

Lessening the dangers of radiation

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For diagnosing head and neck ailments, tests that use radiation are always less desirable than those that don't. Otolaryngologists have a wide range of techniques available to them, including CT or "CAT" scans, MRI and ultrasound. CT uses significant radiation and MRI a lower amount, but ultrasound is a non-invasive, non-radiating technique. It does not require injection of radioactive contrast material and has no side effects.

Now, a new study by Tel Aviv University exploring the efficacy of expensive and invasive CT scans has found that, in some cases, they don't offer a clinical advantage over a simple, inexpensive [ultrasound procedure](#).

In his study, Dr. Michael Vaiman of Tel Aviv University's Sackler Faculty of Medicine compared the efficacy of CT versus [ultrasound](#) scans for locating vertebral arteries in the throat, an important assessment that must be completed before a surgeon operates in the neck area of the body. After comparing the outcomes of 250 CT scans with 500 ultrasound images, he concluded that there is no advantage to using CT scans for most of these procedures, especially those that are used to locate anomalies in the neck to map major arteries before surgery can take place.

Dr. Vaiman's results were published in the March issue of the *European Archives of Oto-Rhino-Laryngology*.

When scans are sound

CT scans combine [X-rays](#) with highly sophisticated computers to produce a number of pictures of the interior of the body. Traditionally, doctors have relied on these scans to find neck arteries and assess neck tumors, enlarged lymphatic nodules, diseases of the salivary glands, different kinds of bronchial cysts, or the development of [thyroid cancer](#).

Although ultrasound is not the investigation of choice for every neck pathology, it is adequate for diagnosis and assessment of treatment options for most of these conditions. Ultrasound can not only locate a lesion, it can provide information about its size, consistency, and relation to other organs, as well as other features.

"I would recommend the use of [ultrasound scans](#), and not radiating CT scans, for most procedures," Dr. Vaiman says. "I would especially recommend ultrasound when children are investigated. There are some tumors that do require CT or MRI investigation, but these cases are rare. When in doubt, and high-resolution imaging is necessary, I would suggest a low-radiating MRI."

His findings follow warnings from international health organizations about the dangers of overexposure to CT-related radiation. Some medical experts caution that patients are exposed to too many CT scans, and the results could be harmful to their health. Excessive [radiation](#) can itself lead to cancerous growths, for example.

A less dangerous path

Although Dr. Vaiman's study focused on the relationship of arteries in the neck, he believes that most CT scans of other organs may also be unnecessary and would best be done using ultrasound. It is cheap, readily available and, over time, less dangerous than CT scanning.

"Preoperative ultrasound investigation allows a very precise identification of abnormal vertebral arteries," he reports. "I believe that radiation-free ultrasound investigation of blood vessels is as precise as CT 3D imaging, and should be used as an alternative in most cases."

Provided by Tel Aviv University

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