Usefulness and Limitation of Harmonic Scalpel® Assisted Neck Dissection - Preliminary Results

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INTRODUCTION

The cervical lymphatic system has an extensive vascular network. Therefore, meticulous hemostasis is important in neck dissections. Until recently, clamp-and-tie technique and electrocautery were the standard techniques for hemostasis in neck dissections. The development of the Harmonic Scalpel® (Ethicon Endo-Surgery, Cincinnati, OH), which allows the simultaneous ligation and cutting of blood vessels, provided an alternative to conventional methods of hemostasis. However, until now, there have been few studies about the value of HS in neck dissections. The purpose of this study was to assess the efficacy and applicability of the Harmonic Scalpel® in neck dissections.

MATERIALS AND METHODS

• All patients who underwent neck dissections for head and neck cancer
  2) Department of ORL-HNS, Soonchunhyang University, Bucheon.

• All subjects were classified into two groups by surgical techniques
  1) HS assisted neck dissections group: 25 cases
     HS was mainly used for hemostasis with minimally supplementary ligation for blood vessels
  2) Conventional neck dissections group: 24 cases
     Clamp-and-tie and Electrocautery

• The following variables were assessed
  1) Types of neck dissection
  2) Operating time
  3) Amount of drainage
  4) Number of ligatures
  5) Neck dissection-related complications (hemorrhage, hematoma, wound infection, nerve injury, shoulder syndrome)

• Surgical Procedure
  1) Level I Dissection
  2) Facial Artery Ligation
  3) Spinal Accessory Nerve Dissection
  4) Ligations of Branches of Internal Jugular Vein
  5) Ligations of Branches of Superior Thyroidal Artery
  6) Level IV Dissection

RESULTS

• Number of ligatures

<table>
<thead>
<tr>
<th></th>
<th>HS (N=25)</th>
<th>SND I-III</th>
<th>SND II-IV</th>
<th>mRND</th>
<th>RND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of ligatures</td>
<td>16.52</td>
<td>11.2</td>
<td>16.52</td>
<td>13.78</td>
<td>16.52</td>
</tr>
</tbody>
</table>

• Operation Time (min)

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• Complication Related with Neck Dissection

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<td>Shoulder SD</td>
<td>18 (64.0%)</td>
<td>17 (88.9%)</td>
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<td>15 (55.6%)</td>
<td>14 (58.3%)</td>
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CONCLUSION

• Our experience shows that the HS reduces the need for ligatures by simultaneous cutting and coagulation. HS resulted in a significant reduction in the operation time from the ability to simultaneously cut off tissue and coagulate and allowed an optimal view in a bloodless operative field. The handling of the HS does not require special skills from the surgeon.

• However, large veins (thyroid vein, external jugular vein, internal jugular vein) could not be ligated because it is too short to form a bulky coagulum by decreasing protein. On the contrary, even in the facial artery and superior thyroidal artery, this may not be safe.

• A negative aspect of the HS device may be the price of this device.

• In the future, large series of prospective, randomized study will be needed.

REFERENCES