An Imaging Approach to Detect Parathyroid Gland Health during Endocrine Surgery

VANDERBILT UNIVERSITY
CTTC Center for Technology Transfer & Commercialization

Summary

Vanderbilt researchers have designed a laser speckle imaging device to detect parathyroid gland viability during endocrine surgery, during which otherwise healthy parathyroid glands are prone to devascularization leading to long-term hypocalcemia. Currently, the surgeon must use his or her best judgement regarding the health of the parathyroid gland. This technology removes the guess work from the decision and provides a real-time assessment of the parathyroid viability.

Unique Features

- Speckle contrast images help identify devascularized parathyroid glands visually
- Provides non-invasive, real-time feedback to the surgeon
- The device has a small footprint which enables straightforward integration into the existing surgical workflow

Addressed Need

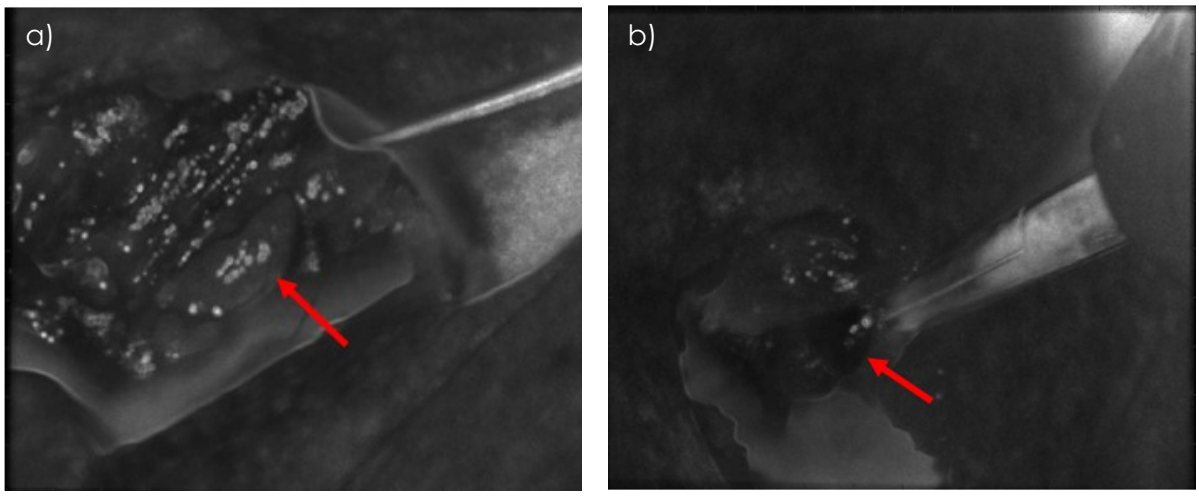
During thyroid or parathyroid surgery, surgeons need to know as soon as possible whether or not the blood supply to a parathyroid gland has been disrupted, as this informs their decision on whether or not to excise and reimplant the gland. Currently, surgeons rely only on their judgement in making this decision, which leads to a non-trivial amount of failures. This technology greatly aids in their decision making process.

Technology Development Status

The device and processing software have been successfully tested in a small number of patients (12), and additional patients are being recruited for a future study.

Intellectual Property Status

- A provisional patent application is in preparation.



Speckle contrast images acquired using this technology show examples of a) a devascularized parathyroid gland that appears lighter than surrounding tissue, and b) a viable parathyroid gland that appears darker than surrounding tissue.

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VU REFERENCE: VU 17046

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