

Malignant adnexal masses with shadows, time to reassess a friendly ultrasound sign?

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Objective

The presence of shadows has always been considered a reassuring ultrasound (US) sign, suggestive of benignity, both within the solid component of adnexal masses and in the evaluation of myometrial lesions. The objective of our study is to explore the presence of acoustic shadows in a consecutive series of US of malignant masses

Methods

Multicenter retrospective study. We reviewed available US images of 424 consecutive patients with suspicious adnexal masses who underwent surgery at the Fondazione IRCCS Istituto Nazionale dei Tumori in Milan and at the Bucerri La Ferla Fatebenefratelli Hospital in Palermo between January 2020 and January 2025. All the patients included were diagnosed with a primary or secondary malignant adnexal tumor at final histology. We investigated the presence of acoustic shadows within the solid component of the lesion at preoperative US.

Results

Among the 424 patients considered, 80 (19%) showed the presence of acoustic shadows within the solid component of the lesion at US. Median age was 56 years and median BMI 23.3 (16-46.4) kg/m².

The median lesion diameter was 103 mm (range 36–197), and the median CA125 level was 589.4 U/ml (range 8 – 8513).

Histological examination confirmed primary ovarian cancer in 66 women (82.5%), distributed as follows:

- **37.5% high-grade serous,**
- **20% other epithelial histotypes,**
- **7.25% low-grade serous,**
- **6.25% germ cell,**
- **6.25% borderline,**
- **3.75% carcinosarcomas,**
- **1.25% stromal tumors.**

In 14 cases (27.5%), the final diagnosis was metastatic ovarian tumor, mainly originating from the **gastrointestinal tract (58%)**, followed by **breast (21%)** and **endometrium (21%)**.

Conclusions

Our study demonstrates that acoustic shadows can occur even in malignant tumors, underscoring the importance of interpreting each case within a comprehensive clinical context. Accurate diagnosis should integrate clinical, biochemical, and US data, rather than relying solely on isolated reassuring US features.



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14-17 SEPTEMBER 2025
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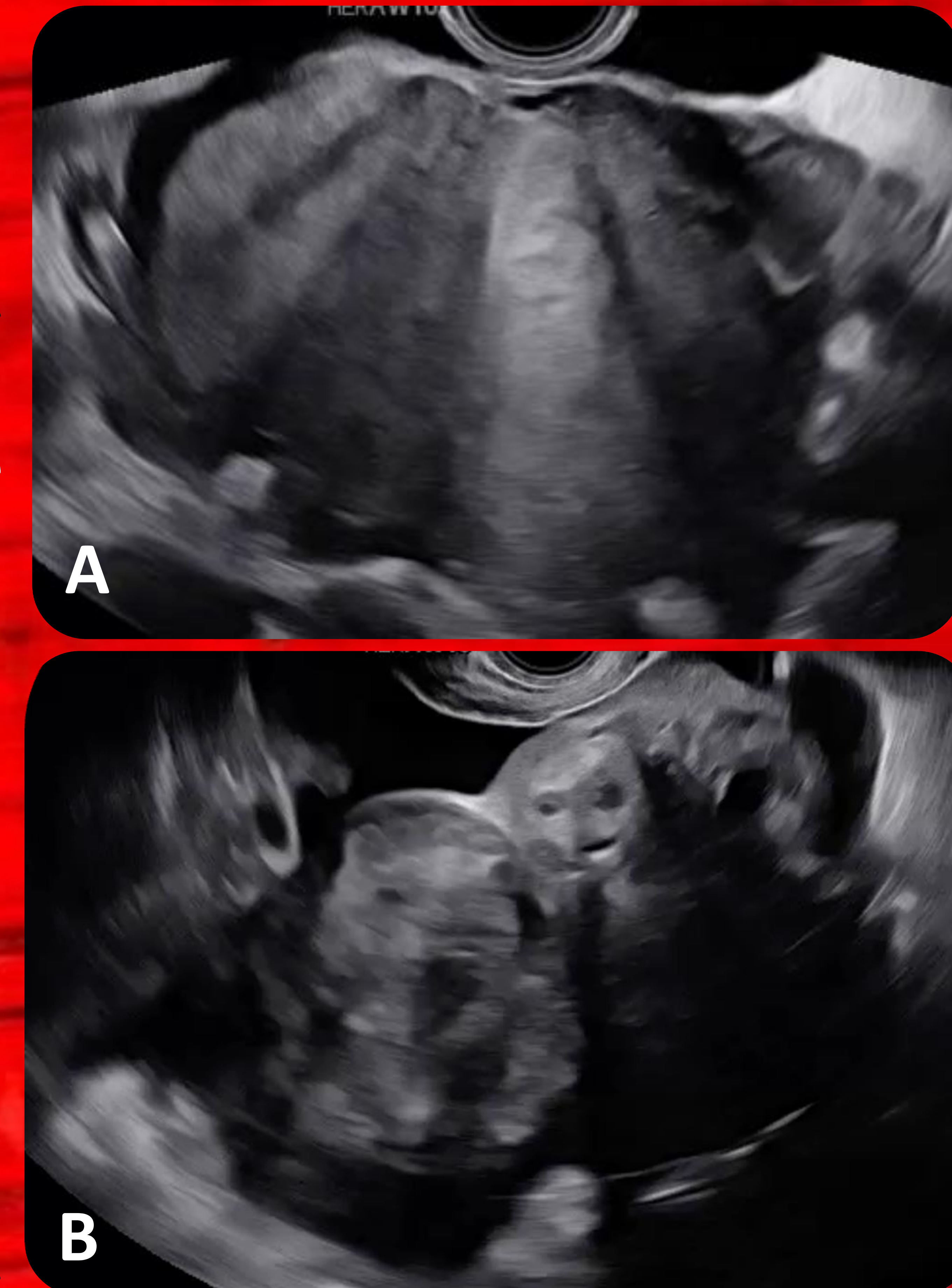


Figure 1-2 – Examples of malignant adnexal masses with shadows (A-metastasis from gastric cancer, B-immature teratoma)