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# CGuard Carotid EPS
## An innovative concept

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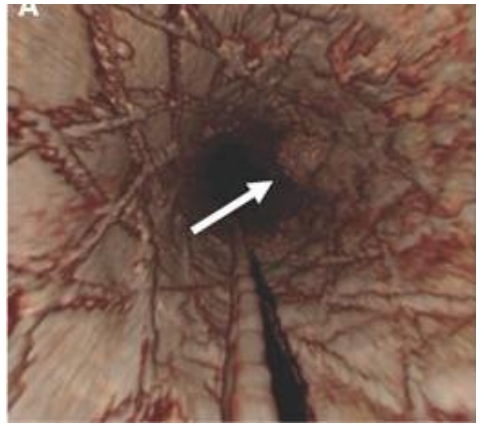
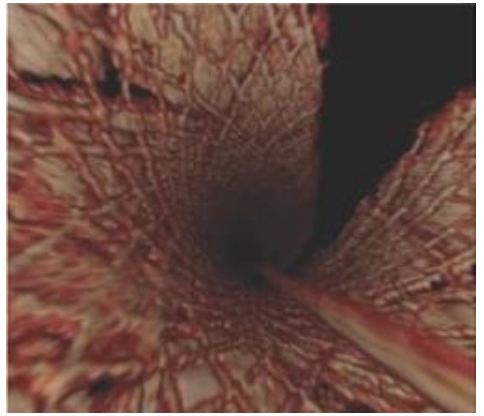
# Disclosures

| Physician name | Company | Relationship |
| --- | --- | --- |
| Horst Sievert | 4tech Cardio, Abbott, Ablative Solutions, Ancora Heart, Bavaria Medizin Technologie GmbH, Bioventrix, Boston Scientific, Carag, Cardiac Dimensions, Celonova, Comed B.V., Contego, CVRx, Dinova, Edwards, Endologix, Hemoteq, Lifetech, Maquet Getinge Group, Medtronic, Mitralign, Nuomao Medtech, Mokita, Occlutech, pfm Medical, Recor, Renal Guard, Rox Medical, Terumo, Vascular Dynamics, Venus, Vivasure Medical | Consulting fees,<br>Travel expenses,<br>Study honoraria to institution |

# Background and Rationale

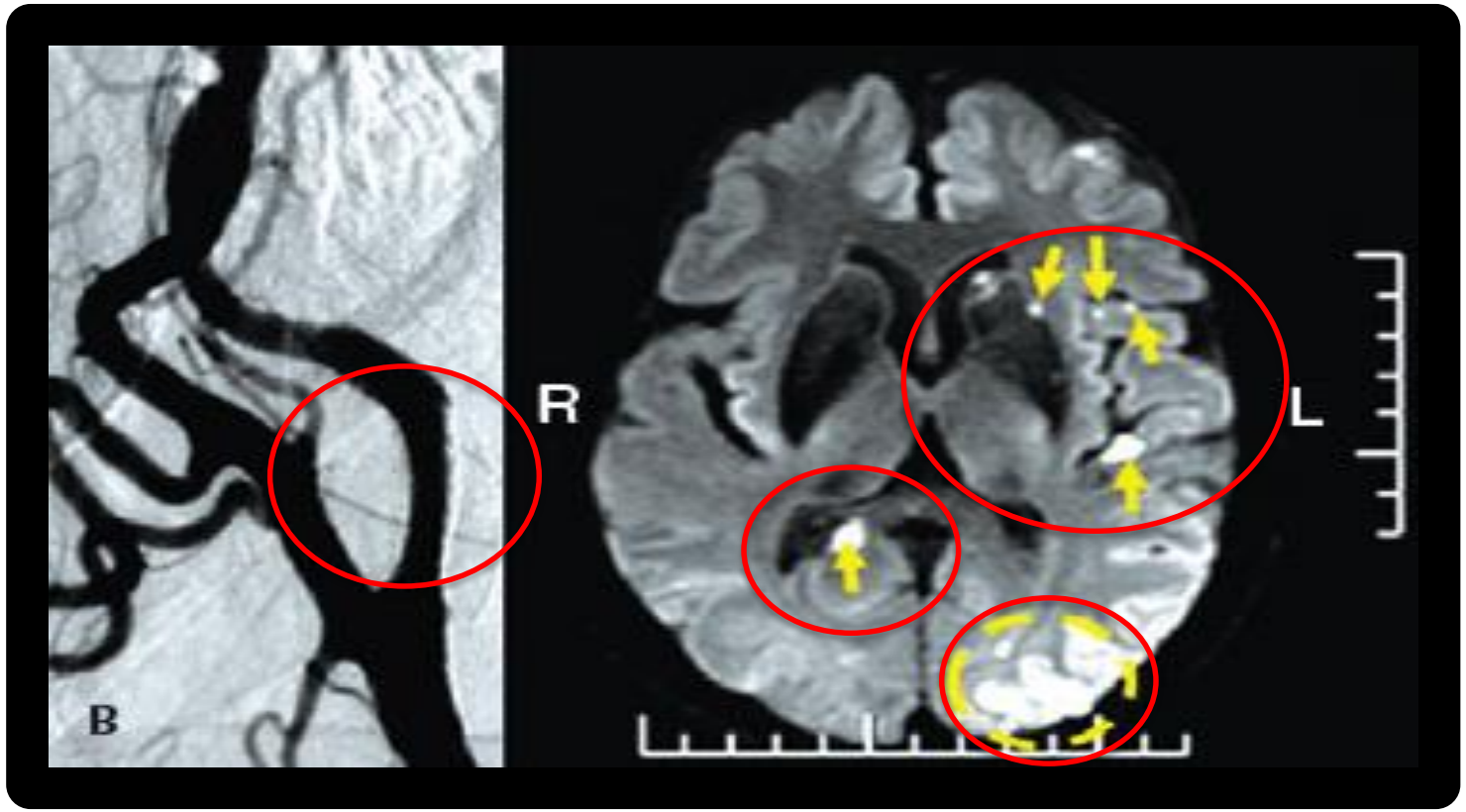
- Up to two-thirds of carotid stenting-associated strokes/TIAs occur after the procedure[1]
- Plaque prolapse through the stent struts occurs in 23% to 65% of cases[2]
- The degree of prolapse depends on the free stent cell area[2]
- This explains why embolic protection devices have limited effectiveness in abolishing carotid stenting-associated strokes[3]
- Prevention of plaque protrusion through the struts may result in reduced embolization[4,5,6]






1. Annals of SurgeryVolume 246, Issue 4, October 2007, Pages 551-556
2. De Donato et al. Eur J Vasc Endovasc Surg. 2013;45: 579-87.
3. J Am Coll Cardiol 2012 Apr 10. 59:1383-9. 10.1016/j.jacc.2011.11.035
4. N Engl J Med 2004;351:1493–501.
5. Ann Surg 2007;246:551–6.
6. J Vasc Surg 2010;52:1367–75.

# Post procedural embolization following carotid stenting is frequent

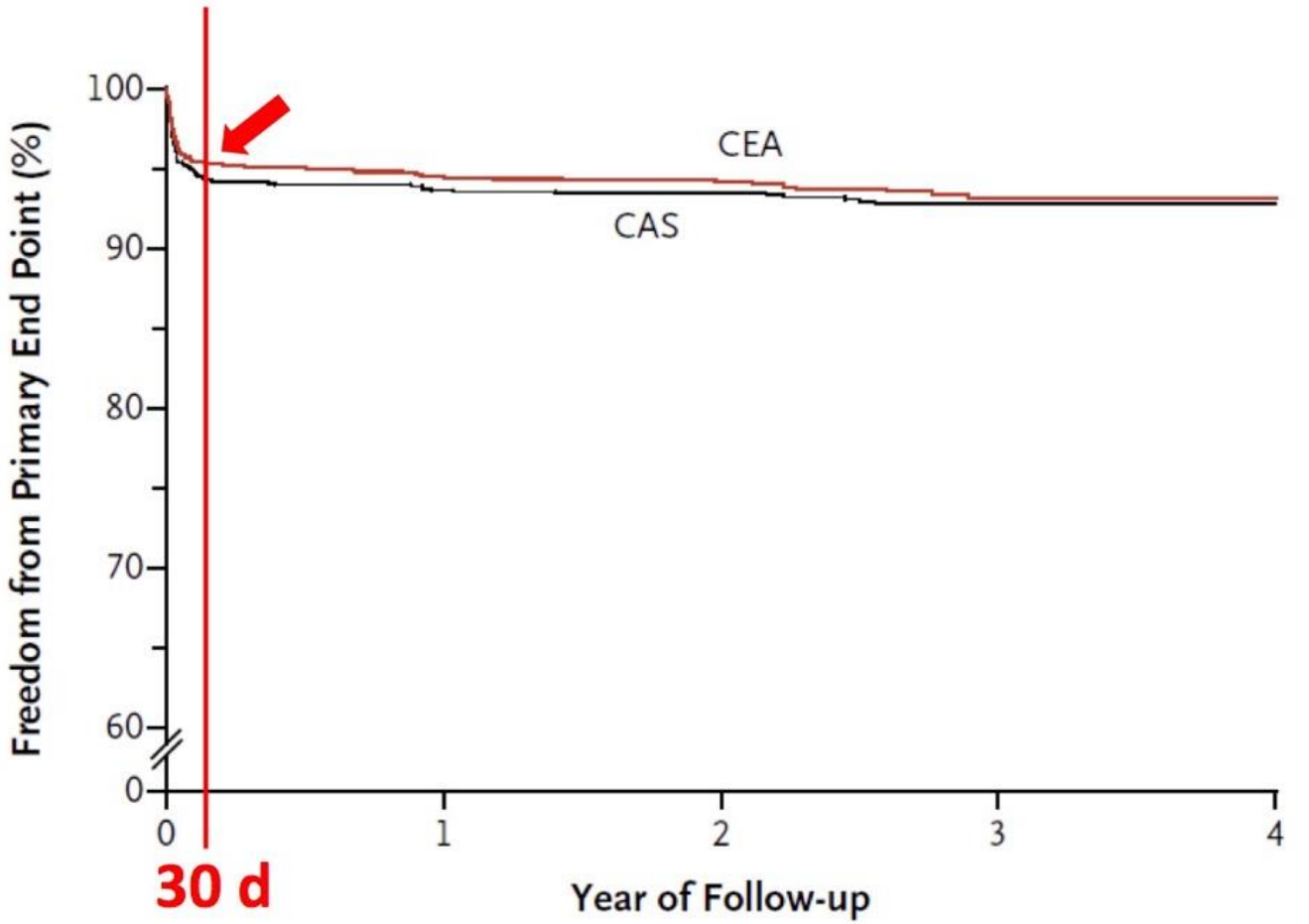



Post-Procedure

Post-intervention showing successful opening of the occluded carotid artery with conventional stenting and an MRI showing multiple micro-infarcts (obstructions) post-procedure due to liberation of embolic particles.

Cano et al. Rev Bras Cardiol Invasiva 2013; 21(2): 159-64.

# CREST Trial




No. at Risk

| | | | | | |
|---|---|---|---|---|---|
| CAS | 1262 | 1100 | 787 | 460 | 162 |
| CEA | 1240 | 1099 | 770 | 430 | 145 |

- The first 30 days make the difference between CEA and CAS
- Within these first 30 days, 19/48 strokes were **post procedural**

# 1/3 events are procedural: They could have been prevented by better embolic protection devices

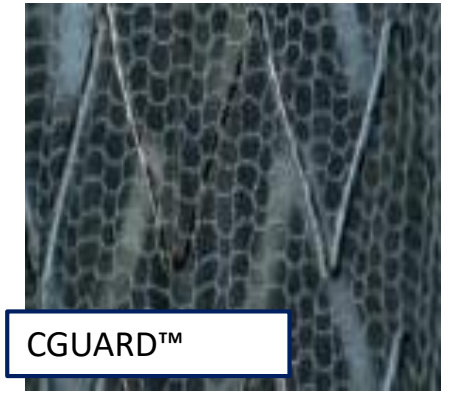
| STENT<br>N = 3179 | First 24-48h:<br>PROCEDURAL<br>EVENTS | From 48h to 30 d:<br>POST-PROCEDURAL<br>EVENTS | TOTAL:<br>ALL EVENTS |
|---|---|---|---|
| X-ACT | 0% | 1.9% | 1.9% |
| NEXTSTENT | 0% | 3.3% | 3.3% |
| WALLSTENT | 1.1% | 1.2% | 2.3% |
| PRECISE | 1% | 3.1% | 4.1% |
| PROTEGE | 0% | 3.0% | 3.0% |
| ACCULINK | 0.5% | 3.7% | 4.2% |
| EXPONENT | 5.9% | 5.9% | 11.8% |
| TOTAL (3179) | 0.93% | 1.9% | 2.83% |

**2/3 of events are post-procedural: Cannot be prevented by embolic protection**

3 179 consecutive CAS procedures.
Bosiers et al Eur J Vasc Endovasc Surg 2007-33

# Mesh Stents are Designed to Prevent Distal Embolization

- Ultrathin mesh inside or outside of the stent struts
- This “safety net” offers a greater vessel area coverage
- This prevents large plaque protrusion through the scaffold into the vessel lumen
- Mesh-Stents have identical deliverability as other stents
- They provide equivalent revascularization to conventional devices
- Designed to trap and seal thrombus and plaque against the vessel wall, preventing embolization


CGUARD™


TERUMO


GORE

# Mesh stents combine the best of both worlds:

- Open cell stent design with large cell area
  - for better flexibility
- Smaller pore size
  - for better plaque coverage

# Mesh stents

- RoadSaver = Casper
- Gore Carotid Stent
- CGuard

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# What are the important differences between these stents?

# Pore Size

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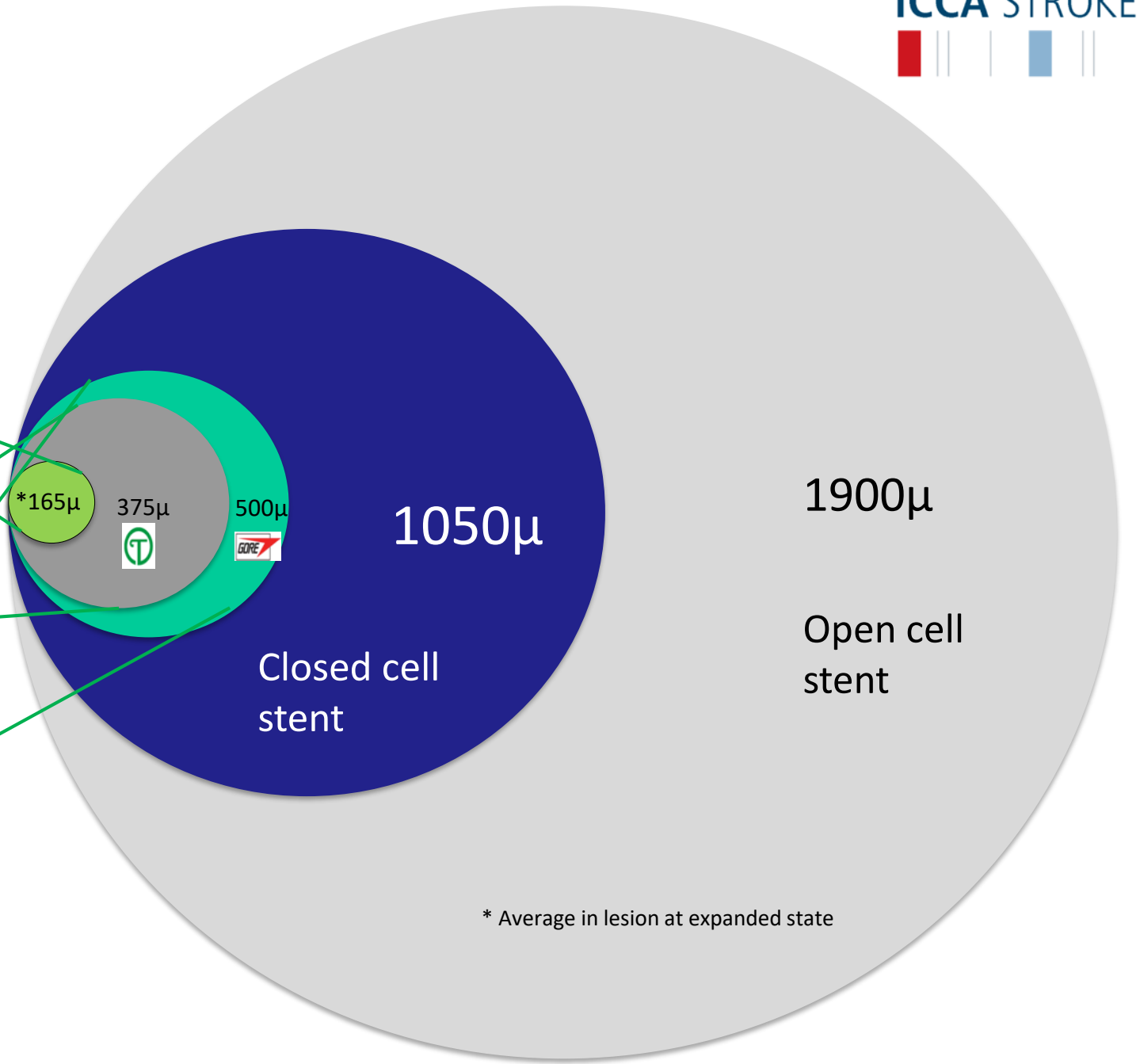
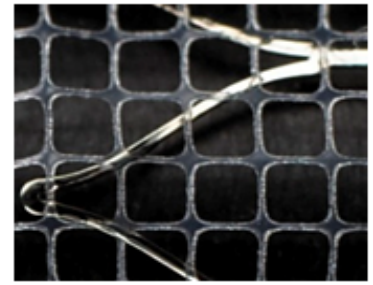
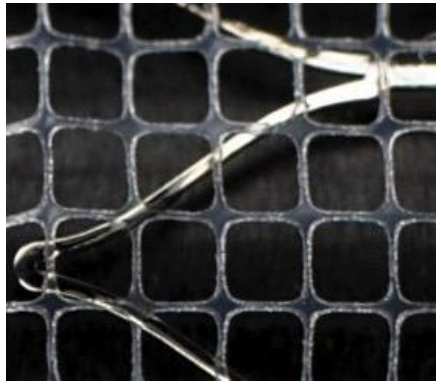


| |  |  |  |
|---|---|---|---|
| **Name** | **RoadSaver *aka* Casper** | **Gore® Carotid Stent** | **CGuard™ Embolic Prevention Stent** |
| **Stent frame** | closed-cell Nitinol | open-cell Nitinol | open-cell Nitinol |
| **Mesh position in relation to frame** | inside | outside | outside |
| **Mesh material** | Nitinol | PTFE | PET |
| **Mesh structure** | braided | inter-woven | single-fiber knitted |
| **Pore size** | 375 µm | 500 µm | 150 - 180 µm |

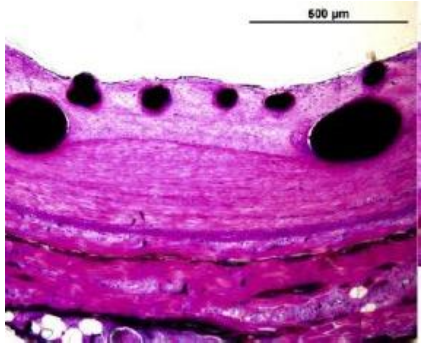
# Dual-layer stent comparison

RoadSaver ®
Casper



Gore®
Carotid Stent

CGuard™ Embolic
Prevention System

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# Thank you!