Waterjet elevation prior to EMR or ESD

Gentle and selective with Flexible Probe or HybridKnife®

GASTROENTEROLOGY
Elevation with waterjet protects and optimizes

The resection depth for endoscopic resection of exophytic tumors in the gastrointestinal tract is limited. This is because the wall of the esophagus, stomach and intestine is only a few millimeters thick. Tumors that are limited to the mucosa should be resected both laterally and basally in healthy tissue and en-bloc without injuring or perforating the muscular layer.

Selective elevation of the mucosa using a submucosal fluid cushion raises the resection level and thus represents a mechanical and, at the same time, a thermal protective function.

The needleless waterjet elevation of the mucosa provided by the ERBEJET® 2 raises the mucosa quickly and selectively and generates a larger fluid cushion than with needle injection. The fluid cushion forms a safe margin to the muscular layer. This minimizes the risk of perforation in the subsequent resection. The VIO® electrosurgical unit offers optimal cutting modes for both resection techniques – Endoscopic Mucosal Resection (EMR) or Endoscopic Submucosal Dissection (ESD).
Advantages of elevation prior to EMR and ESD

Elevation with the ERBEJET® 2 and the flexible probe has many advantages over needle injection – irrespective of the choice of resection technique, EMR with resection snare or ESD with a resection electrode.

☑ Selective and layer-specific elevation without the use of needles
☑ Fast elevation using a high pressure waterjet
☑ Flat angle of application, reliable elevation
☑ Minimal risk of injury to the muscular layer or to blood vessels
☑ Large fluid cushion which can be replenished as required
☑ Clear view of the target operating area with irrigation

The instrument for elevation: Flexible probe
Advantages of the HybridKnife® for ESD

01 Marking

Prior to elevation, the lateral safety margin of the tumor in the gastrointestinal tract is marked with coagulation points.

02 Elevation

The waterjet penetrates the mucosa and accumulates as a protective cushion in the submucosa. The tissue elevation is layer-selective and can be repeated during dissection and resection, as required.
Incision/dissection

VIO® offers optimal cutting features with the ENDO CUT® Q or DRY CUT® modes for the incision and cutting around the tumor, as well as for resection of the tumor.

Post-coagulation

Vessels and capillary bleeding are coagulated during and after resection with FORCED COAG®. Hemostasis is supported by the compressed fluid cushion.
The equipment for elevation and resection

Gastroenterology Workstation
VIO® 200 D (electrosurgery)
APC® 2 (argon plasma coagulation)
ERBEJET® 2 (waterjet surgery)
EIP 2 (endoscopic irrigation pump)

Flexible Probe
Ø 1.3 mm; length 2.2 m
No. 20150-020

HybridKnife, Type T
Ø 2.3 mm; length 1.9 m
No. 20150-060

HybridKnife, Type I
Ø 2.3 mm; length 1.9 m
No. 20150-061

HybridKnife, Type O
Ø 2.3 mm; length 1.9 m
No. 20150-062
### Mucosa elevation (Flexible Probe + HybridKnife):

<table>
<thead>
<tr>
<th>Location</th>
<th>Device</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Esophagus/stomach</td>
<td>ERBEJET 2</td>
<td>30–50</td>
</tr>
<tr>
<td>Right colon</td>
<td>ERBEJET 2</td>
<td>10–15</td>
</tr>
<tr>
<td>Rectum / left colon</td>
<td>ERBEJET 2</td>
<td>20–30</td>
</tr>
</tbody>
</table>

### EMR with electrosurgical snare

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Device</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Markierung</td>
<td>VIO system, FORCED COAG, effect 2, 60 watts</td>
<td></td>
</tr>
<tr>
<td>Resection electrosurgical snare</td>
<td>ENDO CUT Q, effect 1–4 Cutting duration 1, cutting interval 6</td>
<td></td>
</tr>
</tbody>
</table>

- **Effect 1:** Coecum, right colon
- **Effect 2:** Duodenum, polyps > 5 mm
- **Effect 3:** Esophagus, stomach, polyps 5–15 mm
- **Effect 4:** Rectum, stalked polyps, polyps > 15 mm, large tumors

### ESD with HybridKnife

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Device</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marking</td>
<td>VIO system, FORCED COAG, effect 1, 20 watts</td>
<td></td>
</tr>
<tr>
<td>Incision/dissection</td>
<td>ENDO CUT Q, effect 2–3 Cutting duration 3, cutting interval 3 DRY CUT, effect 2, 60 watts</td>
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</tr>
<tr>
<td>Coagulation</td>
<td>FORCED COAG, effect 2, 60 watts</td>
<td></td>
</tr>
</tbody>
</table>


References

The direct link to ESD
www.medical-video.com

The direct link to EMR
www.medical-video.com

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