

Management of Ovarian cyst

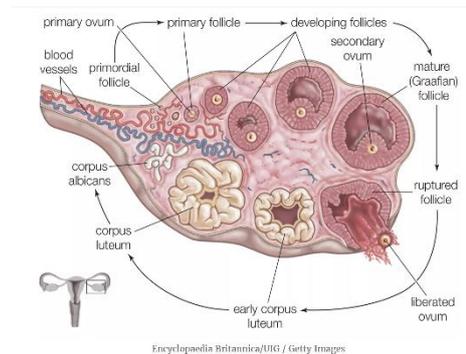
What is an ovarian cyst?

An ovarian cyst is a space-occupying lesion that develops within an ovary.

How common are ovarian cysts and generally what happens to them?

Ovarian cysts are common. Most are benign (non-cancerous), cause no problems and do not require surgical removal.

However, 1 in 10 women may require removal of ovarian cyst or the ovary containing the cyst due to complications such as bleeding, rupture, torsion, secondary effect on fertility or concern with malignancy.



What is the difference between simple and complex ovarian cyst?

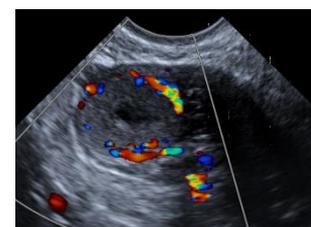
Commonly discovered by ultrasound, ovarian cyst is often described by its appearance as **simple** (thin walled, only containing fluid) or **complex** (containing a mixture of fluid, blood and solid areas).

What are the different types of ovarian cysts?

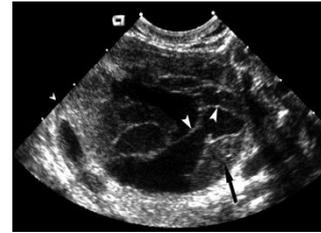
Ovarian cysts are broadly classified as benign, malignant or borderline.

Benign ovarian cysts include:

- **Functional cysts** – during a normal ovulatory cycle, a follicle (small cyst) grows, matures and releases an egg. After ovulation, the follicle turns into a corpus luteum.
 - A **follicular cyst** occurs when the follicle does not rupture or release its egg.
 - When the corpus luteum fails to involute and continues to grow, a **corpus luteal cyst** is formed.



- **Haemorrhagic cysts** form from random bleeding into the inside of a functional cyst. This kind of cyst may cause some discomfort or pain but often resolves spontaneously within 6–8 weeks.
- **Endometriotic cyst** forms as a result of **endometriosis** developing within the ovary.
- **Cystadenoma** form from different types of cells which secrete clear watery fluid (**serous cystadenoma**) or thick, sticky fluid (**mucinous cystadenoma**). They are usually benign with rare risk of malignant transformation (cystadenocarcinoma).
- **Mature teratoma** (dermoid cyst) is one of the most common benign ovarian cysts which may contain a variety of tissues that make up the body such as hair, fat, cartilage, bone and sometimes tooth-like structures. Dermoid cysts may be present from birth or may develop any time in a woman's life. In very rare cases, some dermoid cyst can become cancerous (malignant teratoma).



Borderline ovarian cyst are tumours of low malignant potential which, according to the National Cancer Institute, make up 15% of all epithelial ovarian cancers. Nearly 75% of these tumours are stage I at the time of diagnosis.

Malignant ovarian cysts include:

- **Epithelial carcinoma** is the most common type of ovarian cancer which are thought to arise in the surface layer covering the ovary. According to the Cancer Research UK, epithelial cancer makes up 90% of tumours of the ovary
- **Germ cell tumours** arise in the germ (egg) cells of the ovary. They generally occur in teenage girls or young women.
- **Sex-cord stromal tumours** are uncommon, making up approximately 7% of all ovarian tumors. These tumors are formed by diverse cell types that arise from the primitive sex cords (granulosa cells and Sertoli cells) or stromal cells (theca cells, fibroblasts, and Leydig cells). As certain cell types of these tumors produce different ovarian steroid hormones (e.g., androgens, estrogens, and corticoids), women who have sex cord-stromal tumors may experience a wide spectrum of hormone-mediated clinical features ranging from hyper-androgenic virilizing states to hyper-oestrogenic manifestations.



- **Secondary tumours** may come from breast or gastro-intestinal tumours.

Symptoms and diagnosis of ovarian cysts

- Most ovarian cysts are found incidentally during a routine gynaecological examination in asymptomatic women.
- Others are detected as a result of ultrasound examination for a variety of reasons such as:
 - painful periods or changes in the patterns of your periods
 - lower abdominal discomfort or pain
 - pain during intercourse
 - pain, difficulty on urinating
 - abdominal distension
 - indigestion or reduced appetite
 - infertility

In most cases a pelvic ultrasound is the initial investigation, this may be followed by a CT scan or MRI.

Blood tests (tumour markers, ovarian reserve marker) may also be ordered. Tumour markers can assist in ascertaining the risk of an ovarian cyst being malignant. Anti-Mullerian hormone (AMH) may be requested prior to surgery to establish baseline ovarian reserve as any surgery to remove a cyst can inadvertently damage the ovary result in a reduction in ovarian reserve.

As various types of cysts can have diverse features on imaging, different appearances at the time of surgery, and as tumour markers are not always accurate, the correct diagnosis may only be possible after pathological examination of a removed cyst.

Treatment

The management of an ovarian cyst depends on the following factors:

- patient's age
- the presence and nature of any symptoms
- the type, size and likely natural history of the cyst
- the likelihood of complications arising (torsion or rupture)
- the risk of malignancy

Functional simple cysts usually resolve over time and simply require monitoring with repeat ultrasounds.

Medical options

The **oral contraceptive pill** may be recommended to allow time for simple cysts to resolve, or to reduce the chance of recurrent benign ovarian cysts.

Short-term hormonal treatments (such as **GnRH analogues**) may be recommended prior to surgical removal of large endometriomas to reduce risk of intra-operative bleeding and damage to ovarian reserve.

Surgical options

Enlarging, complex cysts may require removal, which can usually be performed through keyhole surgery (**laparoscopy**).

A large incision may be required (**laparotomy**) for removal of a particularly large cyst or one that has malignancy-suspicious features. The aim is to usually remove the cyst intact at the time of surgery but sometimes spillage of the cyst content occurs during removal. Occasionally the spilt contents can cause an inflammatory reaction inside the abdomen or dissemination of cancerous cells in the case of ovarian malignancy.

Sometimes an ovarian cyst can twist on itself (ovarian torsion) or rupture which may result in acute pain, nausea/vomiting and may require **emergency surgery**.

For most women of childbearing age, the ovary can be preserved at the time of a **cystectomy**. However, if there is concern about potential malignancy then removal of the ovary (**oophorectomy**) may be advised. Occasionally it may be necessary to remove the ovary due to intraoperative bleeding or suspicious intraoperative findings of potential ovarian malignancy.

References:

Royal College of Obstetricians & Gynaecologists Guideline No.62 *Management of Suspected Ovarian Masses in Premenopausal Women* (November 2011).

Royal College of Obstetricians & Gynaecologists Guideline No. 34 *Ovarian cysts in post-menopausal women* (October 2003).

<https://www.cancerresearchuk.org/about-cancer/ovarian-cancer/types/epithelial>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4498422/>

<https://www.cancer.gov/types/ovarian/hp/ovarian-low-malignant-treatment-pdq>

<https://www.cancer.gov/types/ovarian/patient/ovarian-germ-cell-treatment-pdq>

At CARE, Associate Professor Alan Lam and Dr Jessica Lowe, specialise in the assessment and management of ovarian cysts.

For appointment, please call (02) 99669121, or email enquiries to www.sydneycare.com.au