

“Outcomes of Onyx Embolization of Type II Endoleaks After Endovascular Repair of Abdominal Aortic Aneurysms”.

Mozes GD et al., 2020



Highlights:

1. Single-center, retrospective review
2. 85 consecutive patients
3. Onyx™ LES embolization
4. Mean follow-up: 2.5 ± 2.1 years
5. Abdominal aortic aneurysm diameter stabilization or reduction in 66% of patients

Background

- Endovascular aortic aneurysm repair (EVAR) is the preferred treatment for abdominal aortic aneurysm (AAA) patients with suitable anatomy.
- Endoleaks - defined as persistent blood flow into the aneurysmal sac - represent an important issue for long term durability of aneurysms repair.
- Type II endoleaks are the most frequently observed endoleak following an EVAR.
- Type II endoleaks can resolve spontaneously. However, unresolved ones can result in aneurysm sac enlargement and need secondary reinterventions.
- Ethylene vinyl alcohol copolymer (Onyx™ Liquid Embolic System [LES]) has emerged as a novel liquid embolization agent that provides a minimally invasive option to treat both inflow and outflow of type II endoleaks in a single setting. However, outcomes of Onyx™ treatment of type II endoleaks after EVAR are not well characterized.

Study objective

To retrospectively analyse the outcomes of Onyx™ embolization of type II endoleaks following EVAR.

Materials and methods

Study Design

- This study was approved by the Mayo Clinic Institutional Review Board as a single-institution retrospective analysis.
- 85 consecutive patients treated for post-EVAR type II endoleaks utilizing Onyx™ embolization at the Mayo Clinic between August 2009 and May 2018 were identified.
- Patients without follow-up after Onyx™ embolization were excluded.
- Change in AAA sac diameter was measured and compared between computed tomography imaging at first Onyx™ intervention and most recent follow-up imaging.
- A subset analysis of AAA sac change was performed on patients with isolated type II endoleaks, to help isolate Onyx™ embolization effects on endoleaks.

Imaging Analysis

- Computed tomography imaging occurred in all patients and both preoperative and postoperative scans were evaluated for AAA diameter and aneurysm sac volume.
- The maximum AAA cross-sectional diameter from the adventitia was measured.
- For assessment of thrombus volume, the outer wall and flow lumen were first delineated by TeraRecon analysis and the resultant space measured as thrombus volume.

Follow-Up

- Follow-up at 1, 6, and 12 months, and then annually for 5 years.
- Additional clinical data were collected for 288 patients via phone survey at mean 39 ± 18-month post-surgery.

Results

- Complete embolization of the nidus and feeding artery was achieved in 32 patients (38%); in the remaining patients, nidus embolization only could be achieved.
- There was no significant difference in AAA sac diameter reduction >5 mm (P = 0.97) between patients who had complete embolization (21 patients, 66%) and those who had incomplete embolization (35 patients, 66%).
- 29 patients (34%) had an increase in AAA sac diameter > 5 mm, while only 16 patients (19%) reduced > 5 mm. 40 patients (47%) had sac stabilization (increase or decrease of ≤ 5 mm). Among patients with an isolated type II endoleaks, 8 had a reduction > 5 mm and 25 a stabilization in sac diameter.
- Volume of aneurysm thrombus increased >5% in 43 patients (51%). Thrombus stabilization occurred in 42 patients (49%) of which 28 patients (33%) had a reduction > 5%.
- Freedom from aneurysm rupture at 2 years was 97.7% (95% CI 84.9-99.7%) for the entire cohort.

Type II endoleaks embolization with Onyx results in aortic aneurysm sac diameter stabilization or reduction in 66% of patients, and up to 72% in isolated type II endoleaks.

Procedure Outcomes

Mean time from index EVAR to initial Onyx™ embolization	3.30 ± 2.63 years
Mean aneurysm sac growth	6.29 ± 6.73 mm
Mean volume of Onyx™	4.91 ± 4.70 mL (0.5-21.0 mL)
Patients with transarterial approach of embolization (n)	37
Patients with lumbar approach of embolization (n)	45
Patients with an intervention prior to Onyx™ embolization (n)	24
Total number of Onyx™ embolizations	112
Mean number of Onyx™ embolization / patient	1.32 ± 0.64
Overall patients with post-Onyx™ interventions	27%

Conclusions

Type II endoleaks embolization with Onyx™ is effective in reducing or stabilizing AAA sac diameter in 66% of analysed patients, and up to 72% in isolated type II endoleaks.

Medtronic

Europe
Medtronic International Trading Sàrl.
Route du Molliiau 31
Case postale
CH-1131 Tolochenaz
www.medtronic.eu
Tel: +41 (0)21 802 70 00
Fax: +41 (0)21 802 79 00

medtronic.eu

See the device manual for detailed information regarding the instructions for use, indications, contraindications, warnings, precautions, and potential adverse events. For further information, contact your local Medtronic representative and/or consult the Medtronic website at medtronic.eu.

UC202300963EE © 2022 Medtronic.
All Rights Reserved.

Reference

Mozes GD, et al. "Outcomes of Onyx® Embolization of Type II Endoleaks After Endovascular Repair of Abdominal Aortic Aneurysms". *Ann Vasc Surg* 2020; 67: 223-231



Go to
article