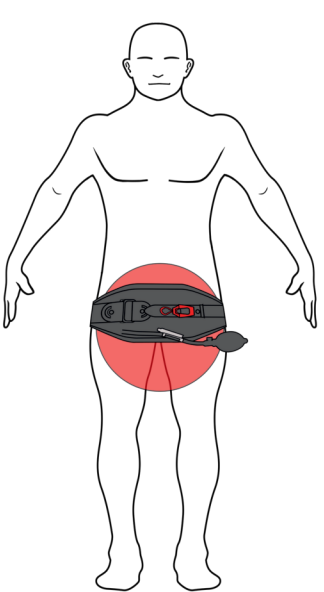
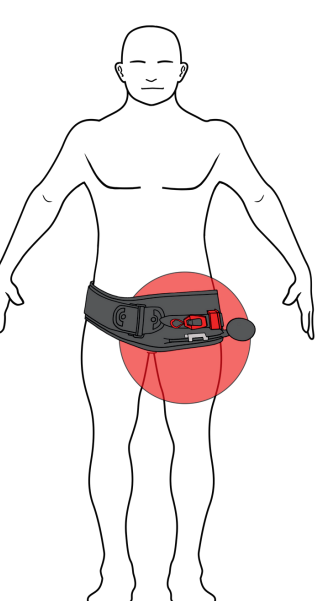
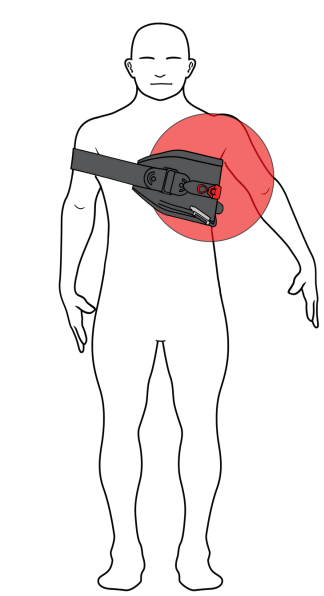
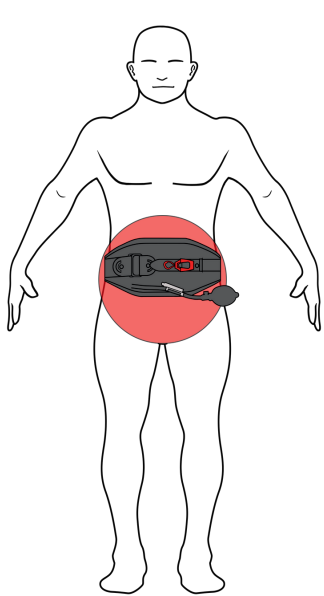


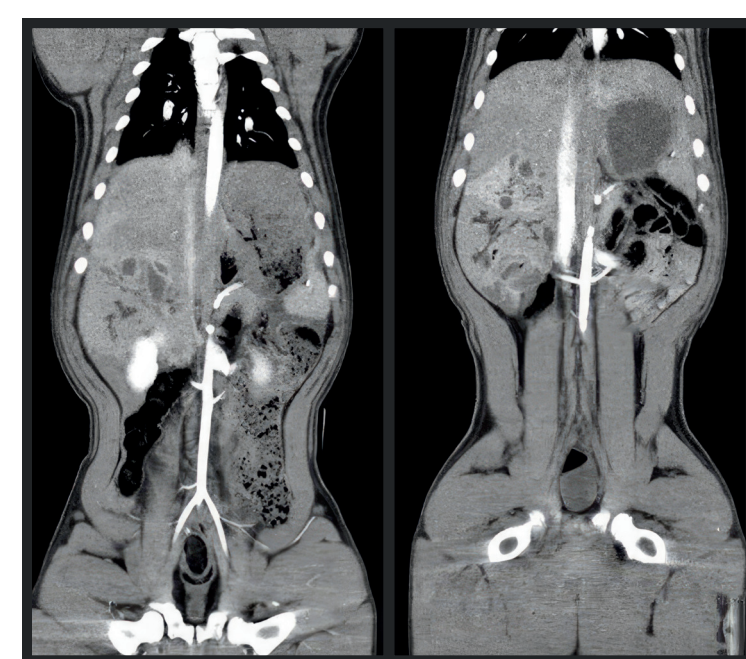
Massive Hemorrhage Control: Treatment of Non-Compressible Hemorrhage with External Pressure

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INTRODUCTION

Non-compressible hemorrhage (NCH) is a significant cause of trauma-related mortality, necessitating effective and rapid control solutions. This presentation discusses the benefits of using external pressure for the treatment of NCH, particularly through the Abdominal Aortic & Junctional Tourniquet - Stabilized (AAJT-S).



BEFORE

AFTER

OBJECTIVE

To evaluate current methods available for non-compressible hemorrhage in the abdomen, pelvis, and junctional sites. To demonstrate the safety and efficacy of the AAJT-S through clinical studies and field use.

METHODOLOGY

Current literature reviewed related to the application of external pressure to control non-compressible hemorrhage. Efforts were focused on:

- Manual abdominal compression/pressure
- The use of medical devices and improvised techniques for pelvic stabilization
- Abdominal Aortic and Junctional Tourniquet - Stabilized (AAJT-S)



AAJT-S Abdominal Aortic Junctional Tourniquet - Stabilized.

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MID-ABDOMINAL PRESSURE

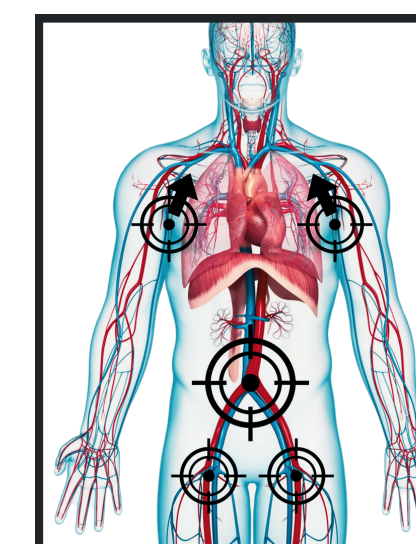
(Ref. Blaivas Prehospital and Disaster Medicine 2006;21(6):379-382)

- 80-140 lbs. of pressure over the umbilicus resulted no flow in common femoral artery.
- Decrease in mean flow velocity seen starting with 20 lbs. of pressure.



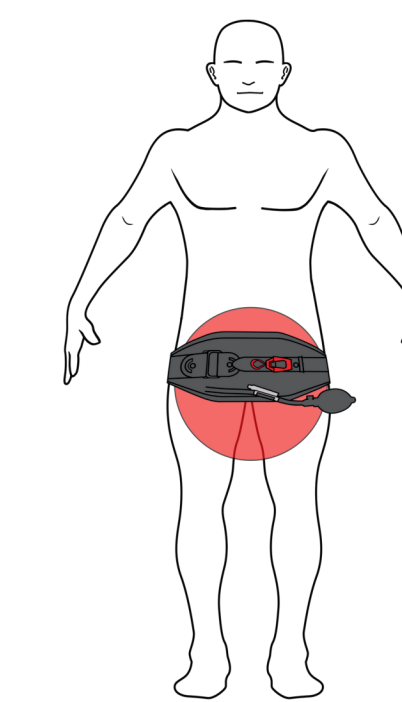
JUNCTIONAL/TRUNCAL TOURNIQUET: AAJT-S

- Included in CoTCCC Guidelines April 2021
- Approved by UK Ministry of Defense DMS Clinical Committee
- Indicated for control of pelvic bleeding, inguinal and axilla and pelvic fracture stabilization
- Tissue pressures limited to <300 mmHg



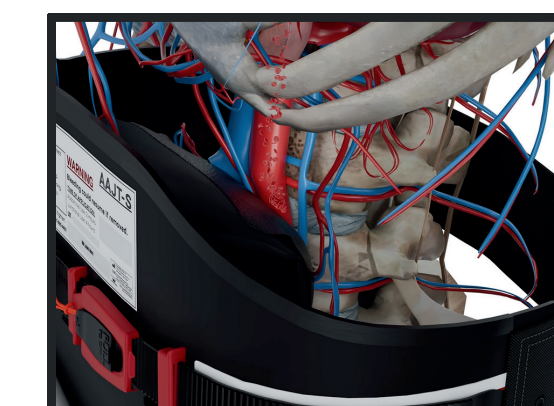
PELVIC RING STABILIZATION

- 15% of bleeding from pelvic fractures is arterial, 85% is venous or osseous.
- Stabilization limits volume of bleeding but does not prevent shock.
- External aortic compression or truncal tourniquet can prevent shock in pelvic fracture bleeding.



ABDOMINAL NON-COMPRESSIBLE HEMORRHAGE

- AAJT-S can treat NCCH in abdomen above application site.
- UK researchers at Brighton and Sussex Medical School September 2023
- Intra-abdominal compartment pressures >40 mm Hg at current approved abdominal application site with or without 500cc simulated free blood in the abdomen
- Titratable effect, externally applied, currently fielded, immediate removal when surgical team begins



REBOA ZONE 3 EQUIVALENCY

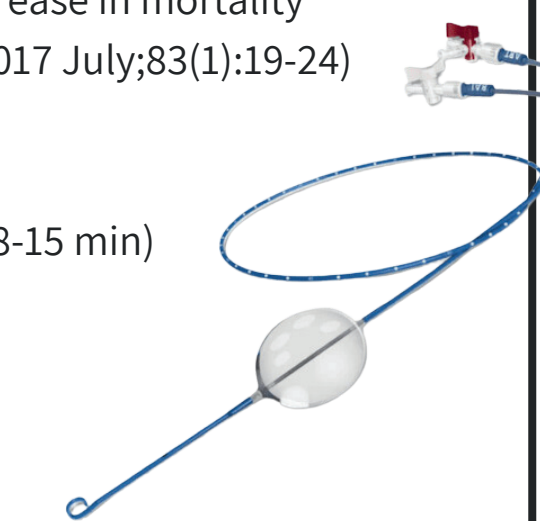
Equivalent yes, but its all about time! Every 60 seconds delay in hemorrhage control is associated with 5% increase in mortality" (ref. David Meyer, J Trauma Acute Care Surg 2017 July;83(1):19-24)

REBOA:

- Scene to Inflation is about **12 minutes** (8.8-15 min)
- Procedure **8.5 minutes** (6.3-12.7 min)

AAJT-S:

- Deploys in less than **one minute**.



ISR and USAF 59th Med Wing equivalency studies presented in 2017

FINDING 1.

Faster Application = Increased Survivability

FINDING 3.

Swedish researchers demonstrated cumulative fluid requirement increased 7.2 times in REBOA vs AAJT.

FINDING 2.

Faster application by less skilled providers, without the need of ultrasound or sterile field (<1 minute in UK Combat Medic Technicians after one hour of instruction)

SAFETY

USAF 59th Medical Wing found the AAJT-S safe in abdominal placement for **120 minutes**, with no signs of ischemia or necrosis in lung, bowel, or kidney tissues. No significant changes in lactic acid, base excess, or pH were observed. The study noted a favorable hemodynamic profile and no adverse effects from caval compression, bowel injury, or pulmonary dysfunction.

CONCLUSION

In our review of over 70 peer-reviewed studies in the literature, the results overwhelmingly underscored the AAJT-S's role in controlling non-compressible hemorrhage, particularly in the junctional and truncal regions. Its incorporation into trauma care protocols and its demonstrated safety, efficacy and ease of use make it a vital tool in both military and civilian settings. The device's ability to be quickly applied and its life-saving capabilities in critical scenarios compared to alternatives such as manual pressure, other junctional devices such as the SAM junctional tourniquet, the JETT or REBOA highlight its ability to **save lives where every second counts**.

The AAJT-S is FDA cleared, CE marked and is currently fielded in over 23 countries around the world.

This literature review suggests that the AAJT-S should be a standard tool in the arsenal of emergency and military medical responders.

