

## New hybrid imaging device shows promise in spotting hard-to-detect ovarian cancer

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Co-registered images of malignant ovarian tissue obtained with the hybrid imaging device. From top to bottom: OCT image , ultrasound image, superimposed photoacoustic and ultrasound image and corresponding histology . Yellow diamond arrow: malignant tissue. Credit: University of Connecticut/Biomedical Optics Express

By combining three previously unrelated imaging tools into one new device, a team of researchers from the University of Connecticut and the



University of Southern California has proposed a new way to diagnose early-stage ovarian cancer in high-risk women through minimally invasive surgery. The new technique may be better than the current standard procedure of preemptively removing the ovaries.

Ovarian cancer has a low survival rate because a lack of reliable screening techniques usually means the disease remains hidden until the later stages. Now researchers have drawn on the unique advantages of multiple <u>imaging tools</u> to test a new way of spotting early-on the tissue irregularities that signal cancer.

For their <u>diagnostic device</u>, the researchers combined the contrast provided by photoacoustic imaging, the high-resolution subsurface imaging provided by optical coherence tomography, and the deeper tissue imaging provided by pulse-echo ultrasound. They tested their device, described by the team in the September issue of the Optical Society's (OSA) open-access journal <u>Biomedical Optics</u> *Express*, by imaging both pig and human ovarian tissue, and correctly identified malignant tumors that were later confirmed by staining the tissue and examining it under a microscope. These initial tests were performed on tissue that had been surgically removed, but the diameter of the device – at only 5 mm – is small enough that it could potentially be inserted through a small slit to image tissue in live patients.

**More information:** "Integrated optical coherence tomography, ultrasound and photoacoustic imaging for ovarian tissue characterization," Yang et al., *Biomedical Optics Express*, Volume 2, Issue 9, pp. 2551-2561. <u>www.opticsinfobase.org/boe/abs ...</u> <u>cfm?uri=boe-2-9-2551</u>

Provided by Optical Society of America



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