INNOVATION PARTNERSHIPS
UNIVERSITY OF MICHIGAN

Vacuum Hemostasis Surgical Device to Control Bleeding During Brain Tumor Resection

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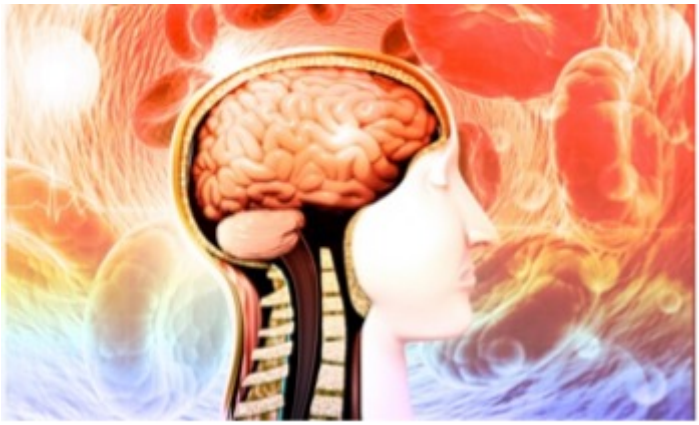

OVERVIEW

A vacuum hemostasis surgical device that improves brain tumor resection procedures

- Provides hemostasis over a larger surface without specific identification of a bleeding site
- Improves bleeding control and ergonomics with decreased cost compared to existing methods

BACKGROUND

Hemostasis, or the control of bleeding, is critical during brain surgery to maintain clear visibility, prevent complications such as hematoma formation, and minimize the risk of neurological damage. Small vessel bleeding is often managed by mechanical compression or electrocautery, though larger vessel bleeding is more commonly addressed by placement of surgical clips or ligatures. Hemostatic agents can be applied to promote clotting in areas that are more anatomically difficult to visualize or reach with other approaches. Ultrasonic dissection devices provide coagulation as the brain tissue is being cut, while laser coagulation can be useful for deep or inaccessible regions of the brain. While each of these approaches has its own advantages, limitations exist based upon bleeding severity, challenges associated with applying pressure, ease of use, and cost. So, a need exists for an improved method to help brain surgeons main hemostasis during a resection.

INNOVATION

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Medical Devices
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Researchers at the University of Michigan have developed a Vacuum Hemostasis Surgical Device to improve bleeding localization and control, ergonomics, and affordability of brain tumor resection procedures. The device is an extension that can be added to existing suction tubing. This extension consists of a suction tubing adapter, suction chamber, and perimeter balloon that adheres to rounded and multi-contour surfaces. The device utilizes negative suction from the tubing to clear the bleeding and induce hemostasis during surgery. The perimeter balloon allows suction to be applied to large tissue surfaces while negating the need to localize the specific site of bleeding. The ability to provide hemostasis without spending excessive time localizing the site of bleeding will increase surgical efficiency and throughput. The induction of negative suction and the perimeter balloon allows the suction device to be attached to the tissue in a hands-free manner. Future versions of this device will facilitate its use in other procedures prone to excessive bleeding, such as intra-abdominal surgery.