A randomised trial comparing normal monofilament knotted sutures with barbed knotless sutures for donor leg wound closure in coronary artery bypass surgery.
Background

- Surgical knots play a vital role in anchoring the suture on the wound.

- Irritation and itchiness on the donor leg wound edges are major complaints by all patients.

- The new suture technology of knotless barbed suture designed to reduce the knot-related complications such as irritation, redness, itchiness and finally wound break down on high-risk patients.
Aim of the study

- To compare the incidence of wound complications between traditional monofilament and barbed suture.
- To compare the skin closure time.
- To compare the specific knot related complications.
Methods

- 209 patients recruited but 67 excluded.

- 142 patients were randomised.
  - 70 patients in monofilament suture.
  - 72 patients in barbed suture.

- All patients were assessed on day 3, 5, 7.

- Telephone assessment on week 2, 4 and 6.

- Data were obtained also from wound clinic, district nurses and GP visit.

- 98% of the patients were assessed by the independent assessor; only 2% assessed by operators (sick).

- Validated wound scoring system of modified Asepsis and Southampton.
## Demographics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Normal suture</td>
<td>Barbed suture</td>
</tr>
<tr>
<td>Age (years±SD)</td>
<td>68.5±9.5</td>
<td>68.5±9.2</td>
</tr>
<tr>
<td>Median BMI [IQR]</td>
<td>28.4 [5.5]</td>
<td>28.8 [7.2]</td>
</tr>
<tr>
<td>Elective</td>
<td>45 (64.3%)</td>
<td>36 (65.5%)</td>
</tr>
<tr>
<td>Urgent</td>
<td>24 (34.3%)</td>
<td>19 (34.5%)</td>
</tr>
<tr>
<td>Emergency</td>
<td>1 (1.4%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Peripheral Vascular Disease</td>
<td>13 (18.6%)</td>
<td>8 (11.3%)</td>
</tr>
<tr>
<td>Oedematous</td>
<td>14 (20.0%)</td>
<td>11 (15.3%)</td>
</tr>
<tr>
<td>Diabetes</td>
<td>17 (24.6%)</td>
<td>23 (33.8%)</td>
</tr>
</tbody>
</table>
Length of vein harvested
Total surgical duration

p = 0.066

Mean Total Surgical Duration (mins)

Group

Monofilament sutures

Barbed sutures

Error Bars: +/- 1 SD
Skin closure time

Mean Skin Closure Time (mins)

Group
Monofilament sutures
Barbed sutures

Error Bars: +/- 1 SD

p<0.001
Healing

X²; p<0.001
Erythema

- Normal
- Erythema At One Point
- Erythema Around Sutures
- Erythema Along Wound Border
- Erythema Extended Around Wound Site
- Severe Inflammation

X²; p < 0.001
Discharge

X²; p=0.285
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<tr>
<td></td>
<td>Normal suture</td>
<td>Barbed suture</td>
</tr>
<tr>
<td>In-patient infection</td>
<td>9 (13.4%)</td>
<td>4 (5.8%)</td>
</tr>
<tr>
<td>GP visits required</td>
<td>19 (27.9%)</td>
<td>9 (13.6%)</td>
</tr>
<tr>
<td>Antibiotics prescribed by GP</td>
<td>16 (23.5%)</td>
<td>7 (10.9%)</td>
</tr>
<tr>
<td>Excessive scarring</td>
<td>13 (19.4%)</td>
<td>1 (1.4%)</td>
</tr>
<tr>
<td>Irritation</td>
<td>32 (47.8%)</td>
<td>9 (12.7%)</td>
</tr>
<tr>
<td>Adverse tissue reaction</td>
<td>18 (27.3%)</td>
<td>2 (2.8%)</td>
</tr>
<tr>
<td>Itching</td>
<td>40 (59.7%)</td>
<td>9 (12.7%)</td>
</tr>
<tr>
<td>Wound dehiscence</td>
<td>3 (4.5%)</td>
<td>2 (2.9%)</td>
</tr>
<tr>
<td>Prolonged stay (&gt;7 days)</td>
<td>11 (20.8%)</td>
<td>19 (27.5%)</td>
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</tbody>
</table>
Conclusion

- This study demonstrated that
  - Reduced wound closure time.
  - Reduced knot related complications.
  - Reduced wound complications.
  - Reduced GP and District nurses visits.
Any Questions