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The Use of Enclose®II Anastomosis Assist Device for the Proximal Coronary Branch Anastomosis to Vascular Graft

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We used the Enclose®II anastomosis assist device (Novare Surgical Systems, Inc., CA, USA), which was originally developed as an ancillary device for proximal anastomosis in off-pump coronary artery bypass grafting (OPCAB), to assist anastomosis for the vascular grafts without clamping those conduits in two cases. In these cases, it was difficult to clamp vascular graft partially, because vascular graft was short. So we used Enclose®II anastomosis assist device for these cases. The advantage of this method is that the Enclose®II anastomosis assist device facilitates the anastomosis of arterial side branches to the artificial graft (1) by eliminating the use of partial clamp on the artificial conduits and (2) by providing a plane surface for easy handling for suture.

Key words: Enclose®II anastomosis assist device, vascular graft, CABG (coronary artery bypass grafting)
Use of Enclose®II for Vascular Grafts

Use of Enclose®II for Vascular Grafts

One may encounter considerable bleeding from the anastomosis port even after clipping with the Enclose®II because the vascular graft is not as thick or flexible as the aorta. However, there should be no technical problems during anastomosis with using a CO₂-blower. In addition, the anastomosis can be carried out with more ease because the anastomosis field is obtained on a plane surface without any kinking of the artificial graft in the absence of partial blockage.

HEARTSTRING II Proximal Seal System (MAQUET Cardiovascular LLC. San Jose, CA, USA) is another anastomosis assist device for CABG, and it needs only one hole. In our cases, Enclose®II not only made an anastomotic hole, but also provide a flat surgical field (Fig. 1).

**Table 1 Clinical characteristics of the surgical cases using the Enclose®II anastomosis assist device**

<table>
<thead>
<tr>
<th>Case</th>
<th>Age</th>
<th>Sex</th>
<th>Diagnosis</th>
<th>Operative procedure</th>
<th>Site of using Enclose®II</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>67</td>
<td>M</td>
<td>TAA, IHD</td>
<td>Total arch replacement CABG (radial artery to vascular graft)</td>
<td>proximal anastomosis in CABG</td>
</tr>
<tr>
<td>2</td>
<td>70</td>
<td>M</td>
<td>AD, post graft replacement for ascending aorta, dissection of aortic root</td>
<td>Aortic root reconstruction CABG to RCA</td>
<td>proximal anastomosis in CABG (SVG to vascular graft)</td>
</tr>
</tbody>
</table>


**DISCUSSION**

The Enclose®II anastomosis assist device was developed as an ancillary device for proximal anastomosis on the ascending aorta in CABG. We thought that the device might also be used for artificial vascular grafts. In these cases, partial clamping of the vascular graft may occasionally be difficult because a vascular graft replacing the ascending aorta and/or the aortic arch is sometimes very short to apply partial clamping. In our cases, we tried to put a partial clamp at first, but it was very difficult due to unexpected transformation of the artificial graft, which had side branches and the proximal anastomosis with the ascending aorta.

In that situation, the use of the Enclose®II anastomosis assist device eliminates the clamp of the graft. One may encounter considerable bleeding from the anastomosis port even after clipping with the Enclose®II because the vascular graft is not as thick or flexible as the aorta. However, there should be no technical problems during anastomosis with using a CO₂-blower. In addition, the anastomosis can be carried out with more ease because the anastomosis field is obtained on a plane surface without any kinking of the artificial graft in the absence of partial blockage.

HEARTSTRING II Proximal Seal System (MAQUET Cardiovascular LLC. San Jose, CA, USA) is another anastomosis assist device for CABG, and it needs only one hole. In our cases, Enclose®II not only made an anastomotic hole, but also provide a flat surgical field (Fig. 1).

**Fig. 1** Enclose®II anastomosis assist device (Novare Surgical Systems, Inc., CA, USA)
Therefore, we think that Enclose®II was more advantageous than Heartstring in our particular situations. However, HEARTSTRING II Proximal Seal System may be a good alternative for Enclose®II.

This method may be a crucial technique to make anastomosis to artificial vascular grafts in some circumstances, especially when it is difficult to obtain a good operative field.

**CONCLUSION**

The Enclose®II anastomosis assist device was used for the proximal anastomosis to the graft. The advantage of this method was that the Enclose®II anastomosis assist device facilitates the anastomosis of arterial side branches to the artificial graft by eliminating the use of partial clamp on the artificial conduits and by providing a plane surface for easy handling for suture.

**REFERENCES**