A Breast Immobilization Device that Improves Radiation Therapy Dosimetry

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SUMMARY

UCLA researcher in the Department of Radiation Oncology has developed a breast immobilization device that provides structural support for the breast during radiotherapy, which allows for increased patient comfort and accuracy of breast radiation therapy.

BACKGROUND

Breast setup and immobilization is a difficult problem for external beam radiation therapy of breast cancers. A lack of setup reproducibility with breast tissue results in sub-optimal dosimetry and tissue toxicity in non-targeted, healthy tissues.Patients with larger or pendulous breasts, which are pulled down by gravity into close proximity of healthy organs, experience more non-target toxicity and higher skin doses of radiation.Devices previously designed to support breast tissue and create space from the chest for safer radiotherapy have suffered from patient discomfort and skin build-up.

INNOVATION

The technology creates a patient-specific mold without using any rigid material to provide support for the breast. The device is easy to set up and remove, can be altered for different breast morphologies, and does not build up excess skin unlike current device technologies.

APPLICATIONS

External beam radiotherapy treatments of the breast

ADVANTAGES

- Increased accuracy of radiation dosimetry
- Lower normal tissue toxicity
- Easy operation and modification
- Inexpensive
- Increased patient comfort

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,913,689	03/13/2018	2013-077

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Automated Beam Orientation and Scanning Spot Spacing Optimization for Robust Heavy Ion Radiotherapy Therapy
- A Non-Progressive Sampling Volumetric Modulated Arc Therapy (VMAT) Method

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OTHER INFORMATION

KEYWORDS

breast cancer, breast immobilization, radiation therapy device

CATEGORIZED AS

- Medical
  - Disease: Cancer

RELATED CASES

2013-077-0