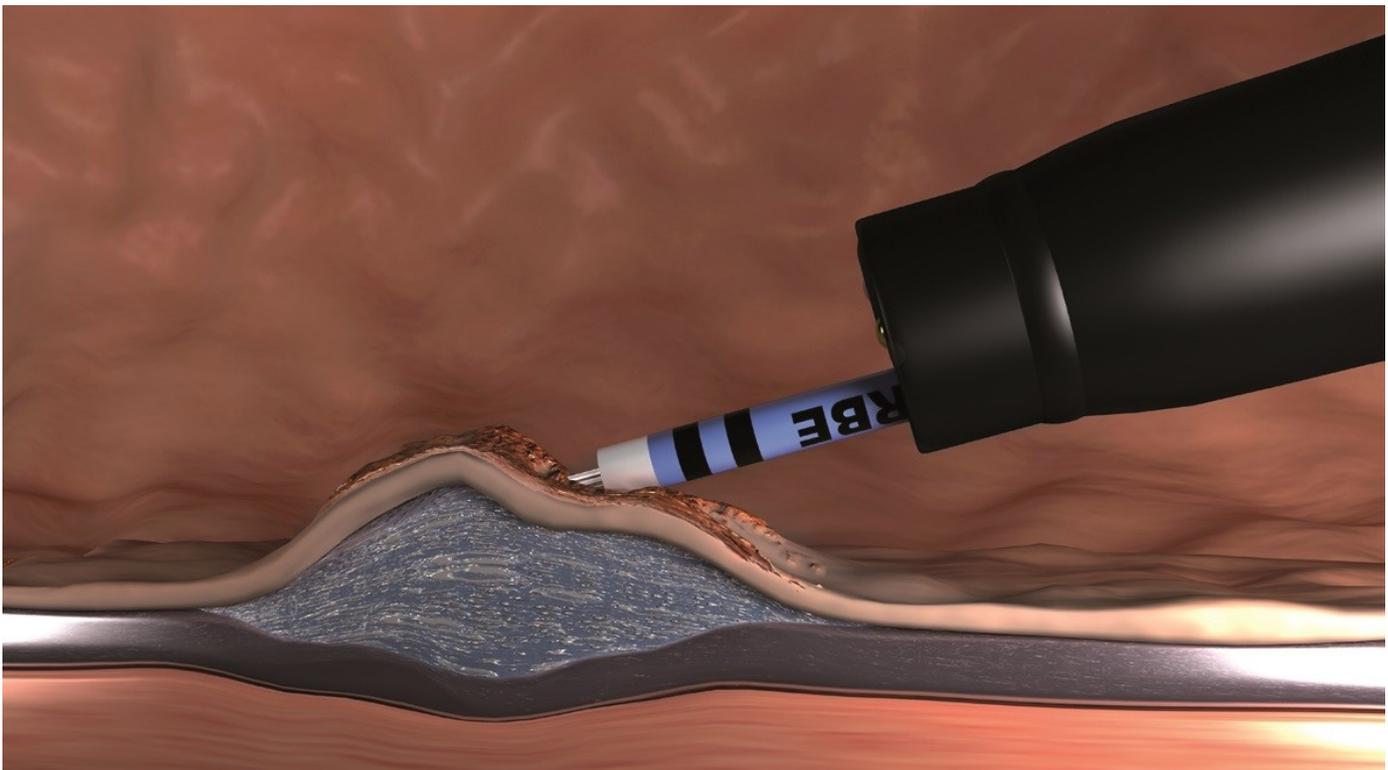


## Healthcare industry BW

### HybridKnife – an instrument for future endoscopy

**Endoscopic and minimally invasive keyhole surgery is increasingly replacing open surgery. For many years now, patients have reaped the benefits of such treatment techniques, which are less stressful than open surgery and usually leave no scarring. People can leave hospital just a few days after treatment, which also contributes to cost savings in healthcare. Endoscopic submucosal dissection (ESD) is a new technique that enables the endoscopic removal of gastric and intestinal tumors. The surgical removal of such tumours used to require surgeons to switch instruments. ERBE GmbH's new HybridKnife now enables surgeons to use one single instrument for the different procedural steps involved in ESD.**



Waterjet elevation: the fluid accumulates in the submucosal layer and forms a fluid cushion that minimises the risk of damage to the muscularis.

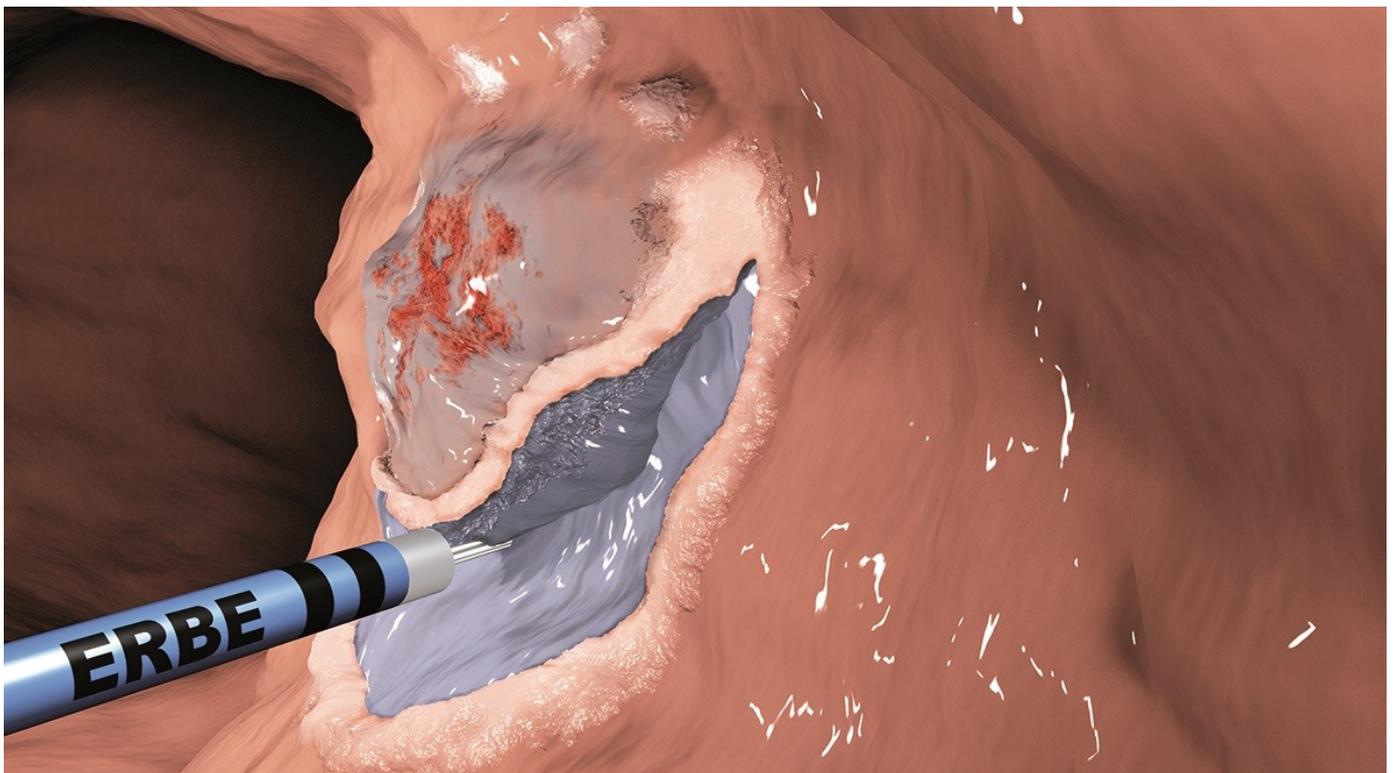
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Alexander Pfäffle, product manager at ERBE Elektromedizin GmbH, explains: "The instrument is guided to the target tissue through the working channel of an endoscope. The tumour, which initially grows in the mucosa, is lifted and subsequently resected. The patient does not undergo open surgery, he

or she is treated endoscopically without surgical scarring, similar to colonoscopy and gastroscopy in which endoscopes are also used to look inside the stomach and intestines."

### ESD without requiring change of instruments

The HybridKnife combines electrosurgery (high-frequency (HF) function) and waterjet surgery technologies in one instrument. The different procedural steps involved in ESD require no change of instrument: the edge of the tumour is marked using electrosurgical current and elevated using the instrument's waterjet function which leads to the accumulation of separation medium in the layer below the submucosa and separation of the cancerous mucosa layer from the healthy tissue.



Dissection involving the HF (high-frequency) function of the HybridKnife: the knife enables the en-bloc resection of the tumour, thereby reducing the rate of tumour recurrences.

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Benefit for the patient: the waterjet elevates the mucosa, thereby creating a protective fluid cushion that minimises the risk of perforation of or damage to the intestinal wall during the surgical removal of the cancerous tissue. The HybridKnife also increases safety and efficiency of ESD as it enables the en-bloc resection of the tumour. "This is a particularly important aspect. ESD using a HybridKnife is associated with a good chance of cure and also reduces the risk of tumour recurrence," said Alexander Pfäffle.

Conclusion: the unique feature of the HybridKnife is that it combines both functions, i.e. elevation and resection, in one instrument. Other resection tools require surgeons to change instruments during the procedure.

### HybridKnife for the treatment of bladder cancer

Every year, around 16,000 people in Germany are diagnosed with bladder cancer. Standard treatment involves the surgical removal of the tumour as completely and as early as possible. The tumour is usually removed endoscopically in a procedure called transurethral resection of bladder

tumour (TUR-B) with an electrosurgical wire loop. However, another resection is required in about 25 to 75 percent of all patients. "Since a resectoscope can be passed through the urethra with the HybridKnife, this also enables the en-bloc resection of larger bladder cancers," said Alexander Pfäffle, highlighting another possibility of applying the HybridKnife.

## Outlook

Collaborations form the basis for research, knowledge transfer and development at ERBE. For example, the company works with doctors and researchers at the University Hospital in Tübingen, including the team of Prof. Dr. Arnulf Stenzl, medical director of the hospital's Department of Urology and project manager of a multi-centre clinical trial testing the application of the HybridKnife in the bladder.

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### **Article**

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