Compression of the Ostia of the Side-branch Coronary Arteries by Different Types of Main-branch Plaques

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Chen’s classification for bifurcation lesions

<table>
<thead>
<tr>
<th>Type</th>
<th>Ia</th>
<th>Ib</th>
<th>Ic</th>
<th>Id</th>
<th>Ie</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type I</td>
<td><img src="Type_Ia.png" alt="Image" /></td>
<td><img src="Type_Ib.png" alt="Image" /></td>
<td><img src="Type_Ic.png" alt="Image" /></td>
<td><img src="Type_Id.png" alt="Image" /></td>
<td><img src="Type_Ie.png" alt="Image" /></td>
</tr>
<tr>
<td>Type II</td>
<td><img src="Type_IIa.png" alt="Image" /></td>
<td><img src="Type_IIb.png" alt="Image" /></td>
<td><img src="Type_IIc.png" alt="Image" /></td>
<td><img src="Type_IId.png" alt="Image" /></td>
<td><img src="Type_IIe.png" alt="Image" /></td>
</tr>
<tr>
<td>Type III</td>
<td><img src="Type_IIIa.png" alt="Image" /></td>
<td><img src="Type_IIIb.png" alt="Image" /></td>
<td><img src="Type_IIc.png" alt="Image" /></td>
<td><img src="Type_IIId.png" alt="Image" /></td>
<td><img src="Type_IIIe.png" alt="Image" /></td>
</tr>
</tbody>
</table>
Frequency for subtypes of bifurcation lesions (\(n=300\))

<table>
<thead>
<tr>
<th>Subtypes</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>I (％)</td>
<td>31.3</td>
<td>9.0</td>
<td>17.7</td>
<td>4.7</td>
<td>1.3</td>
<td>63.8</td>
</tr>
<tr>
<td>II (％)</td>
<td>8.3</td>
<td>6.3</td>
<td>11.3</td>
<td>4.0</td>
<td>0.7</td>
<td>30.5</td>
</tr>
<tr>
<td>III (％)</td>
<td>5.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.7</td>
</tr>
</tbody>
</table>
Objectives

To explore the best route and treatment

Strategy for bifurcation lesions in

coronary heart disease patients
135 patients with type II bifur.L who received a single DES in main vessel (MV) were selected in this study. Including:

LAD/Diag. bifurcation lesions in 86 cases

LM distal bifurcations lesions in 49 cases
Compression of the side-branch ostium after placement of the main-branch stent in type II bifurcation lesions

<table>
<thead>
<tr>
<th></th>
<th>%</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of cases</strong></td>
<td></td>
<td>42</td>
<td>22</td>
<td>58</td>
<td>12</td>
</tr>
<tr>
<td><strong>MV stenosis before stenting</strong></td>
<td></td>
<td>85.48±5.54</td>
<td>85.45±7.52</td>
<td>84.64±7.73</td>
<td>84.58±7.20</td>
</tr>
<tr>
<td><strong>Increased stenosis of the SB ostium after stenting in MV</strong></td>
<td></td>
<td>48.74±20.50</td>
<td>36.36±18.71</td>
<td>40.55±19.63</td>
<td>24.00±11.56</td>
</tr>
</tbody>
</table>

Note: The differences between the groups were significant ($P<0.001$)

The incidence of acute occlusion in side branch is 1.5%
Compression of the Ostia SB in Type II a lesions
Compression of the Ostia SB in Type II b lesions
Compression of the Ostia SB in Type II c lesion
Compression of the Ostia SB in Type II d lesions
Compression of the Ostia SB in Type II d lesions
Compression of the Ostia SB Type Ie
Two key points about treatment strategy for bifur. L

1. Ostium of side branch is severe stenosis (≥50%) or not?

2. Diam. Of side branch is ≥2.5mm or <2.5mm
**Bifur.L**

**Type I**
- $\geq 2.5\text{mm}$, S.B. stenosis $\geq 70\%$
  - M.V DES
  - S.B DES (15–20\%)
  - Provisional stenting

- $\geq 2.5\text{mm}$
  - S.B. stenosis $< 70\%$
  - M.V DES
    - S.B. $< \text{TIMI} \text{III PTCA}$

**Type II**
- $< 2.5\text{mm}$
  - M.V DES
    - S.B leave alone
      - S.B. $> 70\%$ PTCA
Double DES

Angle $< 70^\circ$
- M.V
- Diam. $\approx$ S.B
- Culotte
- M. Crush + kissing PTCA (R.M. Crush; M.T; TAP)

Angle $\geq 70^\circ$
- Kissing stents
  - Diam. of P.M.V $>$ (Diam. of D.M.V. + Diam. of S.B) x 0.67
  - V-stent (P.no lesion)
  - T stent or M.T