
Poster ID: 41382

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Disclosure

• None
Introduction

• Crossing stent-assisted coil embolization is a useful endovascular option for complex, wide-necked bifurcation aneurysms.

• In bifurcation aneurysms, a single stent is unlikely to protect both bifurcating branches from coil herniation.

• Here we report the radiographic and clinical outcomes seen with crossing Low-profile Visualized Intraluminal Support devices (LVIS Jr., LVIS Blue) at our institution over a five-year period.
Methods

- Retrospective review of patients with intracranial bifurcation aneurysms treated by crossing LVIS Jr. and LVIS Blue technology

- Five-year period (2012 - 2017) at a single institution

- Exclusion criteria: stand-alone stent placement without coil embolization
Results

• Twenty-one patients
  • 11 females and 10 males
  • Age 34 - 85

• Twenty one aneurysms treated with crossing stent-assisted coil embolization
  • LVIS Jr. (N = 16)
  • LVIS Blue (N = 5)

• Four cases utilized a single LVIS Blue stent crossed with an Enterprise stent
Results

• The most common location of treated aneurysms
  • Basilar artery tip
  • Anterior communicating artery
  • Middle cerebral artery

• The majority of treated aneurysms were small
  • Mean dome size, 6.9 mm
  • Mean neck size, 4.4 mm

<table>
<thead>
<tr>
<th>Aneurysm Location</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basilar a. tip</td>
<td>9 (43%)</td>
</tr>
<tr>
<td>Ant. Communicating a.</td>
<td>8 (38%)</td>
</tr>
<tr>
<td>Middle Cerebral a.</td>
<td>4 (19%)</td>
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</tbody>
</table>
Results

• The mean radiographic follow-up was 7 months.

• 95% of aneurysms completely occluded (Raymond-Roy class 1) immediately after embolization

• 100% completely occluded at latest radiographic follow-up
Complications

• The stent failed to open completely in a single patient (4.8%), requiring balloon angioplasty

• Clinically significant complications occurred in one patient (4.8%), related to post-embolization infarct not requiring any neurosurgical intervention
Discussion

• Treatment of wide-necked bifurcation intracranial aneurysms utilizing coil embolization with the use of a single stent poses a high risk of coil prolapse

• LVIS stent compliance and closed-cell design creates a shelf across the aneurysm neck to minimize the risk of coil prolapse

• Treatment of wide-necked bifurcation aneurysms using LVIS Jr or LVIS Blue crossing stents offers excellent efficacy (100% total obliteration rate) and a low complication rate (4.8%)
Summary

• Crossing LVIS stent-assisted coil embolization is a safe, effective, and technically feasible treatment modality for wide-necked intracranial bifurcation aneurysms

• The total obliteration rates post embolization and at follow-up angiography are 95% and 100%, respectively