Device For Global And Targeted Delivery Of Brachytherapy To The Bladder Lumen

Tech ID: 25663 / UC Case 2016-093-0

SUMMARY

UCLA researchers have designed a device that delivers local radiation to the bladder lumen limiting harmful off-target effects. This technology enables the use of radiotherapy as a safe and effective treatment for early stage bladder cancer patients.

BACKGROUND

Bladder cancer is the second most common genitourinary malignancy in the US with 74,000 new cases diagnosed per year. Some 70% of these cases present as early-stage disease. The current treatment paradigm consists of transurethral resection with or without subsequent intra-bladder immunotherapy. Unfortunately, the rate of recurrence is significant, and often occurring in other parts of the bladder. Therefore, many patients eventually undergo full surgical removal of the bladder. Clinical trials over the past decades have demonstrated the safety and efficacy of bladder conservation therapy with concurrent chemoradiotherapy. However, this type of treatment is seldom used for early-stage disease due to concerns over toxicity and off-target effects. Thus, a device that delivers radiation to the bladder lumen while limiting exposure to the rest of the body is needed to support widespread use of radiotherapy as an effective treatment for early-stage bladder cancer.

INNOVATION

UCLA researchers have developed a device capable of delivering local radiation to the bladder lumen while essentially eliminating radiation exposure to the rest of the body. The device significantly reduces the potential for overtreatment or misses in an organ whose size, shape, and location change constantly. Furthermore, the device may be modified to accommodate concurrent administration of other types of therapy such as hyperthermia, chemotherapy, and immunotherapy. Despite being an effective therapy, radiotherapy has thus far been rarely used to treat early-stage bladder cancer. By facilitating localized radiation treatment, this device has the potential to shift treatment paradigms and enable use of brachytherapy as an effective treatment for early-stage bladder cancer.

APPLICATIONS

- Delivery of radiotherapy to the bladder lumen for the treatment of bladder cancer
- Combinatorial therapy with concurrent delivery of chemotherapy, immunotherapy, or hyperthermia

ADVANTAGES

- Delivery of high dose radiation to all or a specific region of the bladder with limited radiation exposure to the rest of the body
- Elimination of targeting issues associated with bladder motion
- Modifiable to accommodate concurrent hyperthermia, chemotherapy, or immunotherapy

STATE OF DEVELOPMENT

Device development is ongoing.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,247,028	02/15/2022	2016-093

CONTACT

UCLA Technology Development Group
ncd@tdg.ucla.edu
tel: 310.794.0558.

INVENTORS

- Chin, Robert K.

OTHER INFORMATION

KEYWORDS

bladder cancer, radiotherapy, radiation, treatment, brachytherapy, genitourinary, device, balloon applicator, seed radiation

CATEGORIZED AS

- **Medical**
  - Delivery Systems
  - Devices
  - Disease: Cancer
  - Disease: Kidneys and Genito-Urinary System

RELATED CASES

2016-093-0

UCLA Technology Development Group

10889 Wilshire Blvd., Suite 920,Los Angeles,CA 90095

https://tdg.ucla.edu

Tel: 310.794.0558 | Fax: 310.794.0638 | ncd@tdg.ucla.edu