

Not a new pattern, but a deviation: rethinking atypical ovarian endometriomas (AOE) and high diagnostic performance beyond pattern recognition

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Objectives

To investigate whether AOE represent a distinct sonographic pattern or rather a deviation from the classical phenotype, while evaluating diagnostic performance in expert hands.

Methods

Retrospective single-center study of 752 adnexal masses surgically treated in 2025. Expert ultrasound assessment used IOTA terminology, with histology as the reference standard. AOE were presumed endometriomas deviating from the classical phenotype and/or containing vascularized solid components.

Results

Of 752 cysts, 381 (50.7%) were histologically confirmed as endometriomas. Ultrasound showed 91.9% sensitivity, 97.8% specificity, and 94.8% accuracy. Of 38 lesions classified as AOE, 34 were confirmed histologically (89.5%; 8.9% of all endometriomas), with no consistent alternative pattern and no invasive cancers misclassified (Table 1).

TABLE 1

Sonographic spectrum and histological outcomes of lesions classified as AOE

DOMAIN	OBSERVED FEATURE	n (%)
Morphology	Unilocular	19 (50.0%)
	Multilocular 8 with ≤4 locules · 8 with >4 locules	16 (42.1%)
	Unilocular-solid	1 (2.6%)
	Multilocular-solid	1 (2.6%)
	Solid	1 (2.6%)
MORPHOLOGICAL SPECTRUM		38 (100%) · NO CONSISTENT PATTERN
Clinical context	Concomitant deep endometriosis	38/38 (100%)
Histological confirmation	Endometrioma	34/38 (89.5%)
Alternative histology	Mucinous BOT · Dermoid cyst Cystadenoma · Functional cyst	4/38 (10.5%)

AOE, atypical ovarian endometrioma; BOT, borderline ovarian tumor.

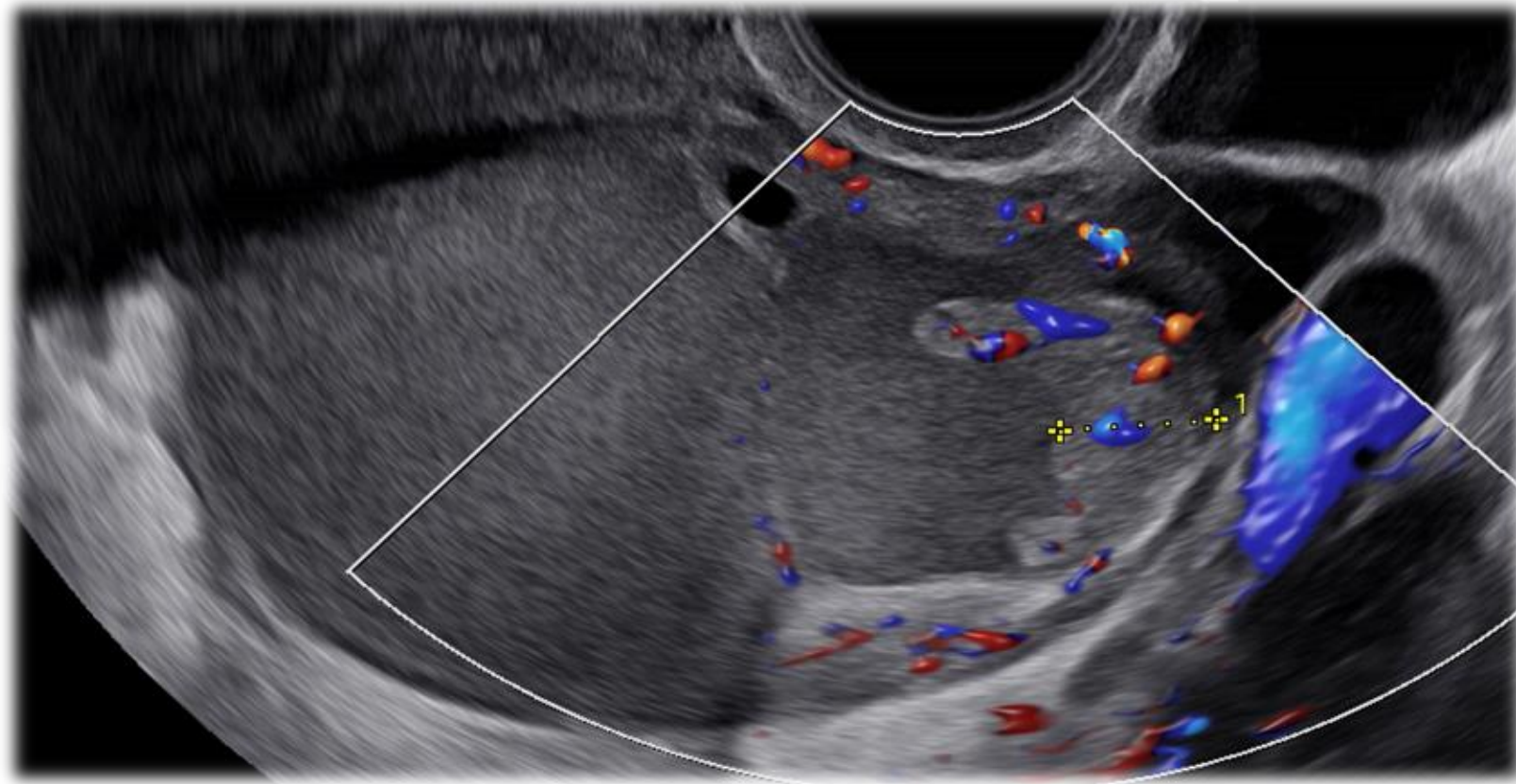


Figure 1. AOE with heterogeneous content and a solid component.

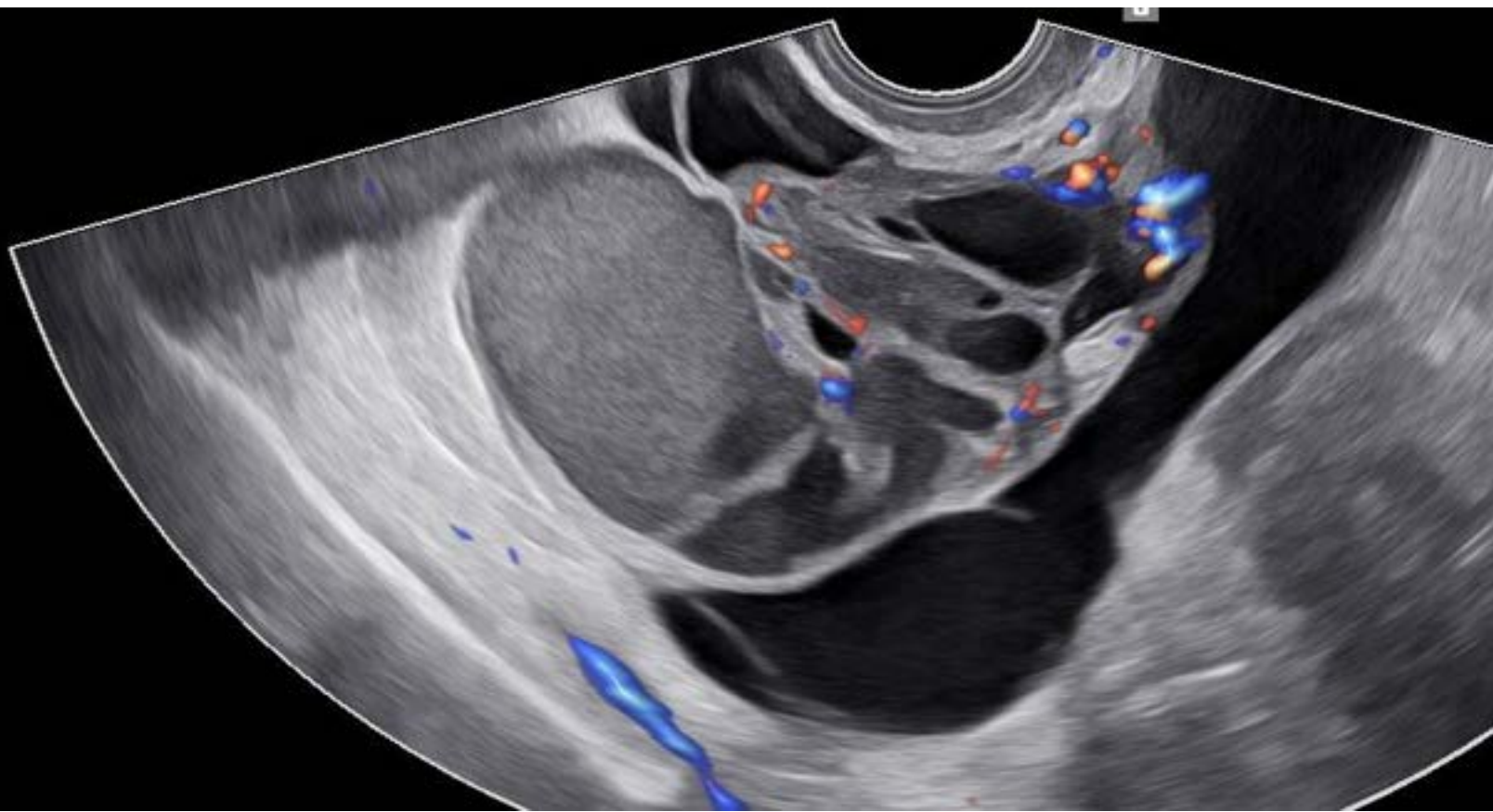


Figure 2. Multilocular AOE (>4 locules) with heterogeneous echogenicity and moderate vascularization (CS3).

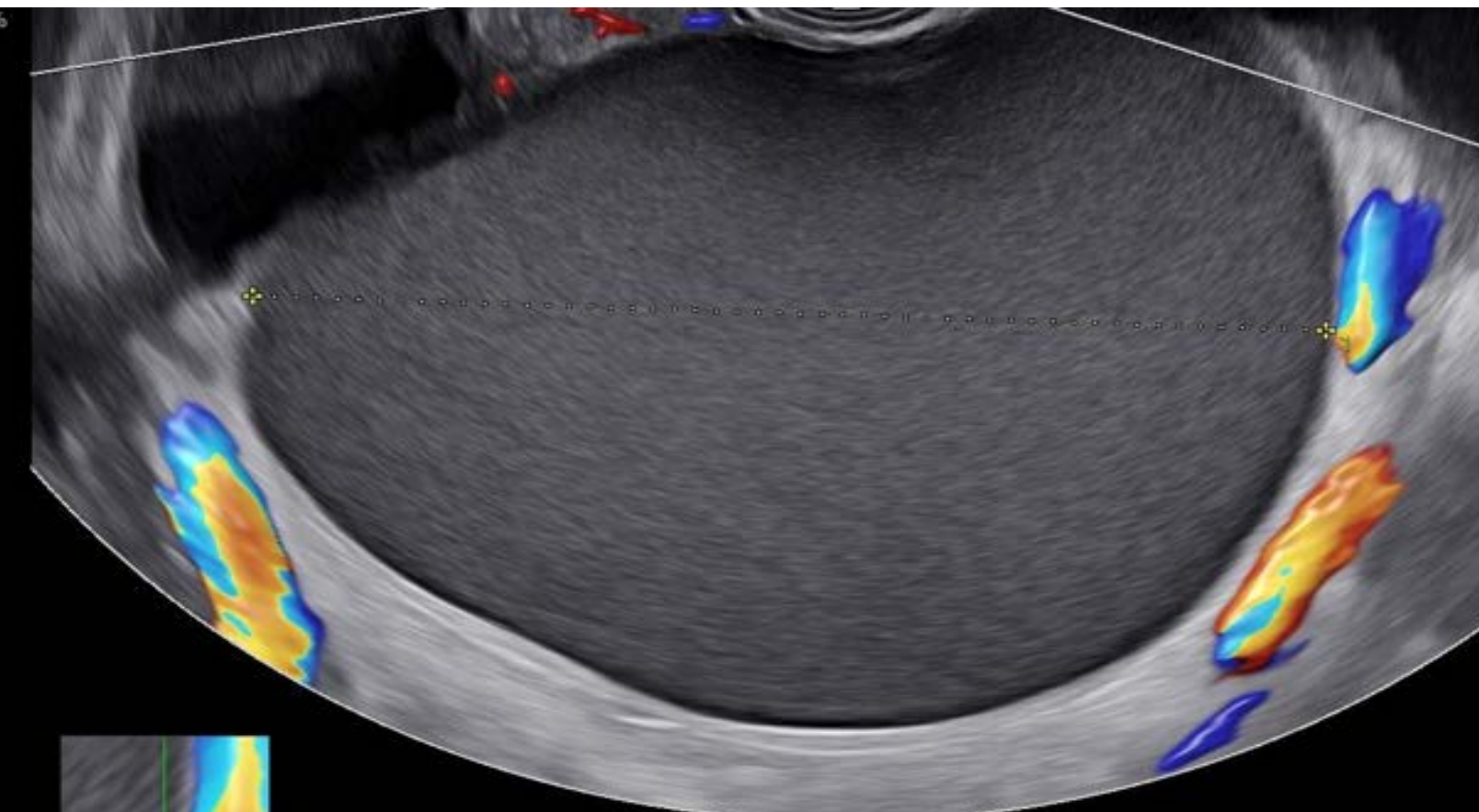


Figure 3. Typical ground-glass endometrioma.

Conclusions

AOE are deviations from the classical phenotype rather than a distinct sonographic pattern. Expert assessment, supported by concomitant deep endometriosis, guides diagnosis.