Future Perspectives of Micromesh Stents

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Potential conflicts of interest

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I have the following potential conflicts of interest to report.
Consulting; Study Honoraria; Travel Expenses; Trials Involvement:
- Medtronic
- Covidien
Lesions in the Carotid arteries are often anatomically and morphologically very challenging.

Stroke prevention by plaque coverage with a dedicated stent is mandatory.
Near Past: Carotid Stent Performances

Precise

No

Xact Stent

RX Acculink

ProtégéRX

Cristallo Ideale
Open vs closed cell design

**Open cell**
- Good flexibility
- Less plaque covering

**Closed cell**
- Good plaque covering
- Less flexibility
Variable scaffolding: hybrid stent.

Open cell Ø1.02

Good flexibility... but just

Good plaque covering in the middle part...
Lesion specific stenting

A: Braided mesh
B: Laser cut tube, closed cell design
C: Segmented crown, open cell design
D: Hybrid Stent
Lesion specific stenting: the solution

Definition

Lesion specific stenting:

- Tailored procedure which consists in matching stent biomechanical characteristics to carotid lesion features
- Main goal: sustained anti-embolic protection

How to put in practice
Evaluation of stent influence on outcomes: the role of “confounding variables”

- Operator skill
- Team experience
- Aortic arch
- Anatomical limitations
- Engagement complexity
- Procedure time

Neurological events

Post-procedural

Plaque EPD Stent

Plaque Stent

Procedure

Baseline

24 h

30 days

Neuro / Imaging evaluations
Analysis on 377 consecutive patients
Self-evidence: poor stent scaffolding

Unstable soft carotid plaque
Stent protrusion disappeared after stenting in stent.

CAS - IVUS Guided

Stent protrusion

PRECISE 9.0-40mm

PRECISE 6.0-20mm

Courtesy Norihiko Shinozaki
Severe Left Internal Carotid Artery stenosis
Severe Left Internal Carotid Artery stenosis

Proximal Protection\closed cell stent
Good angiographic result: OCT evaluation

Distal not complete wall apposition
OCT evaluation: significant plaque prolapse

Proximal not complete wall apposition  Prolapse of plaque\*dissection
The CAS New Waves

• Double layer Micromesh Stent

Smallest stent cell size
## Terumo® Carotid Stent

### Roadsaver Stent Platform

<table>
<thead>
<tr>
<th>Design</th>
<th>Double layer, micromesh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Braided mesh</td>
</tr>
<tr>
<td>Material</td>
<td>Nitinol®</td>
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### Stent Delivery System

- **Guide wire compatibility**: 0.014" (0.36mm)
- **Introducer sheath compatibility**: 5Fr. (I.D. > 0.074")
- **Delivery system construction**: Rapid Exchange (RX), RX segment length 25cm
Primary Attributes

• **Chronic Embolic Protection**
  – Double layer micromesh design
  – Smallest stent cell size - preventing emboli release

• **Lesion specific scaffolding**
  – Extremely high plaque coverage
  – Superior in-vessel flexibility
  – Excellent wall apposition
Micromesh Stent

A: Micromesh Stent

High scaffolding

Ideal

A

High conformability

Plaque Cover

Adaptability

In vessel flexibility
Terumo® Carotid Stent Roadsaver
Terumo® Carotid Stent Roadsaver
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Terumo® Carotid Stent Roadsaver
Technical self-evidence and scientific data suggest carotid stent design impacts CAS outcomes, especially in symptomatic patients (unstable plaque).

- Stents may exert intrinsic anti-embolic properties.
- Stent scaffolding and conformability may contribute to improve procedural results, as well as to solve the problem of post-procedural events.
The ideal stent does not exist at the moment!

The individual treatment strategy remains by now the only logical answer for treating standard as well as complex carotid lesions and anatomies (different stents for different anatomies)

New generation of stent (micromesh) combining high scaffolding and conformability properties will give new rush to CAS
Thank You for your attention
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