**Ovarian Cysts and Tumors** DR. Sufia Husain, MBBS, MD, FRCPath.

The most important medical problems in ovaries are the neoplasms

Death from ovarian cancers is more than that of cervix and uterus together

Silent growth of ovarian tumors is the rule ,which make them so dangerous

Non neoplastic cysts are common but they are not serious problems

Primary inflammation of ovaries is rare

Salpingitis of fallopian tubes frequently causes periovarian reaction (salpingo-Oophoritis)

Frequently ,the ovaries affected by endometriosis.

**Non-Neoplastic and Functional Cysts of ovary**

Non Neoplastic Cyst are more common than the neoplastic ones

Follicular and Luteal cysts are most probably physiologic

**Follicular cyst** is due to distension of unruptured graafian follicle

**Corpus luteum cyst** results from hemorrhage into a persistent mature corpus luteum.

**Theca lutein cyst** is lined by luteinized theca cells and results from gonadotrophin stimulation.

**Chocolate cyst** is a blood containing cyst resulting from endometriosis with hemorrhage. The ovary is the most frequent site of endometriosis

**Polycystic Ovaries Stein-Leventhal Syndrome**

Young women ,and usually in girls after menarche.

-Oligomenorrhea

-hirsutism

-infertility

-Obesity

Secondary to excessive production of estrogens and androgens, mainly androgens

* The ovaries are usually twice normal in size ,gray-white with smooth outer surface
* Studded with sub cortical cysts 0.5 to 1.5 cm in diameter.

Histologically: thickened fibrosed outer tunica, Multiple cysts lined by granulosa cells, Absence of corpora lutea, Cortical stromal fibrosis.

High level of LH and low FSH

**Ovarian Tumors**

Fifth most common cancer in the USA

Fifth leading cause of cancer death in women

Diversity of pathologic entities because of the three cell types make up the normal ovary

**Ovarian Tumors classification**

A)Primary tumor, three cell types :

1- the surface epithelium tumors

2- Germ cells tumors

3- Stromal /sex cord cells tumors

B) Secondary or metastatic tumors

**Surface Epithelial Tumors :**

-Serous Tumors : Benign ,Borderline,And malignant

-Mucinous T. : Benign ,Borderline , and malignant

-Endometrioid T. : Benign, Borderline, and malignant

-Transitional cell T. :Brenner tumors, Benign ,Borderline ,and malignant

-Undifferentiated Carcinoma

**Sex Cord-Stromal tumors :**

* -Granulosa Cell tuomr
* -Thecoma –Fibroma
* -Sertoli-Leydig cell tumor
* -Gynandroblastoma
* -Unclassified

**Germ Cell Tumors :**

 - -Dysgerminoma

* -Yolk Sac Tumor
* -Embryonal Carcinoma
* -Choriocarcinoma
* -Teratoma : Mature, Immature
* -Polyembryoma

**Ovarian Tumors, Surface Epithelium Origin**

Neoplasms of surface epithelium account for the great majority of all primary ovarian tumors.

65 – 70 % of overall tumors

90 % of malignant tumors

Age 20+

Traditionally divided into Benign , Malignant ,and Borderline in malignancy

Can be strictly epithelial (serous ,Mucinous)

Can have stromal component (Cystadenofibroma , Brenner tumor )

The intermediate , or the borderline tumors are referred as tumors of low malignant potential. These appear to be low grade cancers with limited invasive potential. They have better prognosis

**Serous Tumors**

The most frequent ovarian tumor

Age is 30 -40

May be solid ,usually cystic

Cystadenoma or Cystadenofibroma

65% benign ,15% low malignant potential , and 25% malignant

65 % of all ovarian cancers

Most are large ,spherical to ovoid ,cystic structures

5 – 10 cm and might be 30-40 cm

25% of benign tumors are bilateral

The surface of the benign is smooth and glistening .In contrast to the malignant forms ,the surface is nodular and irregular

Cystic spaces are filled by serous fluide

Papillary formation is very important and need to be sampled well

Histologically the benign tumors are lined by a single layer of tall columnar epithelium

Papillary formation can be seen in both the benign and the malignant ones

Psammoma bodies could be seen

Between the clearly benign and the solid malignant tumors we can see the tumors of low malignant potential

LMP tumors may seed the peritoneum, the implants of tumors are non invasive. Sometimes may behave as invasive peritoneal implants

The prognosis of LMP tumors is determined mainly by the nature of the peritoneal implants

Prognosis of invasive Serous cystadenocarcinoma after surgery ,chemotherapy ,and radiation is poor and depend on stage

70% 5 –year survival for the tumors confined to the ovary

5 year survival f0r LMP is 100% ,

Malignant Tumors with capsular invasion ,survival for 10 years is 13%

LMP with capsular invasion the 10 year survival is 80%.

**Mucinous Tumors**

Epithelium is consists of mucin-producing cells

Less likely to be malignant

10% of ovarian cancers

80% of them benign

10% LMP

10% malignant

**Brenner Tumor**

Tumor made of Transitional cell epithelium

Most are benign.

**Sex Cord Tumors**

 **Granulosa Cell Tumor**

Most postmenopausal ,could be any age

Unilateral

Solid and cystic

Tiny to large in size

Produce estrogen

Malignant behaviour in 5-25%

**Thecoma-Fibroma**

Any age

Unilateral

Solid gray to yellow

Rarely malignant

**Sertoli – Leydig cell tumor**

All ages

Unilateral Gray to yellow

Produce androgens

Uncommonly malignant

**Germ Cell Tumors**

**Dysgerminoma**

2nd and 3rd decades

Unilateral

Counterpart to Seminoma

Solid ,gray to yellow

All malignant

PLAP positive

**Embryonal carcinoma**

2nd and 3rd decade

Solid

Aggressive

CD 30 positive.

**Teratoma**

15-20 % of Ovarian tumors

Majority in the first 2 decades

The younger the patient ,the greater the likelihood of malignancy

Over 90% are benign cystic ,mature teratomas

Immature teratomas are malignant and are rare.

**Endodermal Sinus (Yolk Sac) Tumor**

the tumor is rich in α-fetoprotein and α1-antitrypsin.

 Its characteristic histologic feature is a glomerulus-like structure composed of a central blood vessel enveloped by germ cells within a space lined by germ cells (Schiller-Duval body)

stained for α-fetoprotein by immunoperoxidase techniques

Most patients are children or young women presenting with abdominal pain and a rapidly developing pelvic mass. The tumors usually appear to involve a single ovary but grow rapidly and aggressively.

**Choriocarcinoma**

More commonly of placental origin, the choriocarcinoma, similar to the

Most ovarian choriocarcinomas exist in combination with other germ cell tumors, and pure choriocarcinomas are extremely rare.

 are aggressive tumors that generally have metastasized widely through the bloodstream to the lungs, liver, bone, and other viscera by the time of diagnosis.

high levels of chorionic gonadotropins that are sometimes helpful in establishing the diagnosis or detecting recurrences.

**Metastatic Carcinoma**

Accounts for approximately 5% of ovarian tumors

Older ages

Mostly Bilateral

Primaries are Breast ,lung, and G.I.T. (Krukenberg Tumors)