



Video Abstract

Use of expandable stent retriever for mechanical thrombectomy of the right internal carotid artery terminus occlusion

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Received : 07 July 2020

Accepted : 19 November 2020

Published : 22 December 2020

DOI

10.25259/SNI_412_2020

Quick Response Code:



ABSTRACT

Background: Tigertriever (Rapid Medical, Sunrise, FL) is an adjustable-diameter stent retriever that is being tested in an investigational device exemption clinical trial, Treatment with Intent to Generate Reperfusion (TIGER). The retriever is available in three lengths with corresponding adjustable diameters; however, a single device cannot be used for multiple thrombectomy attempts. A clicker-based expansion mechanism allows incremental expansion of the retriever and step-wise increase in radial force to the parent vessel diameter. The clicker mechanism is used to expand the stent retriever until it is apposed with the vessel walls. Rest of the procedure is similar to a mechanical thrombectomy performed with a conventional stent retriever and is demonstrated in the video.

Case Description: We present a case of a 59-year-old woman who presented with left-upper extremity weakness, facial droop, and hemineglect. Perfusion imaging demonstrated increased time-to-peak. Angiography showed right internal carotid artery terminus occlusion. The patient underwent successful mechanical thrombectomy (Thrombolysis in Cerebral Infarction 2b reperfusion) using the Tigertriever and was discharged home without any perioperative complications.

Conclusion: An adjustable, expandable stent retriever allows operator to size the stent retriever to match the target artery diameter. The expandable design of stent retriever has potential implications for distal vessel occlusion mechanical thrombectomy.

Keywords: Adjustable stent retriever, Mechanical thrombectomy, Stroke

[Video 1]-Available on:

www.surgicalneurologyint.com

Annotations

- 1) 0:08 – Clinical presentation.
- 2) 0:31 – Computed Tomography Perfusion.
- 3) 0:55 – Procedure devices.
- 4) 1:49 – Device sizes.
- 5) 2:41 – Deployment of device.

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- 6) 4:14 – Postoperative course.
- 7) 4:36 – Learning points.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

Financial support and sponsorship

Nil.

Conflict of interest

Adnan H Siddiqui : Financial interest/investor/stock options/ownership: Adona Medical, Inc, Amnis Therapeutics, (Purchased by Boston Scientific October 2017), Blink TBI Inc., Buffalo Technology Partners Inc., Cerebrotech Medical Systems, Inc., Cognition Medical, Endostream Medical Ltd., Imperative Care, International Medical Distribution Partners, Neurovascular Diagnostics Inc., Qu2019Apel Medical Inc, Rebound Therapeutics Corp. (Purchased 2019 by Integra Lifesciences, Corp), Rist Neurovascular Inc., Sense Diagnostics, Inc., Serenity Medical Inc., Silk Road

Medical, Spinnaker Medical, Inc., StimMed, Synchron, Three Rivers Medical Inc., Vastrax, LLC, VICIS, Inc., Viseon Inc; Consultant/advisory board: Amnis Therapeutics, Boston Scientific, Canon Medical Systems USA Inc., Cerebrotech Medical Systems Inc., Cerenovus, Corindus Inc., Endostream Medical Ltd., Imperative Care, Inc. Integra LifeSciences Corp., Medtronic, MicroVention, Minnetronix Neuro, Inc., Northwest University 2013 DSMB Chair for HEAT Trial, Penumbra, Qu2019Apel Medical Inc., Rapid Medical, Rebound Therapeutics Corp.(Purchased by Integra LifeSciences Corp.), Serenity Medical Inc., Silk Road Medical, StimMed, Stryker, Three Rivers Medical, Inc., VasSol, W.L. Gore & Associates; Principal investigator/steering committee for the following trials: Cerenovus NAPA and ARISE II; Medtronic SWIFT PRIME and SWIFT DIRECT; MicroVention FRED & CONFIDENCE; MUSC POSITIVE; and Penumbra 3D Separator, COMPASS, INVEST, TIGER.

How to cite this article: Dossani RH, Waqas M, Rai HH, Tso MK, Rajah GB, Siddiqui AH. Use of expandable stent retriever for mechanical thrombectomy of the right internal carotid artery terminus occlusion. *Surg Neurol Int* 2020;11:447.