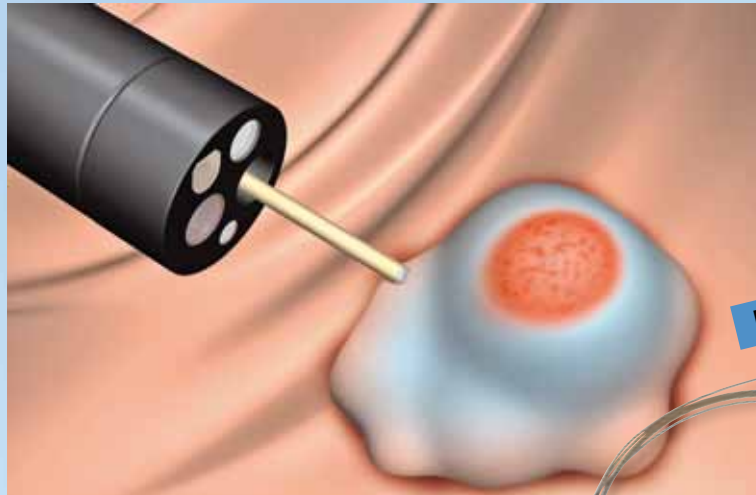
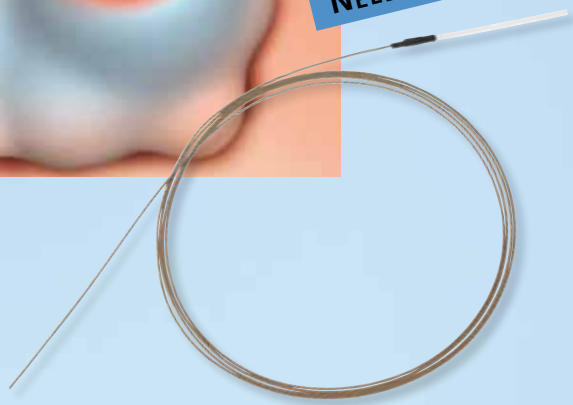


**NEEDLELESS WATERJET ELEVATION OF THE MUCOSA:  
FOR RAPID AND SAFE ENDOSCOPIC RESECTION.**



**NEEDLELESS PROCEDURE**



# THE SYSTEM FOR ENDOSCOPIC RESECTION: ERBEJET® 2 – SELECTIVE SEPARATION OF THE LESION\*. ERBE VIO® SYSTEM – SAFE RESECTION WITH MINIMAL LOSS OF BLOOD.

The ERBE equipment for endoscopic resection consists of the VIO system with the integrated ERBEJET 2. The waterjet serves 2 purposes: the rinsing of the target area and elevation of the lesion using a suitable solution.

## Tissue elevation with needleless waterjet injection using the ERBEJET 2

High-pressure elevation with the flexible ERBEJET probe allows the solution to penetrate the mucosa and accumulate in the submucosa in the form of a fluid cushion – the different tissue consistencies create a selective cushion specific to the tissue layer. This is what makes the needleless ERBEJET technique superior to needle injections.

## Safe resection with VIO CUT modes

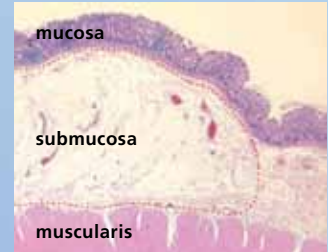
The “cushioned” submucosa creates a safety margin to the muscularis, minimizing the risk of perforation – both when incising and cutting around the lesion in ESD procedures and during snare resection. The cushion remains in place during resection. If necessary the fluid cushion can be re-elevated to ensure that its protective function will remain in place for the duration of the resection.

The modes of the ERBE VIO system provide optimal hemostasis during the entire resection: in ESD procedures there is ENDO CUT Q for incising and cutting around the lesion, DRY CUT and SWIFT COAG during resection. And ENDO CUT Q again during snare resections.

This additive procedure allows almost every lesion in the entire gastrointestinal tract to be resected endoscopically – using EMR or ESD techniques. Needleless elevation with the waterjet ensures that the mucosa is elevated quickly and a large fluid cushion is created – with a low risk of perforation compared to conventional needle injections.



Elevation of the mucosal lesion with the waterjet using the STEP technique\*\*.



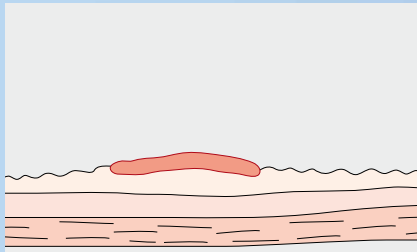
Tissue layers in the GIT with elevated submucosa.



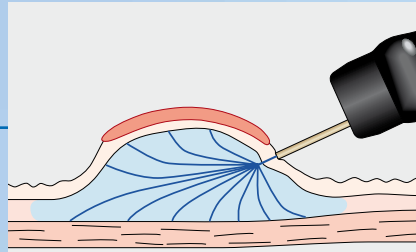
ERBEJET applicator, flexible and compatible with all conventional endoscopes.



Electrosurgery unit ERBE VIO and the ERBEJET 2 waterjet surgery unit – combined on a systems cart to save space.

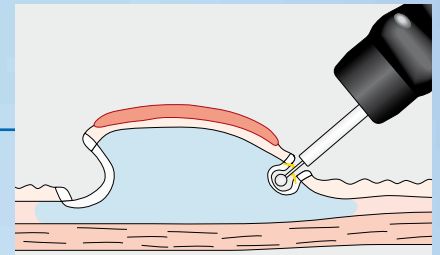
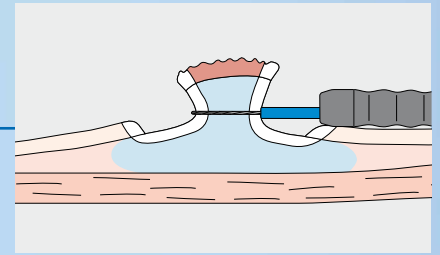


Lesion in the mucosa prior to elevation.



The high-pressure waterjet (e.g. NaCl) creates a cushion in the submucosa and elevates the mucosa together with the lesion.

EMR using snare resection and the ENDO CUT Q.



ESD using a resection electrode: complete ablation of the lesion with optimal hemostasis using DRY CUT.

### The advantages of endoscopic resection with the ERBEJET 2 and the ERBE VIO

#### compared to needle injections:

- ✦ Needleless, selective elevation specific to the tissue layer
- ✦ Rapid tissue elevation with a high-pressure waterjet
- ✦ Flat angle of application, thus safe and reliable elevation of the mucosa
- ✦ Lower risk of injuries to blood vessels and the muscularis
- ✦ Large fluid cushion, can be re-elevated at any time and as often as necessary
- ✦ Lower risk of perforation
- ✦ Good visibility of the target area through irrigation of the site

#### And additional advantages include:

- ✦ Electrosurgical modes such as the ENDO CUT Q, DRY CUT, SWIFT COAG offer optimal resection properties
- ✦ High degree of safety during resection, low rate of complications

#### References/Literature

Sold M.G., Grobholz R., Post S., Enderle M.D., Kaehler G.F.; Submucosal cushioning with water jet before endoscopic mucosal resection: Which fluids are effective? *Surg Endosc.* 2007;36:584-589.6.

\*\*Kaehler G.F., Sold M.G., Post S., Fischer K., Enderle M.D.; Selective Tissue Elevation by Pressure Injection (STEP) Facilitates Endoscopic Mucosal Resection (EMR). *Surg Technol Int.* 2007;16:107-12.

Kaehler G.F., Sold M.G., Fischer K., Post S., Enderle M.D.; Selective fluid cushion in the submucosal layer by water jet: advantage for endoscopic mucosal resection. *Eur Surg Res.* 2007;39(2):93-7.

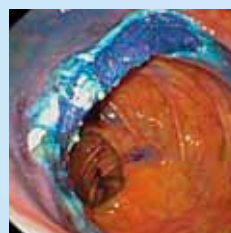
Experimenteller Einsatz von Plasmaexpandern und HydroJet vor endoskopischer Mukosaresektion. Kähler G.F., Sold M.G., Fischer K., Post S., Enderle M.D. *Z Gastroenterol* 2005;43:933-32



Lesion in the colon prior to elevation.



Elevation of the lesion after waterjet elevation.



Treated intestinal area after snare resection.

**ELECTROSURGERY**  
**VESSEL SEALING**  
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**CRYO SURGERY**  
**WATERJET SURGERY**

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