Deep Venous Reflux Reconstruction Techniques

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Disclosure

❖ None

Vein Valve Incompetence

Primary
- Aplasia
- Dysplasia
- Hypoplasia
- Phlebitis sans thrombosis
- Cusp Tears/
  Button holes

Secondary
- DVT
- Radiation

Venous Ulcers C5/6

50% Successfully treated by superficial/perforator reflux ablation
50% have mixed deep obstructive/insufficiency
60-70% will have long term healing after correction of obstruction
30-40% of recalcitrant venous ulcer patients will need venous valve reconstruction

Patent Incompetent Valve

Asymmetrical Dilatation

Prominent Cups - "Dagger Sign"

Dynamic Valve Diameter

Longitudinal Internal Valvuloplasty by Kistner

Transverse Internal Valvuloplasty by Raju

"T" Internal Valvuloplasty by Sotiurai (Modifed by Ferrin)

Trapdoor Internal Valvuloplasty by Tripathi
Reduction Internal Valvuloplasty (RIVAL)

A possible disadvantage of the reefing technique is the resultant heaped up commissural junctions by excessive plicated valvular rugal folds. This may result in areas of increased cicatrization that may be space occupying with reduction of functional valve area as seen in our previous experience.

Post-Valvuloplasty Thrombosis

<table>
<thead>
<tr>
<th>Technique</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supra-Valvular Technique (Raju)</td>
<td>4.5%</td>
</tr>
<tr>
<td>Modified “T” Sottiurai Technique (Perrin)</td>
<td>8.8%</td>
</tr>
<tr>
<td>Trapdoor Technique (Tripathi)</td>
<td>6.7%</td>
</tr>
<tr>
<td>Valve resorption</td>
<td>6.1%</td>
</tr>
</tbody>
</table>

Cumulatively, these two complications accounted for 12.8% of valvuloplasty.

Valve Competency Check

Table. Relationship of reflux, valve repaired, and valve healing by the reduction internal-valvuloplasty (RIVAL) technique

<table>
<thead>
<tr>
<th>Grade</th>
<th>Single level</th>
<th>CPV</th>
<th>TV valve</th>
<th>FTP</th>
<th>Multi-VP with ET valves (19 lbs.)</th>
<th>CPV + upper IVC</th>
<th>CPV + IV below</th>
<th>Reflux grade</th>
<th>Valve repaired</th>
<th>No. of valves repaired</th>
<th>Component valve (WCT = 3 normal)</th>
<th>Valve healing (lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>III</td>
<td>n/a</td>
<td>CPV</td>
<td>3 valves</td>
<td>3</td>
<td>18-19 lbs</td>
<td>18-19 lbs</td>
<td>18-19 lbs</td>
<td>18-19 lbs</td>
<td>6</td>
<td>18-19 lbs</td>
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</table>
RIVAl Technique - Conclusions

1. Complete departure from the reefing technique that has so far been the mainstay of valvuloplasties.

2. Based on valve station measurements in an attempt to make internal valvuloplasty an exacting objective procedure.

3. 100% patency and 87.5% competency of repaired valves.

4. Freedom from C6 ulcers at 2 years - 88.9%

5. The RIVAL technique by trapdoor access has now replaced the earlier technique of reefing in our practice of repair of deep vein valves.