MCIRCC | Department of Defense Prolonged Field Care Research Award Winners

Gastroesophageal Resuscitative Occlusion of the Aorta (GROA)

AWARD AMOUNT: $3M

THE TEAM

- Kevin Ward, MD — Emergency Medicine
- Stewart Wang, MD, PhD — Surgery
- Hakam Tiba, MD — Emergency Medicine
- Jonathan Eliason, MD — Surgery
- Albert Shih, PhD — Mechanical Engineering & Biomedical Engineering
- Steven White, PhD — Medical Device Engineering Consultant

MEDICAL SCHOOL · ENGINEERING · INDUSTRY PARTNER

THE PROBLEM

Uncontrollable hemorrhage is a significant cause of preventable death on the battlefield. It is particularly difficult to stop bleeding in the abdomen and pelvis, with traditional treatments such as applying direct pressure or using tourniquets often rendered useless.

- No effectve options for aortic zone 1 & 2
- No battlefield-tailored solitions
- Current options not scalable
- Lack of rapid treatments

New method of aortic occlusion using an orally placed gastroesophageal device

THE SOLUTION

GROA is a minimally invasive device that can be used to rapidly stabilize a patient by controlling severe non-compressible abdominal hemorrhage at the point of impact.

- Easily implemented in austere environments
- Minimally invasive device placed orally
- Works in tandem with secondary treatments
- Preliminary experiments proven successful

THE TECHNOLOGY

The device allows partial to full mechanical occlusion of the aorta through the esophagus and/or stomach to stop hemorrhage.

Example GROA device

GROA leverages the anatomical relationship between the esophagus and stomach to the thoracic and abdominal aorta.