

Ovarian Tumors

- Ovarian cancer accounts for 3% of all cancers in females
- About 80% of ovarian tumors are benign, and these occur mostly in young women between the ages of 20 and 45 years and may be entirely asymptomatic and occasionally are found unexpectedly on abdominal or pelvic examination

- Malignant tumors are more common in older women, between the ages of 45 and 65 years.
- The most common symptoms of malignant tumors are:
 1. Abdominal pain and distention,
 2. Urinary and gastrointestinal tract symptoms due to compression by the tumor or cancer invasion,
 3. Vaginal bleeding

- Although some of the specific tumors have distinctive features and are hormonally active, most are **nonfunctional** and tend to produce relatively mild symptoms until they reach a large size

Classification

- I. Tumors of epithelial origin: 65%-70%
- II. Germ cell tumors: 15-20%
- III. Sex cord-stromal tumors: 5-10%
- IV. Metastatic tumors: 5%

1. Epithelial Tumors

- There are three major histologic types based on the differentiation of the neoplastic epithelium:
 - A. Serous
 - B. Mucinous
 - C. Endometrioid tumors

- These epithelial proliferations are classified as
 - a. Benign,
 - b. Borderline,
 - c. Malignant

A. Serous Tumors

- Are the most common tumors of epithelial origin
- 60% are benign, 15% are borderline and 25% are malignant
- Malignant serous tumors are the most common malignant tumors of the ovary
- The prognosis for serous cystadenocarcinomas is poor even after surgery, irradiation and chemotherapy

Morphology

- Benign serous tumors are usually multicystic and have smooth glistening surface without any solid areas or papillary projections
- Malignant tumors show irregular outer surface. The inner surface shows papillary projections and nodularity

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Serous cystadenoma



Serous cystadenoma



Serous cystadenocarcinoma



B. Mucinous tumors;

- The neoplastic epithelium is composed of mucin secreting cells
- 80% are benign
- 10% are malignant
- 10% are borderline

C. Endometrioid tumors

- Sometimes develop in association with endometriosis
- Are usually malignant

Note: For all carcinomas of epithelial origin, the tumor marker which is elevated in the serum is CA125

II. Germ cell tumors

1. Teratomas

A. Mature:

B. Immature

C. Malignant

2. Dysgerminoma

3. Yolk sac tumor

1. Teratomas

A. Mature (Benign) Teratomas: called dermoid cyst.

- Are y found in women during the active reproductive years.
- Are prone to undergo torsion
- Occasionally associated with clinically important paraneoplastic syndromes, such as inflammatory limbic encephalitis, which may remit upon removal of the tumor

Morphology

Gross

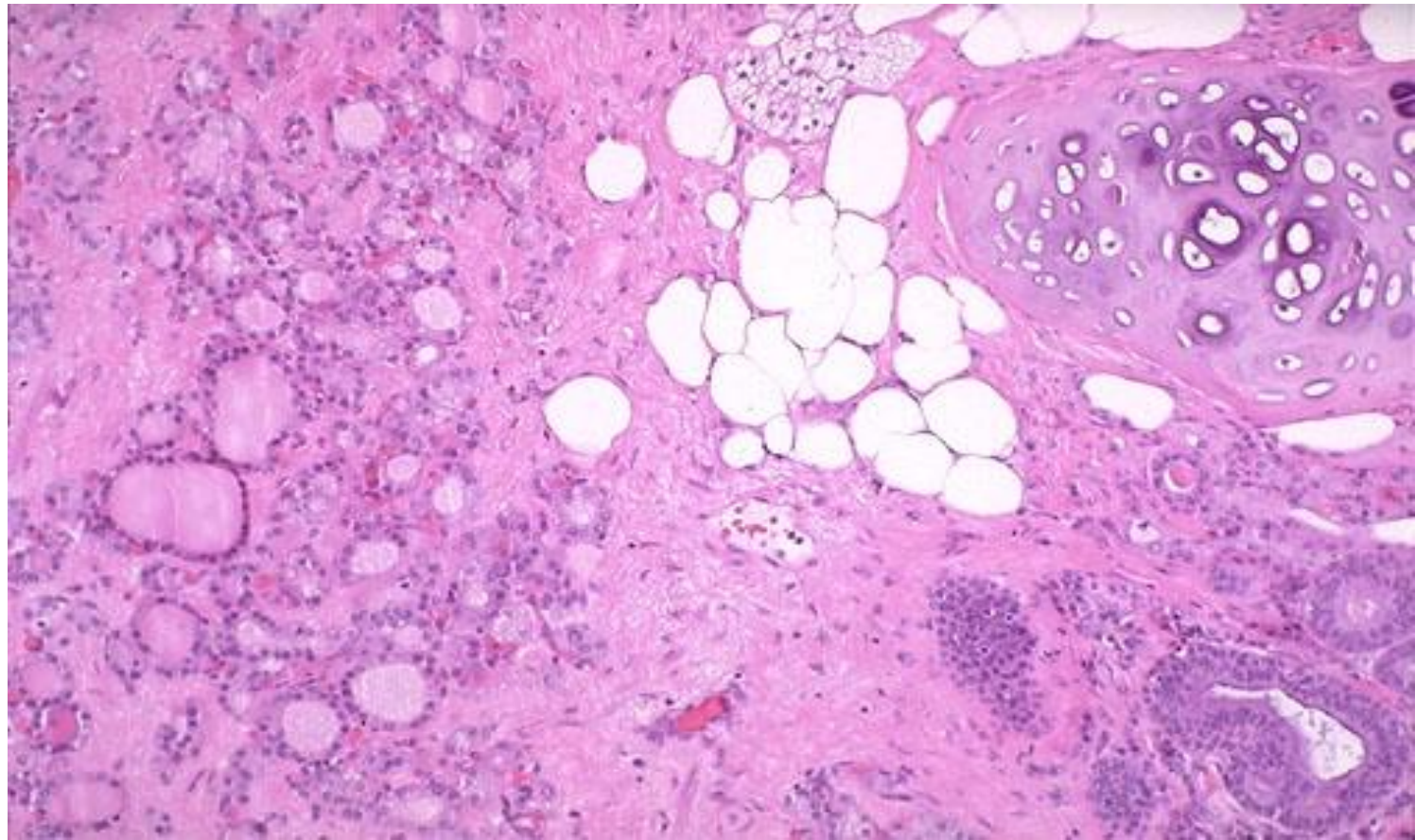
- Are usually multicystic and contain cheesy material, hair and bone

Microscopically

- Show mature tissues of more than one germ cell layer

Benign (cystic) teratomas





B. Immature Teratomas

- .- The component tissues resemble embryonal and immature fetal tissue.
- The tumor is found chiefly in prepubertal adolescents and young women,
- The mean age being 18 years.
- The immature tissue is neuroepithelium

C. Malignant teratomas:

- Malignant tumor arising in teratoma
- Most commonly squamous cell carcinomas
- Others: chondrosarcoma

2.Dysgerminoma

- Dysgerminoma is the ovarian counterpart of testicular seminoma. .
- Occur in the second and third decades.
- These tumors have no endocrine function.
- All dysgerminomas are considered malignant but only about **one third** are aggressive and spread
- Extremely radiosensitive

3.Yolk Sac Tumor

- Yolk sac tumor (also known as *endodermal sinus tumor*) is the second most common malignant tumor of germ cell origin.
- Similar to the normal yolk sac, the tumor cells elaborate *α-fetoprotein*.

4. Choriocarcinoma

- Most ovarian choriocarcinomas exist in combination with other germ cell tumors,
- Pure choriocarcinomas are extremely rare.
- The ovarian primaries are *aggressive tumors*
- All choriocarcinomas they elaborate high levels of chorionic gonadotropins, which is sometimes helpful in establishing the diagnosis or detecting recurrences.

Note:

- In contrast to choriocarcinomas arising in placental tissue, those arising in the ovary are generally unresponsive to chemotherapy and are often fatal.

III. Sex Cord–Stromal Tumors

- Because some of these cells normally secrete estrogens (granulosa and theca cells) or androgens (Leydig cells), their corresponding tumors may be either feminizing (granulosa–theca cell tumors) or masculinizing (Leydig cell tumors).

A. Granulosa–Theca Cell Tumors

- Occur mainly occur in postmenopausal women.
- Granulosa cell tumors are usually unilateral
- May elaborate large amounts of estrogen from the theca elements so may promote endometrial or breast carcinoma
- 5-25% behave in a malignant fashion

B. Fibromas, Thecomas, and Fibrothecoma

- Many tumors contain a mixture of these cells and are termed *fibrothecomas*.
- i. Pure thecomas are rare, may be hormonally active producing estrogen.
- ii. Fibromas are hormonally inactive.

- Fibromas of the ovary are , encapsulated, hard white masses
- For obscure reasons about 40% produce ascitis and hydrothorax on the right side called *Meigs syndrome.*

C.Sertoli-Leydig Cell Tumors

- These tumors are often functional and commonly produce masculinization or defeminization
- . They occur in women of all ages, although the peak incidence is in the second and third decades.

- These neoplasms may block normal female sexual development in children and may cause defeminization of women, manifested by atrophy of the breasts, amenorrhea, sterility, and loss of hair.

IV. Metastatic Tumors

1. The most common metastatic tumors of the ovary are derived from tumors of müllerian origin: Examples ,the uterus, fallopian tube, contralateral ovary, or pelvic peritoneum.
2. The most common extra-müllerian tumors metastatic to the ovary are

- a. Carcinomas of the breast and gastrointestinal tract, including colon, stomach,
- b. Pseudomyxoma peritonei, derived from appendiceal tumors.

- A classic metastatic gastrointestinal carcinoma involving the ovaries is termed Krukenberg tumor, characterized by bilateral metastases composed of mucin-producing, signet-ring cancer cells, most often of gastric origin.