumors
- 90% of the primary malignant ovarian cancer are epithelial in origin
- They tend to present late (stage IV) with peritoneal involvement.

1) Surface epithelial tumors:

' It is account 70% of ovarian cancer. ith repeated ovulation and scarring , surface epithelium become entrapped in the cortex of ovary forming small epithelial cyst , these can become metaplastic or undergo neoplastic transformation to give rise to number of different tumors, *Robbins* ' , Thought to arise from fallopian tube epithelium and cysts



Risk factors for ovarian cancer(epithelial carcinoma):

- Nulliparity , woman who did not get pregnant at all
- Family history
- Germ line mutations , specifically Tumor suppression genes, TP53
- Unmarried women and women with low parity , one or two child
- Prolonged use of OCP reduces the risk
- 5-10% are familial and most have mutations in BRCA1 & BRCA2
- Life risk in BRCA1 30%; but BRCA2 is lower , BRACA1 most serious in ovary
- Sporadic ovarian cancer are 90% , only 10% of them have mutations in BRCA1 & BRCA2

** the table below show the percentage of major ovarian tumors , and there is some note beside it , the doctor read all the number in the table

Type	Percentage of Malignant Ovarian Tumors	Percentage That Are Bilateral
Serous	47	
Benign (60%)		25
Borderline (15%)		30
Malignant (25%)		65
Mucinous	3	
Benign (80%)		5
Borderline (10%)		10
Malignant (10%)		<5
Endometrioid carcinoma	20	30
Undifferentiated carcinoma	10	—
Clear cell carcinoma	6	40
Granulosa cell tumor	5	5
Teratoma	1	
Benign (96%)		15
Malignant (4%)		Rare
Metastatic	5	>50
Others	3	—

** usually if the percentage of bilateral serous tumor increase , the tumor is most properly malignant.

** endometrioid carcinoma, histologically it is similar to endometrial carcinoma

**undifferentiated carcinoma , we cannot confirm its origin even under the microscope.

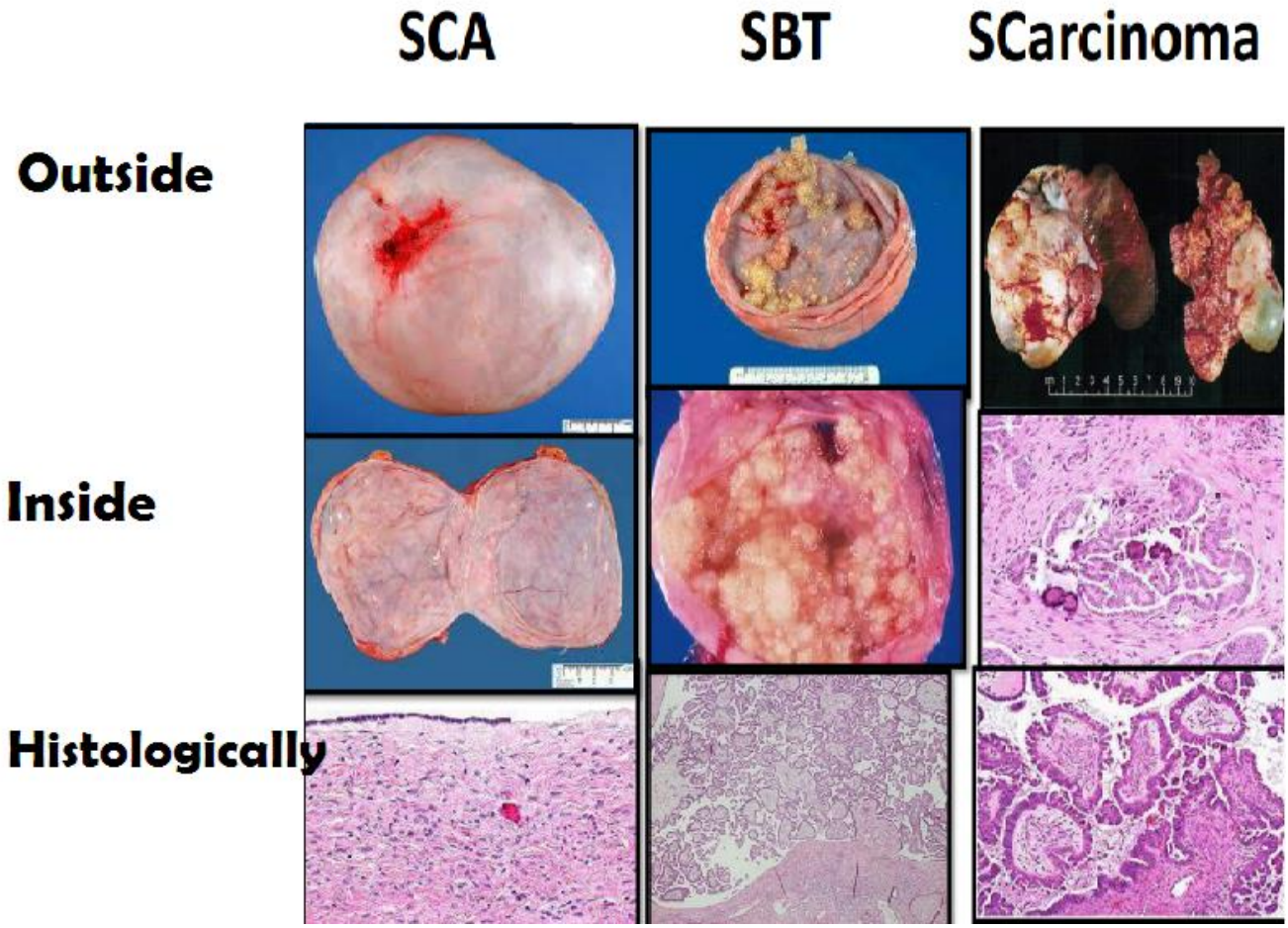
** granulose cell tumor , produce estrogen which may cause hyperplasia of the endometrium.

** in ovary , serous carcinoma can be low grade. However, serous carcinoma of the endometrial and fallopian tube are always by definition high grade.

2) *Serous tumors*

Types	Serous cystadenoma (SCA)	Borderline serous tumors (SBT)	Serous Carcinoma
Outside shape	Shiny Smooth	Smooth , shiny	Nodular irregularity
Inside shape	Clear fluid	Solid , excrescence	Solid
Histological appearance	Single layer of tall columnar epithelial cell Often ciliated	Very proliferative , toughing and papillae No invasion on stroma	Invasion in stroma
Note	No atypia and no toughing		

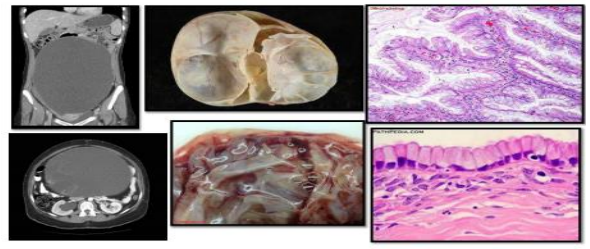
Clinically ; If we take a sample from a patient and we see it under the microscope , we have to study it very well by taking many section to be sure if there is invasion or not . If the patient under the operation and we see features of borderline tumor we say " it is at least border line tumor because it may be carcinoma but we don't take enough section to catch it.



Note : calcification can happen any time and any where we have papillary tumor . it is a hint for stage 1 carcinoma .

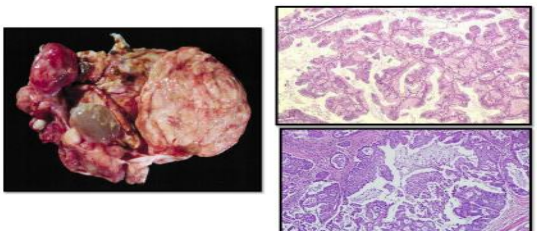
The pathologist classified the ovarian tumors into	Type 1	Type 2
The origin	**Cystadenoma and endometriosis**	**Fimbria**
Features	**-Low grade -Slow growing -Usually chromosomally stable -They likely involve through a step wise progress from borderline tumors**	**-high grade -evolve rapidly -widespread DNA copy member change -no recognizable precursors in the ovary**
Example	**-low-grade serous carcinoma -low-grade endometriod carcinoma - mucinous carcinoma -some clear carcinoma**	**-high-grade serous carcinoma -high-grade endometriod carcinoma -carcinosarcoma - undifferentiated carcinoma -some clear carcinoma**

3) Mucinous tumors:



It is large tumor, their Cells contain mucin. We cannot diagnose it unless we see intracytoplasmic mucin. 10% of them are malignant, 10% Borderline & 80% Benign .

Bilateral mucinous ovarian tumors are more likely metastatic from GI tract “Krukenberg tumor”. Some say that any mucinous tumor in ovary is secondary tumor, mainly come from the GI tract. KRAS mutations are common like GIT (50%).

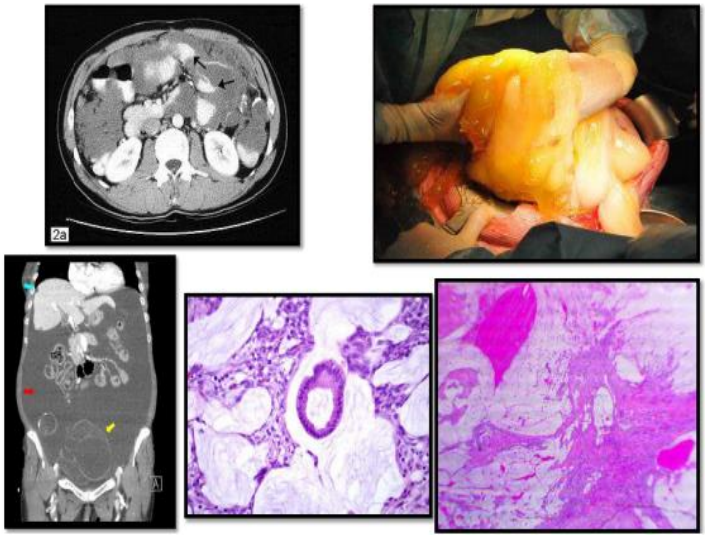


Serous tumors	Mucinous tumors
More likely to be malignant	**Less likely to be malignant**
Smaller	**Larger**
Mostly bilateral	**Multicystic**
	Better prognosis

** When we compare between two tumors to know which is better prognosis we compare them stage by stage, for example stage 1 serous tumor with stage 1 mucinous, don't compare stage 1 with sage 2.

4) ***Pseudomyxoma peritoneit***

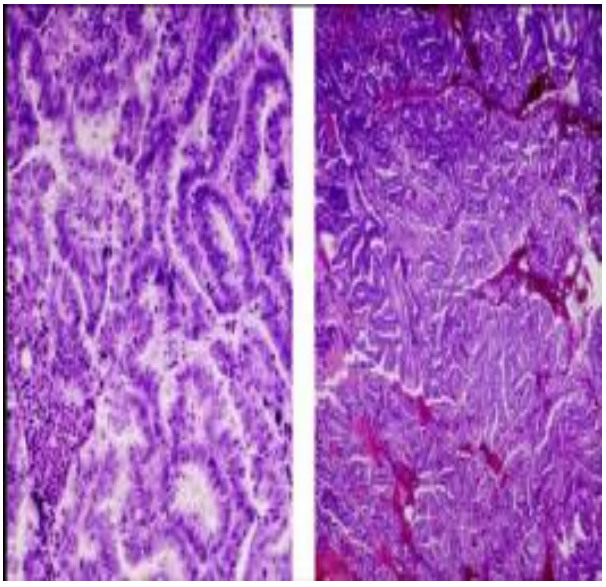
It is the old name for stage 4 mucinous carcinoma in peritoneal cavity. It is caused by rupture of the ovarian mucinous tumors , which lead to implantation of mucinous tumor cells in the peritoneum with production of copious amount of mucin .



Most commonly this disorder metastasis from appendix, if we find mucin (mucinous neoplasm) in the appendix we have to do appendectomy. Once it is diagnose it is almost fatal .

5) ***Endometioid carcinoma***

primary ovarian tumor , can be Solid or cystic



Arise from endometriosis, similar histology to endometrial carcinoma. (We think that originally there was endometriosis and the endometrial epithelial cells go to ovary. After that, these cells get mutated and transform into carcinoma).

Bilateral in 30% of cases

15-30% have primary concomitant endometrial Cancer. If there was two different tumors , one primary in the ovary and the other is primary in the endometrium, we call it synchronous endometioid carcinoma.

Because **endometrioid** histology is the most common in both localizations, differentiation between 3 clinical situations is often necessary: primary **endometrial cancer** with

metastases to **ovaries**, primary **ovarian cancer** (endometioid carcinoma) with metastases to **endometrium** or two **synchronous** primary cancers.

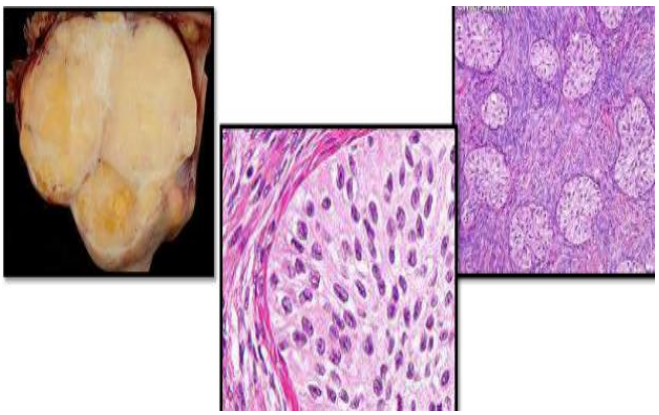
PTEN tumor suppressor gene mutations and those with upregulation of P13-AKT signaling pathway

6) Brenner tumor

Uncommon; solid, unilateral tumor , appear yellowish and shiny

Histological appearance : Nests of bland transitional-type epithelium in the stroma of the ovary , urothelium.

Most of them 90% are benign; few can be malignant and can infiltrate.



THE END

BEST OF LUCK