Method and Device of Identifying and Evaluating Neurovascular Structure

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Technology description

Background

A radical prostatectomy is an operation to remove the prostate gland and some of the tissue around it. The cavernous nerves, which are responsible for erection and are a part of the prostatic neurovascular bundle (NVB), travel very close to the prostate gland and, because the nerves are difficult to identify visually and current locating devices are inadequate, may be injured during the prostatectomy. Injury of the NVB is found in over half of prostatectomy patients experiencing erectile dysfunction 18 or more months after surgery. Therefore, identifying and avoiding damage to the NVB is essential to preventing erectile dysfunction in prostatectomy patients. Current methods of locating the nerve include an electro-stimulation based technique that is very invasive, and an optical coherence imaging technique that is challenging to apply during surgery because of the strong light absorption by the blood.

Summary

OSU researchers have developed a non-invasive method and device for locating the NVB during a prostatectomy which also may be used to evaluate the integrity of the nerve after surgery. The technology has the potential to decrease the prevalence of erectile dysfunction in prostatectomy patients. The method and device will also be useful to identifying and evaluating neurovascular structures in other surgical applications.

Application area

Locating NVB for prostatectomy

Advantages

Non-invasive
Evaluates the integrity of the nerve
Prevents injury to the cavernous nerves during prostatectomy

Institution

Oklahoma State University

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