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American Family Physician
A peer-reviewed journal of the American Academy of Family Physicians

August 1, 2011 Table of Contents

FPIN's Clinical Inquiries

Evaluation of Ovarian Cysts

ROBIN A. HOLZER, MD, 14th Medical Group, Columbus Air Force Base, Mississippi

ROBERT K. PERSONS, DO, FAAFP, Eglin Family Medicine Residency, Eglin Air Force Base, Florida

BARBARA JAMIESON, MLS, Medical College of Wisconsin Libraries, Milwaukee, Wisconsin

Am Fam Physician. 2011 Aug 1;84(3):online.

Clinical Question

What is the appropriate follow-up for a patient with an ovarian cyst identified on ultrasonography?

Evidence-Based Answer

Initial evaluation of an ovarian cyst is largely determined by its characteristics on ultrasonography, in addition to the presence of symptoms, laboratory evaluation, and patient history. Women with an ovarian cyst, but with no symptoms, family or personal history of cancer (e.g., ovarian, breast, colorectal), physical or laboratory evidence suggestive of infection, pregnancy, or systemic illness, are considered at low risk of ovarian cancer and may be followed with serial ultrasonography. (Strength of Recommendation [SOR]: B, based on a prospective cohort study.) A cyst identified on transvaginal ultrasonography is usually benign if it is thin-walled, unilocular, smooth-bordered, and less than 10 cm in diameter. Cyst aspiration and treatment with combined oral contraceptives do not hasten cyst resolution. (SOR: A, based on good-quality randomized controlled trials.) A complex cyst without benign features should be aggressively evaluated for ovarian cancer. (SOR: C, based on expert opinion.)

Evidence Summary

Ovarian cysts are common, appearing in one in five women, and should be evaluated with high-frequency gray-scale transvaginal ultrasonography.1 Possible diagnoses include pregnancy, tubo-ovarian abscess, ectopic pregnancy, ovarian torsion, endometriosis, ruptured cyst, and ovarian cancer (one in 70 women; 65 to 70 percent metastatic at diagnosis).2 Women have a 5 to 10 percent lifetime risk of developing a suspicious adnexal mass that requires surgery.1 Among those who undergo surgery, 13 to 21 percent have ovarian cancer.1

Thin-walled, unilocular, sonolucent cysts less than 10 cm in diameter with smooth, regular borders are usually benign (malignancy rate = 0 to 1 percent, regardless of menopausal status).1,3 In one study, 2,763 postmenopausal women with this type of cyst were followed for a mean of 6.3 years and evaluated with ultrasonography every six months.3 Almost 70 percent of the cysts resolved spontaneously, and none of these simple cysts developed into ovarian cancer.3 Serial ultrasonography is sufficient to document the resolution of cysts with these features.1–3 Recommended intervals for ultrasonography vary from four to six weeks initially,2 to three to six months,3 to six months.1

Neither cyst aspiration1 nor treatment with combined oral contraceptives4 is beneficial for treating ovarian cysts. In a Cochrane review of 500 women, treatment with combined oral contraceptives did not hasten the resolution of functional ovarian cysts in any trial.4 Most cysts resolved without treatment within a few menstrual cycles.

Cysts that are characterized as complex adnexal masses or as persistent, thin-walled cysts should be evaluated for possible ovarian cancer.5 Testing for cancer antigen (CA) 125 may be useful in women with these cysts, particularly in postmenopausal women.6 In premenopausal women, benign conditions such as endometriosis can elevate CA 125 levels to more than 1,000 U per mL (1,000 kU per L).7 Because of this, CA 125 measurement alone is not sensitive or specific enough to determine ovarian cancer risk.6 The risk of ovarian cancer algorithm analyzes changes in CA 125 levels to provide greater sensitivity and specificity than a single value alone.8 However, only 50 percent of stage I epithelial cancers secrete CA 125 at the time of diagnosis. During the course of development, only 80 percent of ovarian cancers produce significant amounts of CA 125.9

When combined with CA 125 measurement, biomarker HE4 increases the sensitivity by 22 percent and specificity by 90 percent.10 A risk of malignancy index has been created using menopausal status, ultrasound results, and CA 125 level in a single scale. The index has a sensitivity of 85 percent and specificity of 97 percent in determining the difference between benign and malignant pelvic masses.6 In this index, ultrasonography helps identify benign masses, whereas CA 125 measurement aids in identification of malignancies.6 The U.K. Collaborative Trial of Ovarian Cancer Screening is following more than 200,000 postmenopausal women over time. In this trial, a rising CA 125 level prompts a vaginal ultrasonography.11

Recommendations from Others

In July 2007, the American College of Obstetricians and Gynecologists published guidelines on the management of adnexal masses.1 These recommendations address history, pelvic examination, ultrasonography, laboratory studies, and surgery.

The history should include risk factors, such as older age, family history of breast or ovarian cancer, hereditary nonpolyposis colorectal cancer, Lynch II syndrome, nulliparity, primary infertility, and endometriosis. The pelvic examination is limited in the identification of pelvic masses, but may identify distant metastasis. High-frequency gray-scale transvaginal ultrasonography is recommended as the imaging modality of choice. Laboratory testing should include complete blood count, cervical cultures, and measurement of human chorionic gonadotropin, low-density lipoprotein cholesterol, and α-fetoprotein. However, elevated CA 125 levels (greater than 200 U per mL [200 kU per L] in premenopausal women and greater than 35 U per mL [35 kU per L] in postmenopausal women) have the greatest positive predictive value (49 percent in premenopausal women and 98 percent in postmenopausal women). Laparoscopic surgery may be beneficial for evaluating and treating benign cysts, although it is contraindicated in patients with high suspicion for ovarian cancer. These patients should be referred to a gynecologic oncologist for treatment.12

The opinions and assertions contained herein are the private views of the authors and are not to be construed as official or as reflecting the views of the U.S. Air Force Medical Department or the U.S. Air Force at large.

Address correspondence to Robin A. Holzer, MD, at robin.holzer.1@us.af.mil. Reprints are not available from the authors.

Author disclosure: No relevant financial affiliations to disclose.

REFERENCES

1. American College of Obstetricians and Gynecologists. ACOG Practice Bulletin. Management of adnexal masses. *Obstet Gynecol.* 2007;110(1):201–214.

2. Drake J. Diagnosis and management of the adnexal mass. *Am Fam Physician.* 1998;57(10):2471–2476.

3. Modesitt SC, Pavlik EJ, Ueland FR, DePriest PD, Kryscio RJ, van Nagell JR Jr. Risk of malignancy in unilocular ovarian cystic tumors less than 10 centimeters in diameter. *Obstet Gynecol.* 2003;102(3):594–599.

4. Grimes DA, Jones LB, Lopez LM, Schulz KF. Oral contraceptives for functional ovarian cysts. *Cochrane Database Syst Rev.* 2009;(2):CD006134.

5. DePriest PD, Shenson D, Fried A, et al. A morphology index based on sonographic findings in ovarian cancer. *Gynecol Oncol.* 1993;51(1):7–11.

6. Jacobs I, Oram D, Fairbanks J, Turner J, Frost C, Grudzinskas JG. A risk of malignancy index incorporating CA 125, ultrasound and menopausal status for the accurate preoperative diagnosis of ovarian cancer. *Br J Obstet Gynaecol.* 1990;97(10):922–929.

7. Kitawaki J, Ishihara H, Koshiba H, et al. Usefulness and limits of CA-125 in diagnosis of endometriosis without associated ovarian endometriomas [published correction appears in Hum Reprod. 2007;22(2):627]. *Hum Reprod.* 2005;20(7):1999–2003.

8. Skates SJ, Menon U, MacDonald N, et al. Calculation of the risk of ovarian cancer from serial CA-125 values for preclinical detection in postmenopausal women. *J Clin Oncol.* 2003;21(10 suppl):206s–210s.

9. National Institutes of Health Consensus Development Conference Statement. Ovarian cancer: screening, treatment, and follow-up. *Gynecol Oncol.* 1994;55(3 pt 2):S4–S14.

10. Brown AK, Moore RG, Miller MC, et al. A novel multiple biomarker assay for the detection of ovarian carcinoma. Paper presented at: 2006 American Society of Clinical Oncology Annual Meeting; June 2–6, 2006; Atlanta, Ga. Abstract 5023.

11. Menon U, Gentry-Maharaj A, Hallett R, et al. Sensitivity and specificity of multimodal and ultrasound screening for ovarian cancer, and stage distribution of detected cancers: results of the prevalence screen of the UK Collaborative Trial of Ovarian Cancer Screening (UKCTOCS). *Lancet Oncol.* 2009;10(4):327–340.

12. Im SS, Gordon AN, Buttin BM, et al. Validation of referral guidelines for women with pelvic masses. *Obstet Gynecol.* 2005;105(1):35–41.

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