Training Platform for Transoral Robotic Surgery

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SUMMARY

UCLA researchers in the Departments of Bioengineering and Head & Neck Surgery have developed a novel robotic platform for the training of transoral surgery.

BACKGROUND

It is estimated that over 50,000 new cases of oral and oropharyngeal cancer will be diagnosed in the U.S. this year. While open surgical approaches for removing such tumors were common practice in the 1970s, the current primary modality of treatment rests in chemotherapeutics. However, there is little evidence to support a clear advantage of the use of chemotherapeutics over surgical techniques and the toxicities of chemotherapeutics have led to a resurgence in surgical removal of tumors. One drawback of many open surgical approaches is that they result in cosmetic deformity or dysphagia.

Transoral robotic surgery (TORS) has become more widely used for the removal of oral tumors because it offers better aesthetic outcomes without any decrease in efficacy. This technique requires well trained surgeons, but the current standard of training remains testing on animal models or cadavers, which are costly and require detailed planning procedures. There is a need for technology that would allow surgeons to practice in a high throughput manner, reducing the time and cost of developing expertise in TORS.

INNOVATION

UCLA researchers have developed a novel training platform that can train surgeons in a high throughput manner in TORS. The technology relies on a synthetic tissue model and places surgeons in a surgical theatre. The platform is equipped with collision feedback, a unique feature that is not included in many alternative platforms. Therefore, this technology represents a one-of-a-kind technology to help surgeons gain the expertise to use TORS to its full advantage, improving the patient care of patients suffering from oral tumors.

APPLICATIONS

- The development of expertise in TORS for surgeons

ADVANTAGES

- Use of synthetic tissue composite to perform surgeries
- Setting of the platform is in a surgical theatre, mimicking true scenario
- The use of a collision system to mimic tool usage in living patients
- Real time pressure feedback of tools

STATE OF DEVELOPMENT

The platform has been developed.

PATENT STATUS

Patent Pending

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OTHER INFORMATION

KEYWORDS

Oral Cancer, Robotic Surgery, Surgery Platform, Synthetic Tissue, High throughput training, cost effective training, Pressure Sensor

CATEGORIZED AS

- **Biotechnology**
  - Health
- **Computer**
  - Hardware
- **Medical**
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