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## RSNA Press Release

### Spiral CT Improves Detection of Ovarian Cancer Spread

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OAK BROOK, Ill. -- A variation of computed tomography called spiral CT has proved more sensitive than previous imaging studies for detecting ovarian cancer that has spread from the ovary to the abdominal cavity, according to a study reported in the May issue of the journal *Radiology*.

The accuracy of spiral CT was tested in 64 women who, afterwards, underwent surgery for ovarian cancer. The goal of the study, conducted at Memorial Sloan-Kettering Cancer Center in New York, was to determine just how accurately this imaging method detects abdominal metastases. "Spiral CT has improved the ability of radiologists to identify the spread of ovarian cancer within the abdominal cavity. This assists surgical planning, and can help identify patients who may be better treated by chemotherapy before surgery rather than afterwards," said lead author of the study Fergus V. Coakley, M.D., now with the Department of Radiology, University of California, San Francisco.

In most forms of cancer, finding metastases at this site means that the diagnosis can be confirmed by either a tissue-sampling biopsy or laparoscopy (inserting a tube through a small incision in the abdominal wall). Patients are thereby spared open surgery that will not improve their prognosis. Ovarian cancer is an exception. Finding tumor spread in the abdomen does not rule out curative surgery, even if not all of the cancer can be removed (a procedure called surgical debulking). Other types of treatment are sometimes able to eliminate residual disease. This is fortunate because, on average, more than two of every three ovarian cancers will have spread to the abdominal cavity at the time women first present with symptoms.

Past studies, done before several refinements in CT technology, detected disease in 63 percent to 78 percent of women harboring metastatic ovarian cancer. However, with recent advances, the rate of detection can be as high as 93 percent, according to study coauthor Hedvig Hricak, M.D., Ph.D., from Memorial Sloan-Kettering Cancer Center.

One limitation of conventional CT is that the images are obtained in consecutive slices in a stop-start mode of action, making it hard to detect small masses. Another is that

distinguishing between tumor nodules and empty loops of bowel can be very difficult. Spiral CT provides a continuous scan of the patient as the tabletop moves through the scanner, making it easier to pick up small nodules of disease. "Spiral CT is fast, taking only about one minute for the entire scan," Dr. Coakley points out. "There is no discomfort, and not more than a tiny risk of contrast allergy." At most centers the scan is read the same day or the next morning.

Three attending radiologists with expertise in cancer imaging independently reviewed the CT scans and rated the chance of abdominal metastases on a 5-point scale (definitely or probably absent, indeterminate, probably or definitely present). They had no knowledge of the clinical or surgical findings. Surgery, done an average of two weeks after the CT exam, demonstrated abdominal metastases in 41 patients, nearly two-thirds of those examined. The three readers variously identified metastases in 85 percent to 93 percent of women found to have them. However, fewer than half of metastases measuring one centimeter or smaller were detected. Apart from identifying nodules, several CT findings were quite reliable clues to the presence of metastatic disease: ascites, or fluid accumulating in the abdominal cavity; thickening of the abdominal lining, or peritoneum; and a thickened or distorted small bowel wall.

While its inability to consistently detect very small tumors is a limitation, spiral CT outperformed conventional CT scanning in this trial, and with technology continuously improving, the outlook for spiral CT is favorable. "As further advances are made," notes Dr. Hricak, "and molecular imaging is entering clinical trials, we are getting closer to our goal of noninvasive evaluation of cancer spread."

*Radiology* is a monthly scientific journal devoted to clinical radiology and allied sciences. The journal is edited by Anthony V. Proto, M.D., School of Medicine, Virginia Commonwealth University, Richmond, Virginia. *Radiology* is owned and published by the Radiological Society of North America, Inc. (<http://radiology.rsna.org>)

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"Peritoneal Metastases: Detection with Spiral CT in Patients with Ovarian Cancer." Collaborating with Dr. Coakley and Dr. Hricak on this paper were Patricia H. Choi, M.D., Christina A. Gougoutas, M.D., Bhavana Pothuri, M.D., Ennapadam Venkatraman, Ph.D., Dennis Chi, M.D., and Antonina Bergman, M.D., Ph.D.