Can US "pattern recognition" of classic adnexal lesions reduce surgery, and even referrals for other imaging, in average-risk women?

This is not a new concept. Numerous studies[1] have found that **pattern recognition performed as well or better than various ultrasound risk stratification systems**. An International Consensus Conference[2] advocated that all adnexal masses should be lumped into 1 of 3 categories: 1) almost certainly benign, 2) indeterminant, 3) almost certainly malignant. The current investigators retrospectively looked at several hundred adnexal masses in women at average risk for ovarian cancer and, essentially, corroborated the recommendations of the International Consensus Conference. "Classic" appearing lesions (simple cysts, endometriomas, hemorrhagic cysts, dermoids) were easily recognized by pattern recognition, were basically the "almost certainly benign" group, and when correlated with histology or clinical or imaging follow-up, had a risk of malignancy less than 1%.

Gupta A, Jha P, Baran TM, et al. Ovarian cancer detection in average-risk women: classic- versus nonclassic-appearing adnexal lesions at US. Radiology. 2022;212338. doi: 10.1148/radiol.212338.

EXPERT COMMENTARY
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Gupta and colleagues conducted a multicenter, retrospective review of 970 adnexal lesions among 878 women—75% were premenopausal and 25% were postmenopausal.

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Imaging details

The lesions were characterized by pattern recognition as "classic" (simple cysts, endometriomas, hemorrhagic cysts, or dermoids) or "nonclassic." Out of 673 classic lesions, there were 4 malignancies (0.6%), of which 1 was an endometrioma and 3 were classified as simple cysts. However, out of 297 nonclassic lesions (multilocular, unilocular with solid areas or wall irregularity, or mostly solid), 32% (33/103) were malignant when vascularity was present, while 8% (16/184) were malignant when no intralesional vascularity was appreciated.

The authors pointed out that, especially because their study was retrospective, there was no standardization of scan technique or equipment employed. However, this point

FAST TRACK

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WHAT THIS EVIDENCE MEANS FOR PRACTICE

While the concept of pattern recognition for some "classic" benign ovarian masses has been around for some time, this is the first time a large United States–based study (albeit retrospective) has corroborated that when ultrasonography reveals a classic, or "almost certainly benign" finding, patients can be reassured that the lesion is benign, thereby avoiding extensive further workup. When a lesion is "nonclassic" in appearance and without any blood flow, further imaging with follow-up magnetic resonance imaging or repeat ultrasound could be considered. In women with a nonclassic lesion with blood flow, particularly in older women, referral to a gynecologic oncologic surgeon will help ensure expeditious treatment of possible ovarian cancer.

adds credibility to the "real world" nature of such imaging.

Other data corroborate findings

Other studies have looked at pattern recognition in efforts to optimize a conservative approach to benign masses and referral to oncology for suspected malignant masses, as described above. This was the main cornerstone of the International Consensus Conference,[2] which also identified next steps for indeterminate masses, including evidence-based risk assessment algorithms and referral (to an expert imager or gynecologic oncologist). A multicenter trial in Europe[3] found that ultrasound experience substantially impacts on diagnostic performance when adnexal masses are classified using pattern recognition. This occurred in a stepwise fashion with increasing accuracy directly related to the level of expertise. Shetty and colleagues[4] found that pattern recognition performed better than the risk of malignancy index (sensitivities of 95% and 79%, respectively). ●

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