Surgical Creation of “RIVal” Bicuspid Valve and its Place in The Treatment Of Venous Ulceration

15 November 2018
Veith Symposium, New York.

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Disclosures
None

Longitudinal Internal Valvuloplasty
by Kistner

Transverse Internal Valvuloplasty
by Raju

“T” Internal Valvuloplasty
by Sottiurai (Modified by Perrin)

Trapdoor Internal Valvuloplasty
by Tripathi
“Reefing” - mainstay of valve repair

Neo-intimal Hyperplasia
• 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 cicatriziation that may be space occupying with reduction of functional valve area as seen in our previous experience.

Post-Valvuloplasty Thrombosis
Supra-valvular Technique (Raju) 4.5%
Modified “T” Sottiurai Technique (Perrin) 8.8%
Trapdoor Technique (Tripathi) 6.7%

Valve resorption 6.1% of valve stations
Cumulatively, these two complications accounted for 12.8% of valvuloplasty

Fig. 1. A. Intervallar distance. B. Transcommissural diameter.
Reducing incision in high shear areas

Table. Relationship of edema, valve repair, and valve healing by the reduction internal subvalvuloplasty (RISV) technique.

<table>
<thead>
<tr>
<th>Valve level</th>
<th>Valve repair</th>
<th>No. of valve repaired</th>
<th>Compression ratio (RISV/valve)</th>
<th>Valve healing (weeks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade III</td>
<td>Single layer</td>
<td>6 – 8</td>
<td>0.9 – 1.1</td>
<td>6 – 10</td>
</tr>
<tr>
<td>Grade IV</td>
<td>Double layer</td>
<td>2 – 3</td>
<td>1.2 – 1.4</td>
<td>12</td>
</tr>
</tbody>
</table>

Notes:
- RISV: Compression repair
- RPS: Valve repair
- RPS: Valve healing

Fig 6. Compromising and valve healing during a 2-year period for reduction internal subvalvuloplasty (RISV) technique. BC, standard valve.

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. At 2 yrs, 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.