



HybridKnife®

for en bloc resection
4 working steps – 1 instrument

So many functions combined in just one instrument



Elevation using the waterjet function



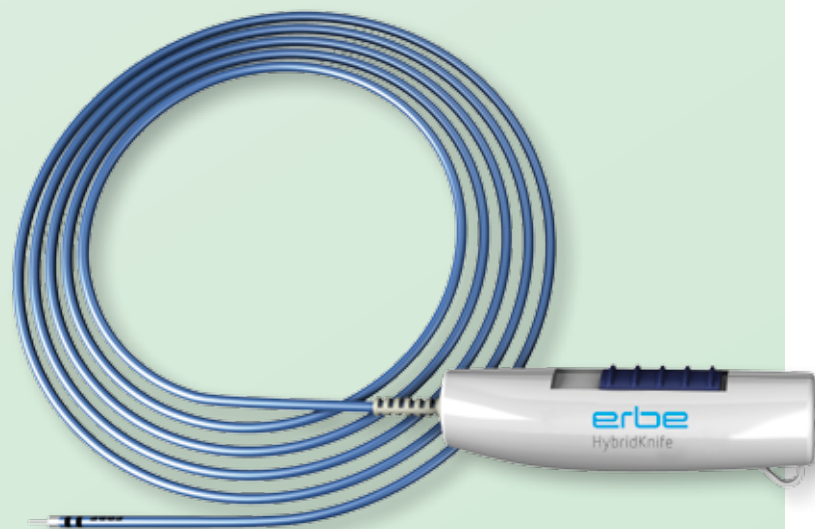
*Marking, incision/dissection and coagulation
using the electrosurgical tip*

The HybridKnife 4 in 1

The multi-function probe combines both techniques, waterjet surgery and electrosurgery, in a single instrument. No change of instrument is required to carry out the four working steps: marking, elevation, incision/dissection and coagulation. Each function is effectively always available, should it be required. The HybridKnife can be used in any standard endoscope in gastroenterology, or in any standard resectoscope in urology.

THE ADVANTAGES OF THE HYBRID FUNCTION AT A GLANCE

- ✔ No change of instrument necessary, thus shorter operating times
- ✔ Separation medium can be replenished quickly at any time
- ✔ Mechanical and thermal protective function of water cushion is preserved throughout the entire process of dissection and resection
- ✔ Good view of the operating site – risk of bleeding is minimized (blood vessels are compressed by the water cushion)
- ✔ Waterjet pressure can be variably adjusted depending on the lesion, the tissue layer and the area of application



The HybridKnife® in urology



En bloc resection of the bladder tumor

En bloc resection of bladder tumors

After elevation, the bladder tumor can be resected in one piece with the aid of the electro-surgical function of the HybridKnife instrument. The en bloc resection technique allows an accurate pathological assessment to be made, and also has further advantages which are presently being demonstrated in the scope of a prospective, randomized multi-center study.

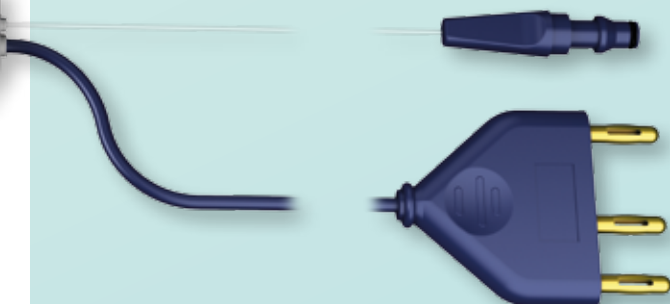
The multi-center study investigates whether the new procedure has advantages compared to the conventional TUR-B procedure in terms of: ¹⁻⁴

- ✓ improved pathological assessment
- ✓ assessability of tumor invasion (lateral and basal extent of the tumor, R status)
- ✓ improved sub-staging of T1 tumors
- ✓ initial statements on recurrence and progression rates

- 1 Kufner, M. et al, The new kid on the block: A randomized study comparing waterjet hydrodissection with TURB in the treatment of bladder tumors, *European Urology Supplements*, Volume 13, Issue 1, April 2014, Pages e1108
- 2 Kramer, W. et al, Current evidence for transurethral en bloc resection of non-muscle-invasive bladder cancer, *Minim Invasive Ther*; Vol. 23, No. 4, Pages 206-213
- 3 Fritsche, HM. et al. Water-jet-aided transurethral dissection of urothelial carcinoma: a prospective clinical study; *J Endourol*. 2011 Oct; 25(10):1599-603. Epub 2011 Aug 4.
- 4 Nagele, U. et al. Water-jet hydrodissection: first experiences and short-term outcomes of a novel approach to bladder tumor resection; *World J Urol*. 2011 Aug; 29(4): 423-7

Urology workstation

VIO® 300 D (electrosurgery)
APC® 2 (argon plasma coagulation)
ERBEJET® 2 (waterjet surgery)
ESM 2 (aspiration system)
Bipolar resection adapter



The HybridKnife® in the gastrointestinal tract

For ESD, POEM or STER

The integrated functions of waterjet surgery and electrosurgery in the HybridKnife enable new endotherapeutic procedures in gastroenterology. The elevation prior to resection or tunneling, which is available at all times, as well as the electrosurgical multi-functions provide the decisive advantages.



Elevation prior to ESD

HybridKnife in **Endoscopic Submucosal Dissection (ESD)**:

From marking, elevation, incision/dissection to coagulation – all working steps are performed with just one instrument, and all functions are available at all times. Even larger tumors can be resected efficiently with RO technique, and above all en bloc.

Thanks to elevation, the muscularis layer is protected from mechanical and thermal perforation.¹⁻³



The muscularis after myotomy

The HybridKnife is also the instrument of choice for **Peroral Endoscopic Myotomy (POEM)**. After elevation of the mucosa, the combination of the electrosurgery and the waterjet functions enables selective tunneling through the correct layer up to the lower esophageal sphincter and beyond. Following myotomy of the circular muscularis, the cut is covered by the remaining intact mucosa and the incision site is sealed with clips.⁴⁻⁶



Tumor resection after tunneling

The advantages of the application of the HybridKnife are also effective in **STER, (Submucosal Tunneling, Endoscopic Resection)**. Following elevation, incision and tunneling, the submucosal tumor is resected and removed en bloc.

- 1 Zhou, P-H, et al. Conventional vs. waterjet-assisted endoscopic submucosal dissection in early gastric cancer: a randomized controlled trial, *Endoscopy* 2014; 46(10): 836-843.
- 2 Neuhaus, H et al. First clinical trial of endoscopic submucosal resection (ESD) of early gastric neoplasia with a water-jet HybridKnife (ESDH). Abstract accepted for DDW 2009.
- 3 Yahagi N, et al. Comparison of Standard. Endoscopic Submucosal Dissection (ESD) Versus an Optimized ESD Technique for Colon: An animal study. *Endoscopy*, 2009
- 4 Zhou, P.-H. et al. Peroral Endoscopic Myotomy for Esophageal Achalasia by HybridKnife: A Case Report. *Case reports in gastrointestinal medicine*, 2012, 325479.
- 5 Inoue, H, et al. (2010). Peroral endoscopic myotomy (POEM) for esophageal achalasia. *Endoscopy*, 42(4), 265–71.
- 6 Toerner, T et al. POEM – Erste klinische Erfahrungen nach Einführung der neuen Methode zur Behandlung der Achalasie. *Endo-Praxis* 2014; 30(1): 18-22

HybridKnife® – The Models

The following types of probes are available:

T type:

The model with the best properties for dissection and for working under tension; excellent coagulation properties

O type:

The safety model; spherical shape provides protection through insulation at the tip of the probe

I type:

Versatile in application, large degree of freedom



APPLICATION	UROLOGY	GASTROENTEROLOGY
HybridKnife, T-type ø 2.3 mm; length 1.9 m No. 20150-060	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
HybridKnife, O-type ø 2.3 mm; length 1.9 m No. 20150-062	<input type="checkbox"/>	<input checked="" type="checkbox"/>
HybridKnife, I-type ø 2.3 mm; length 1.9 m No. 20150-061	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Further information is provided in the following flyers:

85110-107 POEM with HybridKnife

85110-109 En bloc resection with HybridKnife

85110-118 Waterjet elevation prior to EMR or ESD



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