


Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA): Potential utility and limitations

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 Texas Trauma Research and Combat Casualty Care Collaborative –
 Advisory Council Member

REBOA improves rAAA outcomes

ORIGINAL ARTICLES

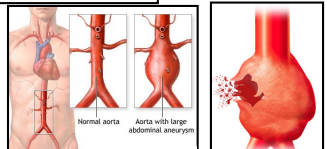
10 Years of Emergency Endovascular Aneurysm Repair for Ruptured Abdominal Aortic Aneurysms: Lessons Learned

Dieter Meyer, MD, Thomas Pflaumatter, MD,† Zoran Romic, PhD,* Lukas Hochhammer, MD,† Markus Wilschke, MD,* Frank J. Yeh, MD,‡ and Mario Luchter, MD**



Conclusion: In this 102 patient contemporary series of EVAR for rAAA, endovascular proved to be safe with **100% mortality or 0%**. Key components of this favorable outcome result were **adequate preoperative diagnostic imaging, hypotensive hemostasis, selective transarterial aneurysm, the aortic balloon occlusion, predominantly local anesthesia, detection and treatment of ACS, and attention to logistics**. Widespread adoption of these treatment components is recommended.

(Ann Surg 2009;249: 510–515)



CLINICAL PRACTICE GUIDELINE DOCUMENT

Editor's Choice European Society for Vascular Surgery (ESVS) 2024 Clinical Practice Guidelines on the Management of Abdominal Aorto-Iliac Artery Aneurysms^{1,2}

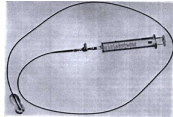

Class IIb Recommendation:
 Haemodynamically unstable patients with a ruptured abdominal aortic aneurysm undergoing open or endovascular repair may be considered for aortic balloon occlusion under fluoroscopic guidance to obtain proximal control³

What other scenarios present with uncompressible sources of hemorrhage?

- Trauma
 - Vascular
 - Solid organ
- Pelvic fracture
- Placenta accretia / previa
- GI bleeds

REBOA for Trauma - History

- Hughes CW. *Use of intra-aortic balloon catheter tamponade for controlling intra-abdominal hemorrhage in man.* Surgery 1954;36(1):65-8

Development Technique for REBOA in Trauma

Introduction

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JOINT TRAUMA SYSTEM UTS

DEPARTMENT OF DEFENSE CENTER OF EXCELLENCE FOR TRAUMA

Joint statement from the American College of Surgeons Committee on Trauma (ACS COT) and the American College of Emergency Physicians (ACEP) regarding the clinical use of Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA)

Authors: Stephen L. Edel, Andrew Hensley, Michael Kenney, Douglas L. Long, Michael F. Edwards, William C. Chang, Michael J. Heffernan, Michael Collins, Robert Alexander, Joseph Brumby

Article

REBOA Use, Practices, Characteristics, and Implementations Across Various US Trauma Centers

The American Surgeon
2022, Vol. 88(6) 1097-1103
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DOI: 10.1177/002314892110298813
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Mason Sutherland, BS¹, Aaron Shepherd, BS¹, Kyle Kinslow, BS¹, Mark McKenney, MD, MBA, FACS^{1,2}, and Adel Elkbuli, MD, MPH¹

REBOA attitudes among trauma surgeons

N = 345

50.1% = Undecided

37.7% = Favorable

12.2% = Unfavorable

NIHR National Institute for Health and Care Research

Journals Library

Health Technology Assessment

Volume 28 • Issue 24 • September 2024
ISSN 2046-4924

The UK resuscitative endovascular balloon occlusion of the aorta in trauma patients with life-threatening torso haemorrhage: the (UK-REBOA) multicentre RCT

Jan O Jansen, Jenmo Hudson, Charlotte Kennedy, Claire Cochran, Graeme MacLennan, Katie Gillet, Robbie Landrum, Sany Sadek, Dwayne Boyers, Gillian Ferry, Louise Lennie, Mintu Nath, Seonagh Cotton, Samantha Willeman, Mark Forrest, Karim Brohi, Tim Harris, Fiana Lecky, Chris Moran, Jonathan J Morrison, John Norrie, Alan Paterson, Nigel Tai, Nick Welch and Marion K Campbell; UK-REBOA Study Group

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UK Trial

- 90 patients enrolled across UK Trauma Centres
 - 46 SOC + REBOA; 44 SOC alone
 - Mortality at 90 days higher with SOC + REBOA group, with death due to hemorrhage predominating

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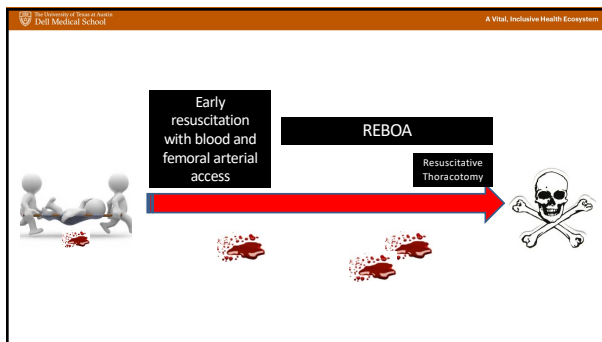
Article

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The American Surgeon
ISSN 2474-8869/ISSN 1083-5462
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DOI: 10.1177/10835462211029869
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Mason Sutherland, BS¹, Aaron Shepherd, BS¹, Kyle Kinslow, BS¹, Mark McKenney, MD, MBA, FACS^{1,2}, and Adel Elkbuli, MD, MPH¹

Conclusion: Among survey respondents, frequency of REBOA use was low along with knowledge of clear indications for use. While current REBOA usage among respondents appeared to model current guidelines, additional research regarding REBOA indications, ideal patient populations, and outcomes is needed in order to improve REBOA perception in trauma surgeons and increase frequency of use.



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Partial REBOA (P-REBOA)

- Preservation perfusion to brain / heart
- Avoidance of overpressure
 - Heart Failure
 - Worsening of TBI
- Initial total occlusion
 - Permits resuscitation initiation
 - Clot formation
- Partial balloon occlusion
 - Minimizes total ischemic time
 - Mitigates re-perfusion injury risk
 - Extends duration of intervention when needed

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REBOA and pelvic trauma

- Bini JK, et al. – Injury, 2022
 - AAST AORTA database, 2014-2019
 - 217 patients
 - Survival significantly higher in REBOA patients than those treated with open AO (Resuscitative Thoracotomy)

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Resuscitative Endovascular Balloon Occlusion of the Aorta vs Pre-Peritoneal Packing in Patients with Pelvic Fracture

Sameer Asmar, MD, Leticia Bible, MD, Mohammad Chahab, MD, Andrew Tang, MD, FACS, Muhammad Khurram, MD, Molly Douglas, MD, Lourdes Casanovi, MD, FACS, Narong Kulvanitayou, MD, FACS, Bedal Joseph, MD, FACS

- Propensity matched TQIP patients undergoing Preperitoneal Pelvic Packing vs. REBOA
- REBOA associated with lower in-hospital and 24 mortality and lower PRBC requirements

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BBC NEWS HEALTH

Prehospital Salvage



Balloon surgery stops fatal bleeding at roadside

London's Air Ambulance crew have become the first team in the world to use a balloon device to control catastrophic bleeding at the roadside.

By Smitha Mundaad Health reporter, BBC News

Prehospital Partial Resuscitative Endovascular Balloon Occlusion of the Aorta for Exsanguinating Subdiphragmatic Hemorrhage

2016

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Two lives, one REBOA: Hemorrhage control for urgent cesarean hysterectomy in a Jehovah's Witness with Placenta Percreta

Russo, Rachel M. MD, MAS; Girda, Eugenia MD; Kennedy, Vanessa MD; Humphries, Misty D. MD

Resuscitative Endovascular Balloon Occlusion Of The Aorta As An Adjunct For Hemorrhagic Shock Due To Uterine Rupture: A Case Report

Asami Okada, Osamu Nakamoto, Maya Komori, Hideki Arimoto, Hiroshi Rinka, Hiroaki Nakamura

Partial Resuscitative Endovascular Balloon Occlusion Of The Aorta As A Hemorrhagic Shock Adjunct For Ectopic Pregnancy

Okumura et al.

2017

2016

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Contents lists available at ScienceDirect

ELSEVIER International Journal of Obstetric Anesthesia

Journal homepage: www.elsevier.com/locate/ijoa

Review Article

Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA) as a strategy for postpartum haemorrhage management: A narrative review

Michele Salvagno^{1,2*}, Marta Grizoa³, Giacomo Coppolani^{4,5}, Alessandro de Cassai⁶, Rossana Soloperto⁷, Alberta Degrossi⁸, Andrew Garcia⁹, Filippo Annuzzi¹⁰, Fabiana Galabrese¹¹, Fabio Silvio Taccone¹²

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¹²Department of Obstetrics and Gynecology, CHU François Bichat, Paris, France

- Data suggests REBOA use can:
 - Reduce intraoperative hemorrhage
 - Promote fetal salvage
 - Allow for preservation of the uterus

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