Approach to the patient with an adnexal mass

FZ.Allameh
Gyn Oncologist
Isfahan University Of Medical Science

Approach to the an adnexal mass

- a common gynecologic issue
- may be found in females of all ages

Adnexal mass

Gynecologic: Ovarian
Benign
■ Functional (physiologic) cyst ■ Corpus luteal cyst ■ Luteoma of pregnancy ■ Theca lutein cyst ■ Polycystic ovaries ■ Endometrioma ■ Cystadenoma ■ Benign ovarian germ cell tumor (eg, mature teratoma) ■ Benign sex cord-stromal tumor
Malignant or borderline
■ Epithelial carcinoma ■ Epithelial borderline neoplasm ■ Malignant ovarian germ cell tumor ■ Malignant sex cord-stromal tumor

adnexal mass

adnexal mass etiology

Gynecologic: Tubal
▪ Ectopic pregnancy ▪ Hydrosalpinx
▪ Epithelial carcinoma ▪ Serous tubal intraepithelial neoplasia

adnexal mass etiology

Gynecologic: Extraovarian and extratubal
▪ Paraovarian cyst ▪ Paratubal cyst ▪ Uterine leiomyoma (pedunculated or cervical) ▪ Tubo-ovarian abscess
▪ Metastatic endometrial carcinoma ▪ Cystadenocarcinoma (rare)

adnexal mass etiology

Nongynecologic
▪ Constipation ▪ Appendiceal abscess ▪ Diverticular abscess ▪ Pelvic abscess ▪ Bladder diverticulum ▪ Ureteral diverticulum ▪ Pelvic kidney ▪ Peritoneal cyst ▪ Nerve sheath tumor
▪ Appendiceal neoplasm ▪ Bowel neoplasm ▪ Metastasis (eg, breast, colon, lymphoma) ▪ Retroperitoneal sarcoma

principal goals of the evaluation of an adnexal mass

- almost certainly benign
- reasonable chance of being malignant
- urgent condition (ectopic pregnancy, adnexal torsion)

Expectant management

- When the mass is not suspicious for malignancy
- there are no other indications for surgery or surveillance
- no further follow-up is needed.

Surveillance

suspicion of malignancy is low:

- pelvic ultrasounds
- measurement of serum tumor markers.

Surgery

- high risk of malignancy(O-RAD5)
- persistent pain or other symptoms

Prevalence

Ovarian masses are the most common type of adnexal mass:

- 8 to 35 percent of premenopausal patients
- 3 to 17 percent of postmenopausal patients

Prevalence of specific adnexal mass pathologies in patients in the International Ovarian Tumor Analysis group (IOTA) study (n = 4848)

Tumor pathology	All patients, n (%)
All benign pathologies	**3183 (65.7)**
Endometrioma	845 (17.4)
Benign teratoma (dermoid)	512 (10.6)
Simple/parasalpingeal cyst	285 (5.9)
Functional cyst	128 (2.6)
Hydrosalpinx	112 (2.3)
Peritoneal pseudocyst	34 (0.7)
Abscess	45 (0.9)
Fibroma	245 (5.1)
Serous cystadenoma	543 (11.2)
Mucinous cystadenoma	359 (7.4)
Rare benign pathologies	75 (1.5)

Prevalence of specific adnexal mass pathologies in patients in the International Ovarian Tumor Analysis group (IOTA) study (n = 4848)

All malignant pathologies	**1665 (34.3)**
Primary invasive stage I	222 (4.6)
Primary invasive stage II	82 (1.7)
Primary invasive stage III	658 (13.6)
Primary invasive stage IV	102 (2.1)
Rare primary invasive pathologies*	113 (2.3)
Borderline stage I	249 (5.1)
Borderline stage II	9 (0.2)
Borderline stage III	25 (0.5)
Borderline stage IV	1 (0.02)
Secondary metastatic cancer	204 (4.2)

Abnormal uterine bleeding

- pregnancy-related masses (eg, ectopic pregnancy)
- ovarian tumors (eg, sex cord-stromal tumors)

prompt intervention

- Ectopic pregnancy
- Adnexal torsion
- Tubo-ovarian abscess
- Ruptured or hemorrhagic ovarian cyst

Assessing the risk of malignancy

- sonographic characteristics
- magnetic resonance imaging (MRI)
- clinical information (including a history of a hereditary ovarian cancer syndrome)
- consultation with a gynecologic oncologist
- no universally accepted classification system for defining the risk of malignancy of an adnexal mass

American College of Radiology (ACR) Ovarian-Adnexal Reporting and Data System (O-RADS)

- **Normal ovary** (O-RADS 1) – This includes follicles (ie, simple cysts) and corpus lutea ≤3 cm.

- **Almost certainly benign** (O-RADS 2; risk of malignancy <1 percent) – This includes typical hemorrhagic cysts, dermoid cysts, and endometriomas (all <10 cm), and simple paraovarian cysts, typical peritoneal inclusion cysts, and typical hydrosalpinges (of any size).

American College of Radiology (ACR) Ovarian-Adnexal Reporting and Data System (O-RADS)

- **Low-risk** (O-RADS 3; risk of malignancy 1 to <10 percent)
- **Intermediate-risk** (O-RADS 4; risk of malignancy 10 to <50 percent
- **High-risk** (O-RADS 5; risk of malignancy ≥50 percent)

Serum tumor markers

Cancer antigen 125 (CA 125) is the most common tumor marker evaluated in patients with adnexal masses suspicious for an epithelial ovarian cancer (EOC)

Serum tumor markers

- measure CA 125 in all postmenopausal patients with an adnexal mass.

- In premenopausal patients, we measure a serum CA 125 **only** if the ultrasound appearance of a mass raises sufficient suspicion of malignancy to warrant a repeat ultrasound or surgical evaluation.

Candidates for surgical evaluation

- Patients with a high-risk mass on imaging (O-RADS 5)
- **Elevated tumor marker** (ca125in post menopause>35and in premenopause>200)
- **Large mass size** (>10cm)
- **Intermediate-risk mass**(O-RADS 4) **plus symptoms or risk factors**

Risk factors for ovarian cancer

	Relative risk	Lifetime probability (%)
General population	1.0	1.3[1]
BRCA1 gene mutation		35 to 46[2,3]
BRCA2 gene mutation		13 to 23[2,3]
Lynch syndrome (hereditary nonpolyposis colon cancer)		3 to 14[4,5]
Other gene mutations		
BRIP1		5.8[6]
RAD51C		5.2[7]
RAD51D		12[7]
Family history of ovarian or fallopian tube cancer (with negative testing for a familial ovarian cancer syndrome)	Uncertain[8]	
Infertility	2.67[9]	
Endometriosis (increase in risk of clear cell, endometrioid, or low-grade serous carcinomas)	2.04 to 3.05[10]	
Cigarette smoking (increase in risk of mucinous carcinoma)	2.1[11]	
Intrauterine device	0.68[12]	
Past use of oral contraceptives	0.73[13]	
Past breastfeeding (for >12 months)	0.72[14]	
Tubal ligation	0.69[15]	
Previous pregnancy	0.71[16]	

Scope of surgery

- ovarian cystectomy
- oophorectomy
- staging procedure
- laparoscopy
- open

Scope of surgery

- patient age
- desire for future childbearing
- degree of suspicion for malignancy
- intraoperative findings (including frozen section assessment).

Postmenopausal patients

- with a suspected malignancy, a staging procedure is performed

- with a benign-appearing mass (by gross examination or frozen section) unilateral oophorectomy with bilateral salpingectomy; bilateral salpingectomy has the potential beneficial effect of decreasing the risk of developing ovarian cancer. Removal of the contralateral ovary depends on patient age, years since menopause, desire to avoid subsequent surgery for additional adnexal pathology

Premenopausal patients

- with suspected malignancy, the type of surgery depends on disease stage and desire for future childbearing

- suspicion of malignancy is low

Ovarian cystectomy rather than oophorectomy. Opportunistic salpingectomy may also be performed in patients who have completed childbearing

Candidates for surveillance

- Patients who do not meet the criteria for surgery
- one or more pelvic ultrasounds and/or measurement of serum tumor markers

neoplastic cysts enlarge

nonphysiologic benign cysts remain unchanged or enlarge slowly

physiologic cysts resolve

Surveillance frequency Postmenopausal patients

transvaginal ultrasound

CA 125 level

in 6 weeks, 12 weeks,

and then every 3 to 6 months for 1 year;

a final ultrasound and CA 125 level are performed after an additional one year.

Surveillance frequency Premenopausal patients

- transvaginal ultrasound
- in six weeks. We then repeat an ultrasound
- in three months
- in six months
- a final ultrasound is performed after an additional one year.

Surveillance frequency

Premenopausal patients

If the initial CA 125 level was <35 units/mL, do not repeat the test.

If the initial level was moderately elevated (≥35 to ≤200 units/mL), we repeat the test with each ultrasound

If the level is consistently low or moderately elevated, discontinue CA 125 testing

low-risk mass on imaging (O-RADS 3)

transvaginal ultrasound

in three months

and then in six months.

Saunders BA, Podzielinski I, Ware RA, et al. Risk of malignancy in sonographically confirmed septated cystic ovarian tumors. Gynecol Oncol 2010; 118:278.

- In a prospective study
- including over 1300 patients (mean age 57 years, range 25 to 95 years)
- undergoing surveillance for a septated cystic mass without solid areas or papillary projections (ie, low-risk mass; O-RADS 3)
- and followed for a mean of 77 months (range 4 to 252 months),
- one patient was diagnosed with an ovarian tumor of borderline malignancy; there were no cases of ovarian carcinoma .

proceed with surgery

- The mass develops high-risk features of malignancy (or there are new findings suggestive of metastatic disease).
- The mass is increasing in size or is ≥10 cm.
- Tumor markers become elevated (eg, CA 125 level >35 units/mL in postmenopausal patients or >200 units/mL in premenopausal patients) or trend upward

Pavlik EJ, Ueland FR, Miller RW, et al. Frequency and disposition of ovarian abnormalities followed with serial transvaginal ultrasonography. Obstet Gynecol 2013; 122:210.

- In one of the largest studies evaluating surveillance for adnexal masses,
- over 39,000 asymptomatic patients (mean age 57 years, range 25 to 95) were prospectively followed with annual transvaginal ultrasound .
- During the 25-year study period (mean duration of follow-up 7.3 years),
- approximately 20 percent of patients were found to have an ovarian abnormality, of which 42 percent resolved within one year.

- Surgery was performed on 557 patients, of which 85 (15 percent) were ovarian malignancies; this represents less than 1 percent of the total study population

Patients with an **intermediate-risk mass on imaging** (O-RADS 4)

are managed based on menopausal status

Physiologic cyst

- small cysts (<3 to 5 cm) do not require follow-up
- cysts >5 cm are managed with surveillance

Endometrioma <10 cm

. Surveillance is preferred when the patient is :

- Asymptomatic
- and is small (generally less than 5 cm).

Hydrosalpinx

- An asymptomatic hydrosalpinx generally does not need to be removed or followed with imaging.

- The exception is patients undergoing in vitro fertilization; pregnancy rates can be improved after surgical removal of the hydrosalpinx.

Paratubal or paraovarian cyst

- A simple, asymptomatic paratubal or paraovarian cyst can be managed expectantly without further follow-up.

- If the cyst is large (>10 cm), if the patient is symptomatic, or if there is concern for torsion, it should be removed