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Endoscopic Optical Coherence Tomography As A Minimally Invasive Lung Cancer Screening Tool To Guide Diagnosis And Therapy

Tech ID: 29373 / UC Case 2018-243-0

BRIEF DESCRIPTION

Current diagnostic procedures for lung cancer are invasive, time-consuming, and subjective. UCI researchers have developed a quick, non-invasive lung cancer diagnostic device which uses optical coherence tomography (OCT) and can improve lung cancer diagnosis and outcomes.

FULL DESCRIPTION

Prior to an invasive diagnostic procedure to investigate possible lung cancer, typically, patients are imaged with computed tomography (CT), positron emission tomography (PET), or magnetic resonance imaging (MRI) to assess the cancerous lesions for size, location, and growth over time. Possibly cancerous regions are then further assessed pre-procedurally by visible light bronchoscopy (looking for discoloration), palpation (feeling the tissue), or frozen section cancer dissection (a biopsied piece of tissue is frozen and thinly sliced before viewing under a microscope). The assessment methods help to guide diagnosis and surgical planning, but are timely, invasive, and prone to subjectivity.

Optical Coherence Tomography (OCT) is an imaging method that uses optical light to capture 2D or 3D images from biological samples. OCT is non-invasive and can achieve micrometer resolution, millimeter penetration depth, and fast data acquisition (on the order of seconds). It has been used in other medical diagnostic applications in ophthalmology, cardiology, and dermatology. UCI researchers have developed a lung cancer diagnostic device that employs OCT from an endoscopic probe. The information gathered from the probe is displayed as a 3D image from which a physician can identify healthy or cancerous tissue. The use of OCT will significantly expedite information gathering and improve diagnostic and surgical outcomes.

SUGGESTED USES

Diagnosis and surgical assistance device for the treatment of lung cancer

ADVANTAGES

- Less invasive than state of the art alternatives
- Non-ionizing method which avoids tissue damage
- Faster than state of the art methods – 6-10 seconds vs 20 minutes
- Capable of scanning large amounts of tissue at high resolution

PATENT STATUS

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OTHER INFORMATION

CATEGORIZED AS

- » **Imaging**
 - » Medical
- » **Medical**
 - » Devices
 - » Diagnostics
 - » Disease: Cancer
 - » Disease: Respiratory and Pulmonary System
 - » Imaging
 - » Screening

RELATED CASES

2018-243-0

STATE OF DEVELOPMENT

Inventors have completed studies using OCT to identify oral cancer. Endoscopic viewing probes have been constructed to adapt the technology for use in the lungs.

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