COPERNIC RC - Venous Remodeling Balloon

Innovation, made to measure www.balt.fr Balt Extrusion continues to manufacture its entire portfolio in Europe.

10, rue de la Croix Vigneron Tél. : +33 (0)1 39 89 46 41

Indication

The **Venous Remodeling Technique** in the treatment of **dural arteriovenous fistulas (dAVFs)** was developed by **Pr. René Chapot** (Alfried Krupp Krankenhaus, Essen, Germany). This technique aims to **preserve the venous sinus** during embolization of meningeal feeders.

Purpose

* Occlusion of sinus with the balloon’s long length * Rerouting of embolic agents by temporary occlusion * Controlled procedure with **high visibility** * **DMSO compatible**

Background

> Initially, angioplasty PTA balloons were used, but they lacked navigability and compliance.
> To overcome this, BALT developed a dedicated **venous remodeling balloon** — the **COPERNIC RC**, designed for better flexibility, length, and ease of use.

Technical Features

Reference	Balloon length (mm)	Balloon diameter (mm)	Catheter length (cm)	Max. outer diameter (F / mm)	Guidewire compatibility	Compatible guiding catheter
COPERNIC8X80RC	8	8	160	4.35F / 1.45 mm	Transend14 (Stryker*)	FARGO MAX 6F (I.D. 1.78 mm / .070“)
COPERNIC10X80RC	10	10	160	5F / 1.6 mm	Transend14 (Stryker*)	FARGO MAX 6F

* * Other guidewires may induce risk of leakage.

Navigation Features

* **HYDROSPEED coating** on the balloon for easy navigation * Introduction via **femoral venous puncture** * Navigated to sinus with **6F guiding catheter (FARGOMAX)** * **Arterial approach** for embolic agent injection * Balloon inflation diverts flow toward remaining feeders

Summary

The **COPERNIC RC** balloon is specifically designed for **sinus protection** during embolization of **dural AVFs**, providing:

- Flexibility
- High compliance
- Length suitable for sinus occlusion
- Visibility and navigation ease
- Compatibility with standard neurointerventional equipment

Source: BALT Extrusion – balt.fr Product code: DC027GB–2013/12

Case reports

In a Video technique demonstration / Case report Noda et al. from:

- Neuroradiologie Interventionelle, CHU Limoges, Limoges, France
- Neurosurgery, NTT Medical Center Tokyo, Shinagawa-ku, Japan
- Radiology Department, Universiti Kebangsaan Malaysia, Fakulti Perubatan, Cheras, Malaysia
- Published in the Journal of NeuroInterventional Surgery

with the purpose to demonstrate feasibility and safety of using a large compliant balloon positioned in a cortical vein to support microcatheter navigation for transvenous embolization of a brain AVM They concluded that the large compliant Copernic RC balloon provided stable “buttress” support in a cortical draining vein, enabling safe and successful microcatheter cannulation during TVE in a challenging bAVM case, without complications [1)].

This video-based single-case technique report suffers from severe limitations:

- n=1 restricts external validity—no statistical support or comparison with standard microcatheter techniques
- No quantitative bench testing or phantom models to define force thresholds, risks of venous rupture, or balloon-catheter interaction
- Balloon in cortical veins raises significant safety concerns: potential for endothelial injury, venous thrombosis, or rupture—no monitoring or follow-up imaging provided
- Technique complexity—introducing a compliant balloon into fragile veins may add procedural risk not fully acknowledged
- No long-term clinical outcomes documented; absence of angiographic follow-up to confirm AVM obliteration or highlight delayed venous injury undermines claims
- Lack of multi-operator reproducibility or ergonomic feasibility—unclear learning curve or required expertise

Final Verdict

This contribution is a rudimentary proof-of-concept overshadowed by major safety, validity, and reproducibility concerns. Valuable as an exploratory video, but not robust evidence.

Takeaway for Neurosurgeons

A novel balloon-assisted approach shows technical promise in select TVE scenarios—but red flags abound: extremely cautious use, rigorous safety protocols, and comparative studies are mandatory before adoption.

Bottom Line

One-case video demonstration only; attractive in concept but currently lacks scientific rigour and safety validation—far from practice-changing.

Numeric Rating (0–10)

2/10 – Innovative idea, but unjustified risk and devoid of follow-up or comparative evidence.

Citation

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- Corresponding author email: izzatarslan@gmail.com

1)
Noda R, et al. Microcatheter navigation using a large compliant balloon placed in a cortical vein during transvenous access. *J Neurointerv Surg*. 2025 Jun 24. doi:10.1136/jnis-2025-023596.