A SYSTEM STUDY ON OVARIAN CYST IN MEDICAL DIAGONISING

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Abstract: An ovarian cyst is a common gynecological problem and is divided into 2 main categories, physiological and pathological. Physiological cysts are follicular cysts and luteal cysts. Pathological cysts are considered as ovarian tumors, which might be benign, malignant, and borderline. Benign tumors are more common in young females, but malignant are more frequent in elderly females. Most ovarian cysts are asymptomatic and disappear spontaneously. When ovarian cysts are large, they may cause abdominal discomfort. There is a good evidence to suggest safety of observing even a 10 cm ovarian cyst. The aim of this study is to review cases of ovarian cysts treated at a university hospital, and to analyze the method of management and factors affecting the decision regarding the method of laparoscopy versus laparotomy.

***IndexTerms*- Cyst, Follicular Cysts and Luteal Cysts, Benign, Malignant, Tumors**

I. INTRODUCTION

Ovarian cysts are common and affect women of all ages. The vast majority of ovarian cysts are functional Although they may become problematic they do not indicate a specific disease process. Most ovarian cysts are not cancerous (benign), and many disappear on their own without treatment over the course of several weeks. While malignant cysts may be found in conjunction with ovarian cancer, ovarian cysts are typically not cancerous. Ovarian cysts most commonly occur during a woman's childbearing years.

Ovarian cysts are closed, sac-like structures within an ovary that contain a liquid, or semisolid substance. "Cyst" is merely a general term for a fluid-filled structure, which may or may not represent a tumor or neoplasm (new growth). If it is a tumor, it may be benign or malignant. The ovary is also referred to as the female gonad.

II. OVARIAN CYST

Many women get ovarian cysts or benign ovarian tumors at some point during their reproductive years. Most will never develop ovarian cancer. Your ovaries are small organs located deep within your pelvis. Eggs grow inside them, within a sac or follicle. During ovulation an egg is released from its sac into one of your fallopian tubes. After that, the sac typically dissolves, but sometimes the sac can remain and fill with air or fluid to develop into a cyst. Cysts that form in or around your ovaries often go unnoticed. They may cause only mild symptoms or no noticeable symptoms at all.Most women of reproductive age develop small cysts each month. Large cysts that cause problems occur in about 8% of women before menopause. Ovarian cysts are present in about 16% of women after menopause and if present are more likely to be cancer.

Fig -1: Follicular Cyst

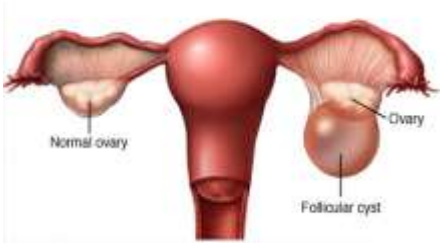
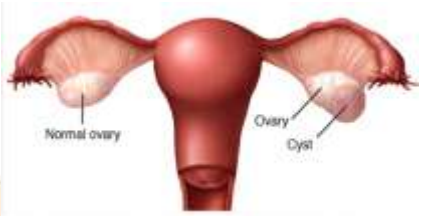


Fig -2: Cyst



The outlook for a woman with an ovarian cyst depends on the type and size of cyst, as well as her age.

Age

A woman is more likely to develop a cyst if she is still menstruating and her body is producing the hormone estrogen. Postmenopausal women have a lower risk for developing ovarian cysts .

Cyst size

The size of the ovarian cyst relates directly to the rate at which they shrink.Most cysts smaller than 2 inches in diameter are functional cysts. Surgery will likely be necessary to remove cysts larger than 4 inches.

TYPES

There are two main types of ovarian cysts:

- **Functional ovarian cysts** - the most common type. These harmless cysts form part of the female's normal menstrual cycle and are short-lived.
- **Pathological cysts** - these are cysts that grow in the ovaries they may be harmless or cancerous (malignant).

The causes are different for each type. We will look at each type in turn.

Functional ovarian cysts. There are two types of functional ovarian cysts

Follicular cysts

Follicular cysts are the most common type. A woman has two ovaries.The egg is formed in the follicle, which contains fluid to protect the growing egg. When the egg is released, the follicle bursts. In some cases, the follicle either does not shed its fluid or shrink after releasing the egg.

Luteal ovarian cysts

These are less common. After the egg has been released, it leaves tissue behind, known as the corpus luteum. Luteal cysts can develop when the corpus luteum fills with blood. This type of cyst normally goes away within a few months.

Pathological cysts

There are two types of pathological cysts

Dermoid cysts (cystic teratomas)

A dermoid cyst is usually benign. They are formed from the cells that make eggs. These cysts need to be removed surgically.

Cyst adenomas

Cyst adenomas are ovarian cysts that develop from cells that cover the outer part of the ovary. Some are filled with a thick, mucus-like substance, while others contain a watery liquid. Rather common among women aged over 40 years.

Other ovarian cysts

Follicular cysts: The most common type is a follicular cyst, which results from the growth of a follicle. A follicle is the normal fluid-filled sac that contains an egg. Follicular cysts form when the follicle grows larger than normal during the menstrual cycle and does not open to release the egg. Usually, follicular cysts resolve on their own over the course of days to months. Follicular cysts can contain blood (hemorrhagic cysts) from leakage of blood into the egg sac.

Corpus luteum cysts: A Corpus luteum cyst is related to the menstrual cycle. The corpus luteum is an area of tissue within the ovary that occurs after an egg has been released from a follicle. If a pregnancy doesn't occur, the corpus luteum usually breaks down and disappears. It may, however, fill with fluid or blood and persist as a cyst on the ovary. Usually, this cyst is found on only one side, produces no symptoms and resolves spontaneously.

Polycystic ovarian syndrome: The condition known as polycystic ovarian syndrome (PCOS) is characterized by the presence of multiple small cysts within both ovaries. PCOS is associated with a number of hormonal problems and is the most common cause of infertility in women.

Dermoid cysts (benign cystic teratomas): Both benign and malignant tumors of the ovary may also be cystic. Occasionally, the tissues of the ovary develop abnormally to form other body tissues such as hair or teeth. Cysts with these abnormal tissues are really tumors called benign cystic teratomas or dermoid cysts.

Tubo-ovarian abscesses: Infections of the pelvic organs can involve the ovaries and Fallopian tubes. In severe cases, pus-filled cystic spaces may be present on, in, or around the ovary or tubes. These are known as Tubo-ovarian abscesses.

Endometrioma cysts: Endometrioma cysts are a manifestation of the condition known as endometriosis, this type of cyst is formed when endometrial tissue (the lining tissue of the uterus) is present on the ovaries. Endometriosis is the presence of endometrial glands and tissue outside the uterus. Women with endometriosis may have problems becoming pregnant. Endometriosis cysts, often filled with dark, reddish-brown blood, may range in size from 0.75-8 inches. Due to the color of the old blood frequently found within the cysts, they have been referred to as chocolate cysts.

Cyst adenoma: A cyst adenoma is a type of benign tumor that develops from ovarian tissue. They may be filled with a mucous-type fluid material. Cyst adenomas can become very large and may measure 12 inches or more in diameter.

SIGNS AND SYMPTOMS

Ovarian cysts do not generally produce symptoms and are often found and diagnosed during routine gynecological exams. If symptoms are present, this is due to cysts being large or ruptured.

Symptoms may include:

- Pain with sexual intercourse
- Intermittent or severe and sudden pelvic pain
- Irregular menstrual cycles and bleeding
- Spotting and bleeding outside of your period
- Fullness in abdomen or pelvic pressure
- Chronic back pain or pelvic pain throughout your period
- Pelvic pain following exercise
- Vaginal pain

- Pain and/or pressure during bowel movements and urination
- Leaking urine.

III DIAGNOSIS OF CYSTS

If your doctor suspects that you have an ovarian cyst or tumor, they will likely order imaging tests to examine your ovaries. Oftentimes imaging tests like ultrasound or MRI can determine if an ovarian cyst or tumor is benign or malignant. They may also want to test your blood for CA-125, a tumor marker, or perform a biopsy if there is any question. High levels of CA-125 may indicate the presence of ovarian cancer.

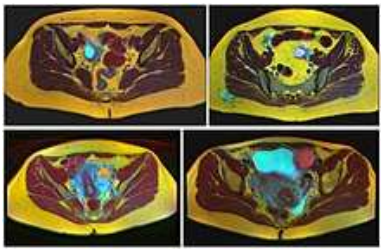
Fig -3: An ovary containing small cysts on endovaginal ultrasound

Fig -4: An ultrasound image of a functional ovarian cyst.

Fig -5: A 2 cm left ovarian cyst as seen on ultrasound

Ovarian cysts are usually diagnosed by ultrasound, CT scan, or MRI, and correlated with clinical presentation and endocrinology tests as appropriate.

Fig -6: Four kinds of ovarian cysts on MRI



Ultrasound

Follow-up imaging in women of reproductive age for incidentally discovered simple cysts on ultrasound is not needed until 5 cm, as these are usually normal ovarian follicles. Simple cysts 5 to 7 cm in premenopausal females should be followed yearly. Simple cysts

larger than 7 cm require further imaging with MRI or surgical assessment. Because they are large, they cannot be reliably assessed by ultrasound alone because it may be difficult to see the soft tissue nodularity or thickened septation at their posterior wall due to limited penetrance of the ultrasound beam.

Fig -7: An Axial CT demonstrating a large hemorrhagic ovarian cyst. The cyst is delineated by the yellow bars with blood seen interiorly.

Scoring systems

There are several systems to assess risk of an ovarian cyst of being an ovarian cancer, including the RMI (risk of malignancy index), LR2 and SR (simple rules). Sensitivities and specificities of these systems are given in tables below:

Table -1: Sensitivities and specificities

Scoring system	Premenopausal		Postmenopausal	
	Sensitivity	Specificity	Sensitivity	Specificity
RMI I	44%	95%	79%	90%
LR1	85%	91%	94%	70%
SR	93%	83%	93%	76%

A health-care professional may perform the following tests to determine if a woman has an ovarian cyst or to help characterize the type of cyst that is present:

Vaginal (pelvic) ultrasound: Vaginal (pelvic) ultrasound is a type of imaging, and is a special form of ultrasound developed to examine the pelvic organs. Pelvic ultrasound is the best test for diagnosing ovarian cyst. A cyst can be diagnosed based on its appearance on the ultrasound.

An **endovaginal ultrasound** is a painless procedure that resembles a pelvic exam. A thin, covered wand or probe is placed into the vagina, and the examiner directs the probe toward the uterus and ovaries. This type of ultrasound produces a better image than a scan through the abdominal wall because the probe can be positioned closer to the ovaries.

Other imaging: Under special circumstances, CT or MRI scanning may aid be necessary.

Laparoscopic surgery: With this procedure the surgeon makes small incisions through which a thin scope (laparoscope) can be passed into the abdomen. The surgeon identifies the cyst through the scope and may remove the cyst or take a biopsy of it.

Serum CA-125 assay: This blood test checks for a substance called CA-125, which is associated with the most common type of ovarian cancer (the CA stands for cancer antigen). This test is used in the assessment of epithelial ovarian cancer and may help determine if an ovarian mass is harmless or cancerous.

Hormone levels: A blood test to check LH, FSH, estradiol, and testosterone levels may indicate problems concerning these hormone levels. These tests are especially helpful in establishing the diagnosis of polycystic ovarian syndrome.

Pregnancy testing: The treatment of ovarian cysts may be different for a pregnant woman. When considering the diagnosis of an ovarian cyst, a pregnancy test should be performed in order to rule out an ectopic pregnancy. Many of the signs and symptoms of an ovarian cyst are also seen with an ectopic pregnancy.

Culdocentesis: This test involves taking a fluid sample from the pelvis with a needle inserted through the vaginal wall behind the uterine cervix. This may occasionally be necessary to rule out active bleeding into the abdominal cavity.

IV RISK OF CYSTS

The following are risk factors for developing ovarian cysts

- History of previous ovarian cysts
- Irregular menstrual cycles
- Obesity
- Early menstruation (11 years or younger)
- Infertility treatment with gonadotropin medications
- Hypothyroidism

Oral contraceptive/birth control pill usage decreases the risk of developing ovarian cysts, because they prevent ovulation.

COMPLICATION

Most ovarian cysts are non-cancerous, cause no symptoms, and go away without treatment. But in very rare cases, your doctor may find a cancerous cystic ovarian mass during a routine pelvic exam. Another rare complication is called ovarian torsion. This is when a large cyst causes an ovary to move away from its original place. Blood flow cuts off and, if left untreated, ovarian tissue is damaged. Ovarian torsion is very rare and only accounts for 3 percent of gynecological emergencies. A rupture occurs when one or more of the cysts burst open. Ruptured cysts are rare and may not cause any symptoms or they may cause mild symptoms.

Mild symptoms of a ruptured cyst include pain that can be managed with other the counter pain medications. Severe symptoms include severe pain and bleeding; these need immediate treatment. An ovarian cyst often causes no problems, but sometimes it can lead to complications.

Cyst rupture

A ruptured ovarian cyst is usually self-limiting, and only requires keeping an eye on the situation and pain medications. The main symptom is abdominal pain, which may last a few days to a several weeks, but they can also be asymptomatic. Rupture of large ovarian cysts can cause bleeding inside the abdominal cavity and in some cases shock.

Ovarian torsion

Ovarian cysts increase the risk for ovarian torsion; cysts larger than 4 cm are associated with approximately 17% risk. The torsion can cause obstruction of blood flow and lead to infarction.

Torsion: The stem of an ovary can become twisted if the cyst is growing on it. It can block the blood supply to the cyst and cause severe pain in the lower abdomen.

Burst cyst: If a cyst bursts, the patient will experience severe pain in the lower abdomen. If the cyst is infected, pain will be worse. There may also be bleeding. Symptoms may resemble those of appendicitis or diverticulitis.

Cancer: In rare cases, a cyst may be an early form of ovarian cancer.

V PREVENTION AND TREATING CYSTS

Although there's no way to prevent ovarian cysts, regular pelvic examinations help ensure that changes in your ovaries are diagnosed as early as possible. Be alert to changes in your monthly cycle, including unusual menstrual symptoms, especially ones that persist for more than a few cycles.

Treatment will depend on:

- the person's age
- whether they have undergone menopause or not
- the size and appearance of the cyst
- whether there are any symptoms

Watchful waiting (observation)

Sometimes watchful waiting is recommended, especially if the cyst is a small, functional cyst (2 to 5 centimeters) and the woman has not yet undergone menopause An ultrasound scan will check the cyst a month or so later, to see whether it has gone

Birth control pills

To reduce the risk of new cysts developing in future menstrual cycles, the doctor may recommend birth control pills. Oral contraceptives may also reduce the risk of developing ovarian cancer.

Oral contraceptives: Birth control suppresses ovulation and ovarian hormone production. The uterine lining grows and is shed in direct response to the hormonal content in the pills. Without ovulation and ovarian hormone production, functional cysts are rarely seen.

Pain relievers: Anti-inflammatory medication such as ibuprofen (for example, Advil) may help reduce pelvic pain. Narcotic pain medications by prescription may relieve severe pain caused by ovarian cysts.

Two types of surgery are:

- **Laparoscopy or keyhole surgery**: The surgeon uses very small tools, to remove the cyst through a small incision. This type of surgery does not usually affect fertility, and recovery times are fast.
- **Laparotomy**: This may be recommended if the cyst is cancerous. The patient usually stays in the hospital for at least 2 days.
- **Surgery for ovarian torsion**: An ovarian cyst may twist and cause severe abdominal pain, as well as nausea and vomiting. If you're diagnosed with ovarian cancer, your doctor may recommend one or more of the following treatment options: Chemotherapy, radiation, surgery.

After surgery

After the ovarian cyst has been removed, you'll feel pain in your tummy, although this should improve in a day or two. Following laparoscopic surgery, you'll probably need to take things easy for two weeks. Recovery after a laparotomy usually takes longer, possibly around six to eight weeks. Contact your GP if you notice the following symptoms during your recovery:

- heavy bleeding
- severe pain or swelling in your abdomen
- a high temperature (fever)
- dark or smelly vaginal discharge

VI RESULTS AND DISCUSSION

There were many cases of ovarian cysts during my study period of these analyzing ovarian cysts. The age ranged from age 3 months to 77 years of age. The parity from 0-6.The height ranges from 37-180 cm.The weight range from 3-161kg, and calculated body mass

index (BMI) ranged from 12-47. In analyzing it I founded that cyst cannot be prevented, it can be formed regardless of age and weight. Ovarian cysts vary in its type and hardly any symptoms for it. Only irregular menopause gives you the chance of prediction it. If cyst diagnosed then it must be cured or removed along with that we must maintain our hormone levels, regulates nutrition imbalance. The given Table lists the ovarian cysts including the frequency in number and percentage.

Table 2:-ovarian cysts frequency and percentage.

TYPE	N	(%)
Functional Cyst	81	33.2
Dermoid	30	12.3
Endometriosis	26	10.7
Benign Cyst Adenoma	47	`19.3
Malignant	10	4.1
Complicated cyst	22	9.0
Other	28	11.5
Total	244	100

VII. CONCLUSION:

Ovarian cysts are fairly common. They are fluid-filled sacs that form in or on a woman's ovaries. Symptoms of ovarian cysts depend to a large extent on the size of the cyst. Many ovarian cysts produce no symptoms. Large or ruptured ovarian cysts can cause symptoms including pain, pelvic pressure or discomfort.Vaginal (pelvic) ultrasound can be used to reveal the presence of ovarian cysts. Ovarian cysts can vary in size. Many are very small, while cysts associated with ovarian tumors may be 12 inches or more in diameter. In some cases ovarian cysts can cause problems with menstrual periods such as abnormal or irregular bleeding. Treatment of ruptured ovarian cysts involves medications for pain control. Ruptured dermoid cysts may require surgery due to irritation of the internal organs from the contents of the cyst. Larger cysts may require surgery to remove the cyst or a biopsy to rule out cancer.

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