SRU Case of the Day 2023

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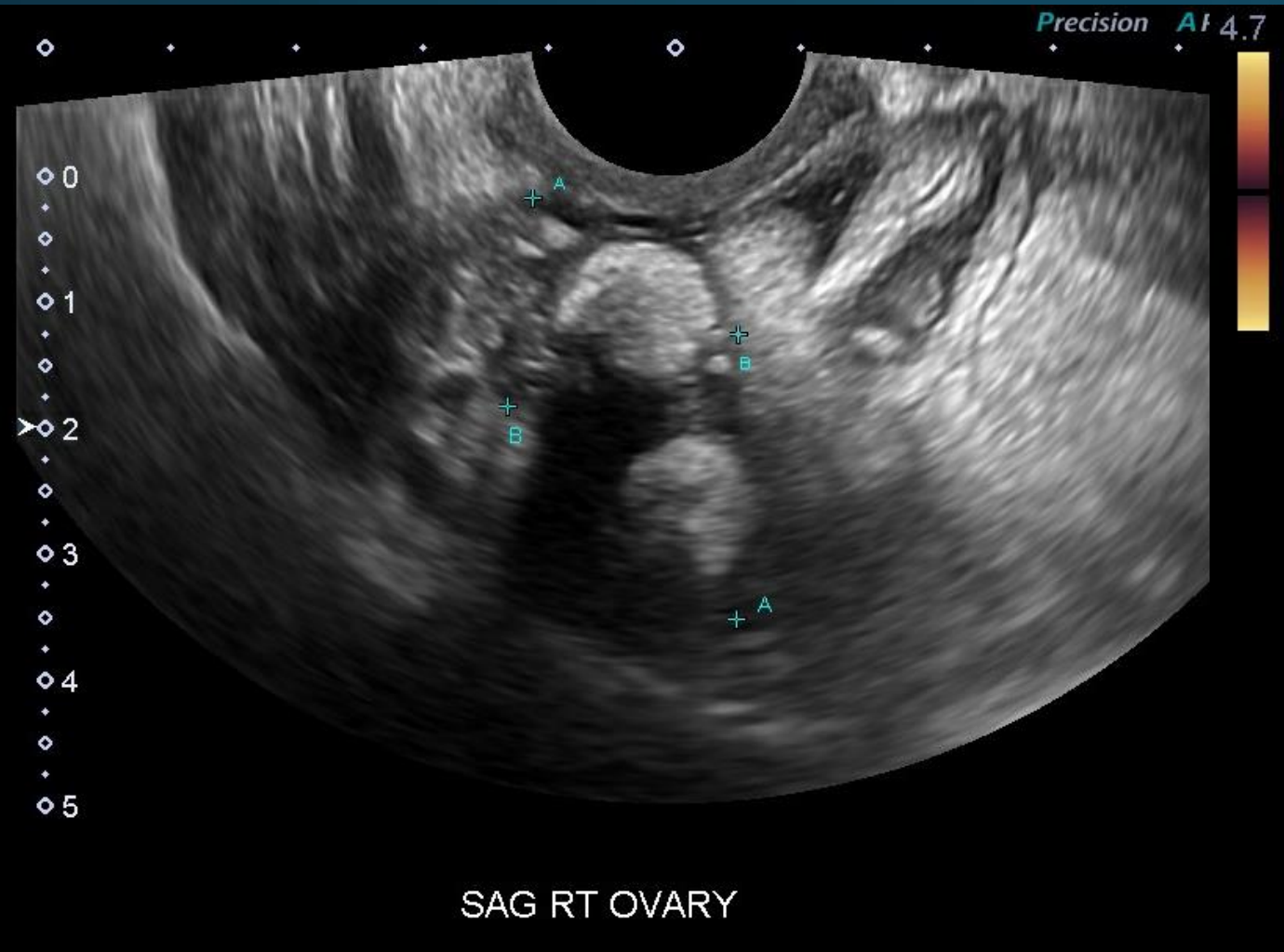
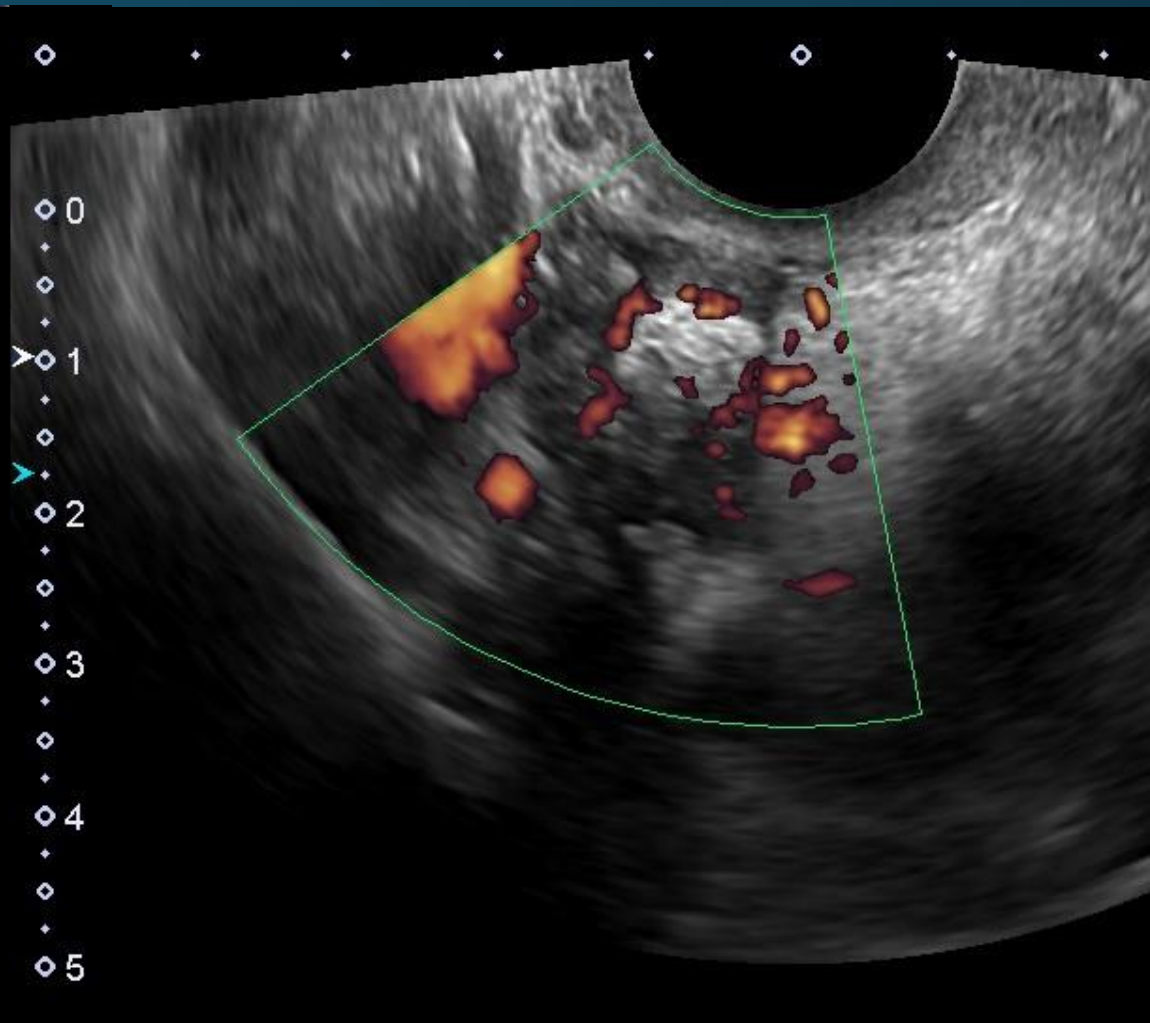
Case 1

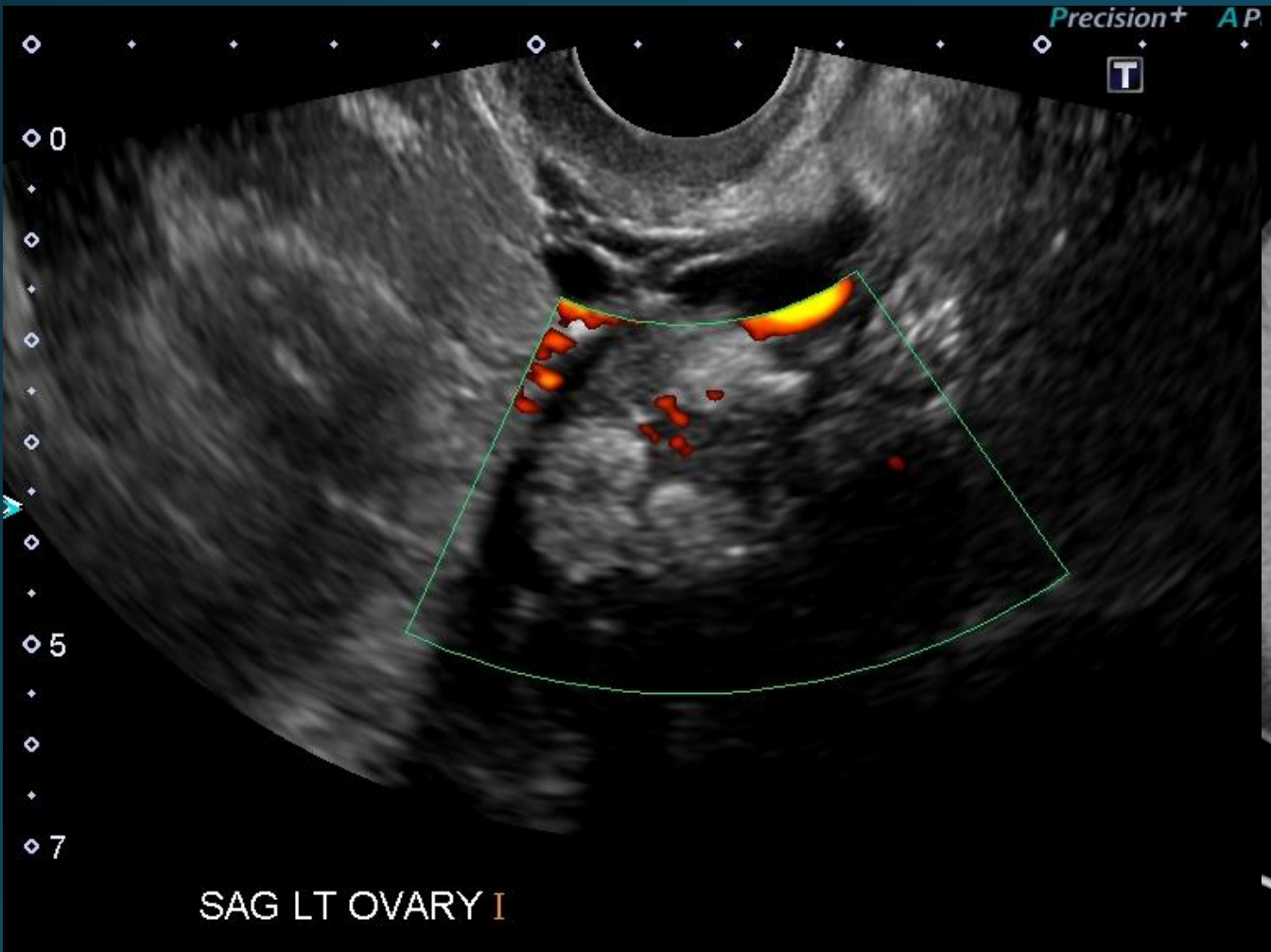
65-year-old woman presenting for follow-up of "dermoid" on outside ultrasound. Transvaginal ultrasound of the right ovary was performed with power Doppler.





Case 1 (continued)

Transvaginal ultrasound with power Doppler of the contralateral left ovary, and CT pelvis with intravenous and oral contrast were also performed:



Case 1: Findings

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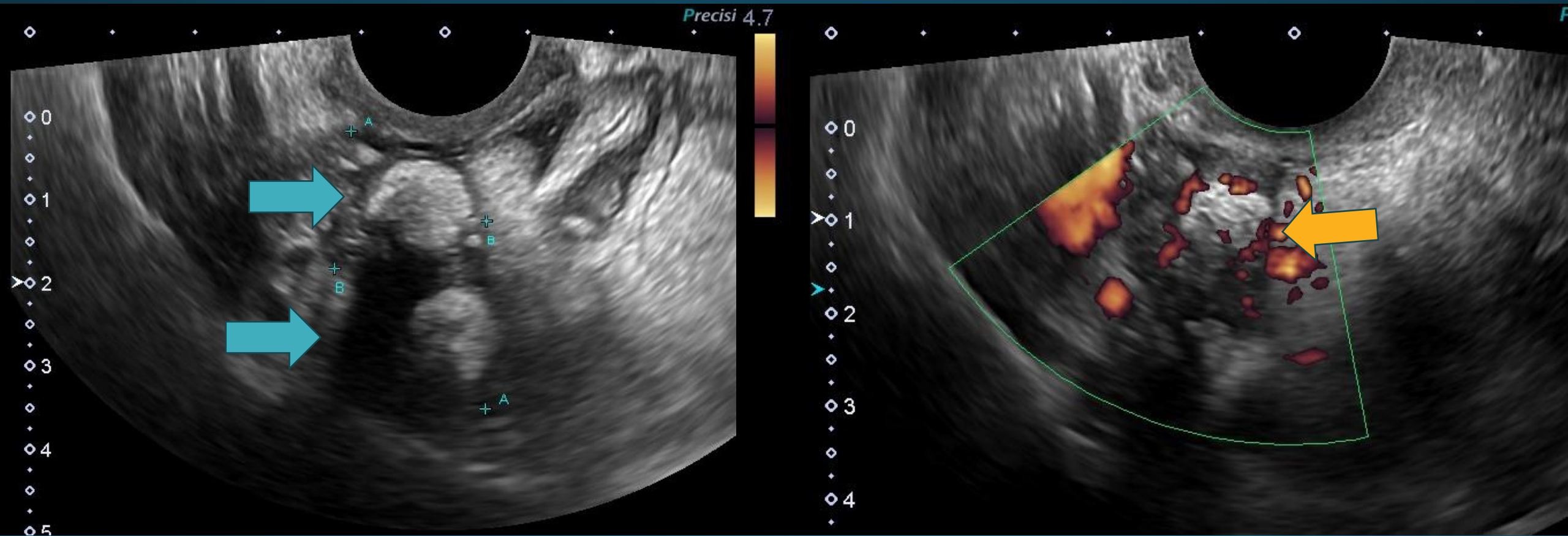
On transvaginal ultrasound, a solid irregular mass with shadowing (arrows) is seen in the right adnexa.

Internal vascularity (arrow) is present on power Doppler (color score = 3).



Case 1: Findings (continued)

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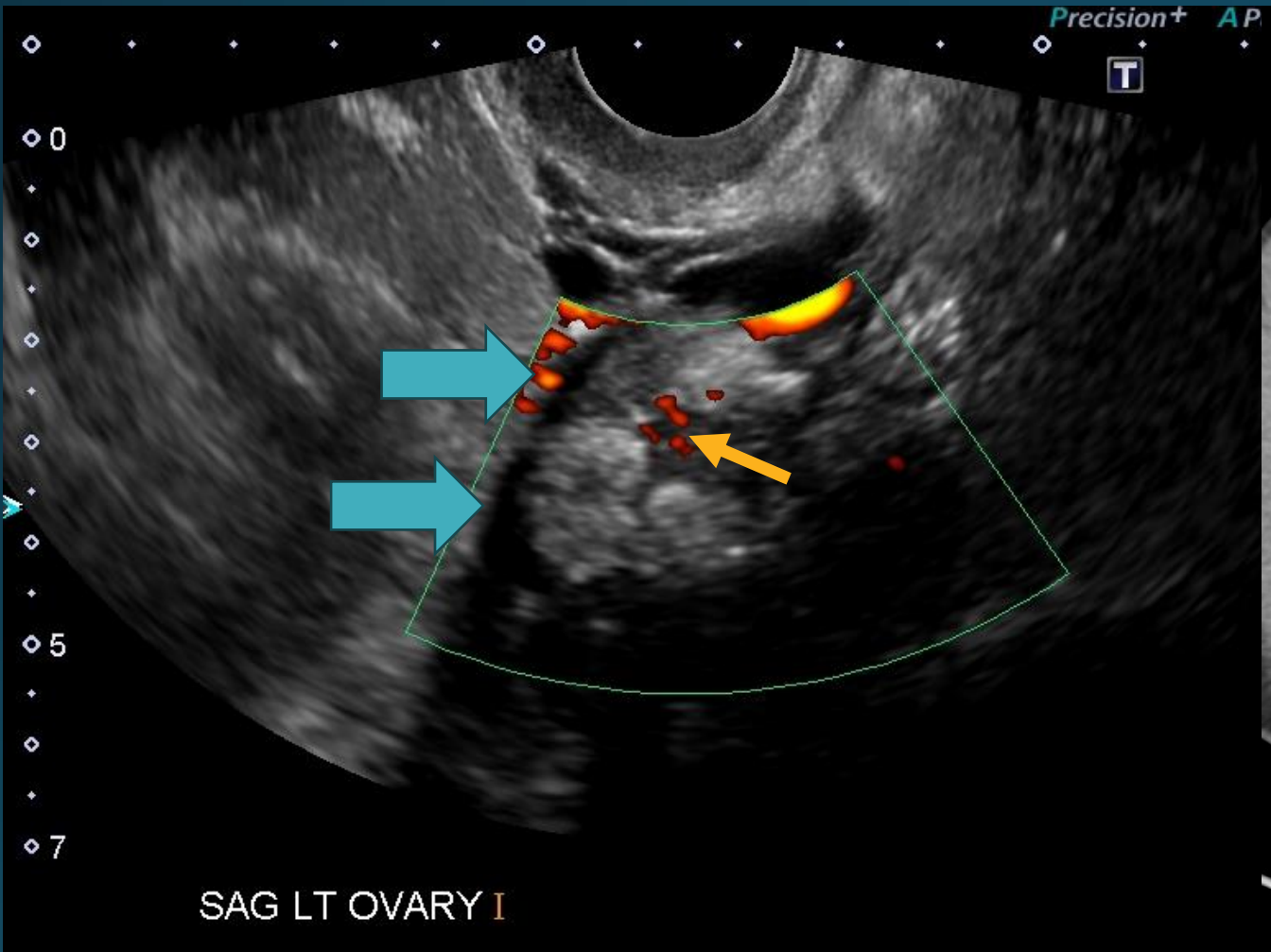
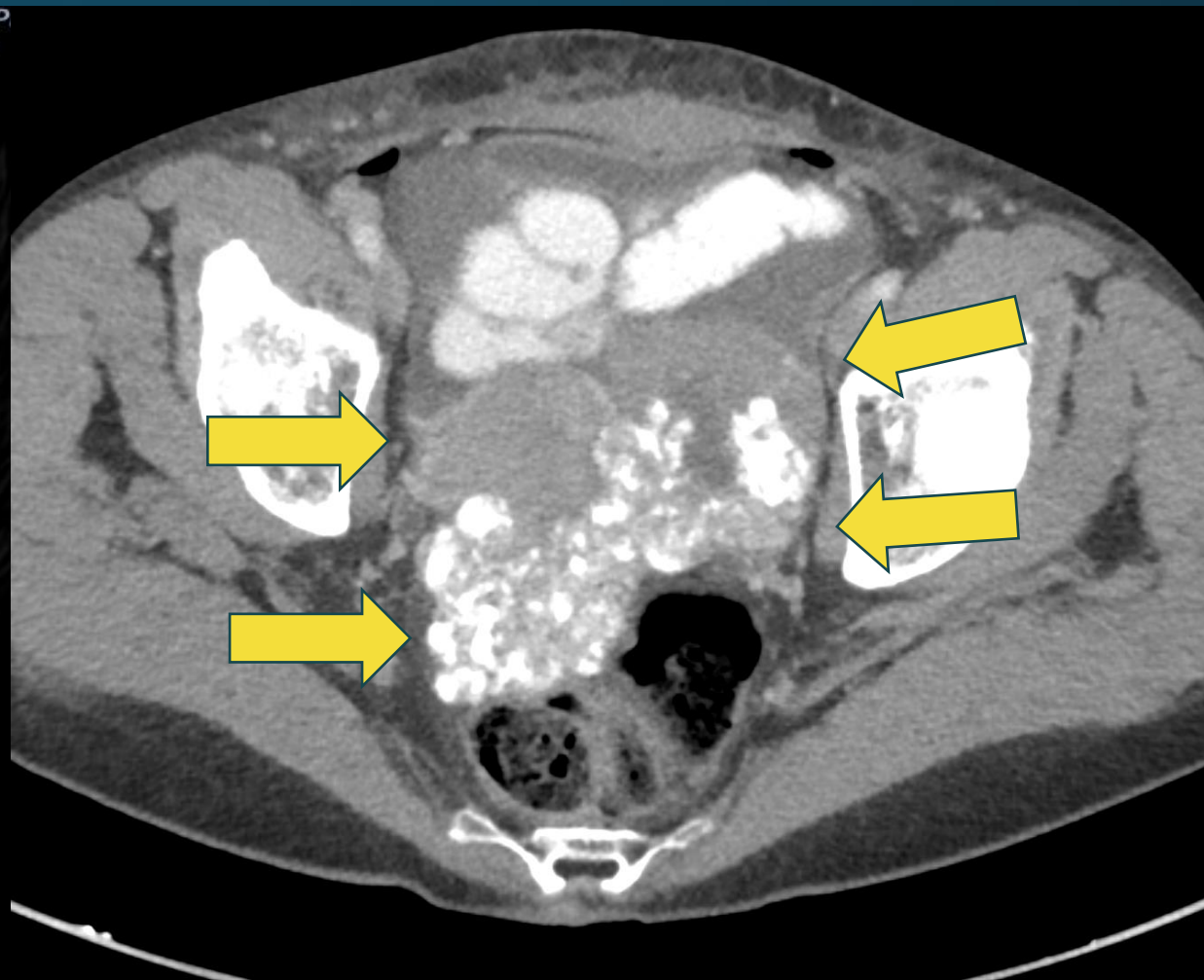
Ultrasound of the left ovary shows a solid echogenic mass (arrows) with color score 1 (arrow).

CT pelvis shows bilateral adnexal masses with calcification (arrows).





Case Outcome

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- This 65-year-old woman presented for follow-up of "dermoid" on outside ultrasound. Ultrasound showed bilateral solid-appearing masses with color score 1-3. The patient underwent laparotomy and bilateral salpingo-oophorectomy.
- Pathologic examination of the right adnexa demonstrated a unilocular cystic ovarian mass with invasion into the ovarian stroma by a predominantly-papillary lesion with prominent psammoma bodies. There was involvement of the fallopian tube serosal surface, as well as of the sigmoid colon and peritoneal cavity. The left ovarian mass was also reported as low-grade serous carcinoma.

- Final diagnosis was metastatic low grade serous ovarian carcinoma.

Case: O-RADS 5 masses

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5	High Risk [≥50%]	Unilocular cyst, ≥4 pps, any size, any CS
		Bi- or multilocular cyst with solid component(s), any size, CS 3–4
		Solid lesion, ± shadowing, smooth, any size, CS 4
		Solid lesion, irregular, any size, any CS
		Ascites and/or peritoneal nodules****

- High risk features on ultrasound include irregular solid lesions (as in this case), and cystic masses with solid components and high color scores
- Imaging differentials for this case include:
  - metastatic disease
  - malignant transformation of a dermoid
  - non-epithelial tumors
- Of note, the presence of internal vascularity on ultrasound is not compatible with a typical dermoid (O-RADS 2)

Andreotti RF, Timmerman D, Strachowski LM, et al. O-RADS US Risk Stratification and Management System: A Consensus Guideline from the ACR Ovarian-Adnexal Reporting and Data System Committee. Radiology. 2020;294(1):168-185.

Serous Ovarian Carcinoma

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- Serous ovarian tumours are the most common epithelial ovarian neoplasm. Approximately 10% are low-grade serous carcinomas, with the majority being high-grade. Serous ovarian carcinosarcoma is an uncommon and aggressive subtype. The mean ages at diagnosis are 55 and 63 for patients with low-grade carcinoma and high-grade serous carcinoma, respectively. 20-40% of patients with low-grade serous carcinoma have KRAS mutations and 5% have BRAF mutations.
- Serous cystadenoma presents as a unilocular cyst, while papillary projections are common in low-grade neoplasms, and increased solid components are associated with higher risk of malignancy. Peritoneal deposits are characteristic of metastatic spread, often with ascites. Psammoma bodies are a form of calcification that can be found in serous ovarian carcinoma.
- Despite being relatively slow growing, the majority of low-grade serous ovarian carcinomas are metastatic at the time of diagnosis, and mean overall survival for stages II-IV low grade cancer is 84 months.
- Currently, management for both low-grade and high-grade serous cancers involves surgical debulking with adjuvant platinum/taxane-based chemotherapy. However, low-grade cancers are relatively unresponsive to chemotherapy and there are no other effective therapies widely used today. Targeted therapy with MEK inhibitors targeting the MAPK pathway are currently being studied as treatment for recurrent or persistent disease.

Gershenson, D. M. (2013). The Life and Times of Low-Grade Serous Carcinoma of the Ovary. American Society of Clinical Oncology Educational Book, 33, e195–e199.