Devices for both endoluminal and transluminal surgery and flexible instruments

The key element in endoscopic surgery is the availability of potentially steerable instruments. You should distinguish among: 1) Devices for endoluminal and transluminal surgery or 2) flexible instruments meant as tools to be used in combination with endoscopes or platforms, which are currently used in endoluminal procedures and adapted to translumenal ones

Flexible instruments
The main flexible instruments for endoscopic surgery are presented below for each company.
NAME of the product: Injection Gold Probe™

CODE :M00560150

MANUFACTURER: Boston Scientific Microvasive Endoscopy

DESCRIPTION
The Injection Gold Probe™ combines injection therapy and bipolar haemostasis into one catheter with irrigation capabilities. Its distal tip design, with gold electrodes in spiral shape, provides conductivity, uniform and effective coagulation. Its rounded distal tip configuration enhances electrode-tissue surface contact allowing optimal coagulation in different positions. Its firm catheter shaft provides en face and tangential tamponade pressing on tissue. Designed for both injection and thermal haemostasis with one catheter leading to fewer catheter exchanges and reduced procedural time.

FEATURES
• Bipolar spiral design catheter, to allow delivery of energy in a controlled way
• Multi-functional design is intended to allow for thermal haemostasis and injection with a single catheter, which helps eliminate the need for an exchange.
• Conductive tip is designed to promote efficient heat delivery.
• Long, rounded tip is designed to promote catheter/tissue contact for improved coverage in both enface and tangential orientations.
• Smooth needle extension mechanism is designed to provide precision of needle extension.
• Hemoglide™ coating is designed to reduce surface friction to facilitate passage through the endoscope.

UNIQUE DIFFERENCES (to other instruments)
Coagulation tool, used for hemostasis exerting pressure on the tissue, and allowing injection of hemostatic substances without need of instrument exchange.

NAME of the product: Argon Plasma Coagulation (APC™)

CODE : 20132-166
MANUFACTURER: ERBE Elektromedizin GmbH

DESCRIPTION

APC™ is a monopolar electrosurgical procedure in which electrical energy is transferred to the target tissue using ionized and, thus, conductive argon gas without the electrode coming into direct contact with the tissue. In contrast to laser technology procedures, the transfer of energy between the electrode and the tissue occurs in accordance with electrophysical laws and not the laws of optics. The argon plasma follows the path of least electrical resistance, regardless of whether the tissue lies directly in front of the electrode or lateral to it, and regardless of the direction of the flow of the argon gas.

FEATURES

• No contact effect on tissue
• FORCED APC®, PULSED APC® Effect 1 and Effect 2 as well as PRECISE APC® have different coagulation properties that are more suitable for various clinical requirements
• Allows devitalization of adenoma remnant after EMR, Barrett’s esophagus, Zencker’s diverticulum
• Allows hemostasis/coagulation of radiation proctitis, vascular malformations (GAVE, angiodysplasias, teleangectasias), bleeding ulcer
• Allows tumor ablation of stenosis, stents ingrowth ablation

UNIQUE DIFFERENCES (to other instruments)

Coagulation tool, used for dissection, hemostasis, ablation, devitalization, lumen recanalization for tumor or stent obstruction.

NAME of the product: HybridKnife T-Type I-Jet

CODE : 20150-060
MANUFACTURER: ERBE Elektromedizin GmbH

DESCRIPTION

The multi-function probe combines electrosurgical and waterjet surgery technologies in one instrument. To perform the 4 working steps - marking, elevation, incision/dissection and coagulation - no change of instruments is necessary through any standard endoscopy.

FEATURES

• 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 resection
• Good view of the operating site: risk of bleeding is minimized (blood vessels are compressed by the water cushion)
• Waterjet pressure can be adjusted depending on lesion, tissue layer and area of application

UNIQUE DIFFERENCES (to other instruments)

The combination of functions of electrosurgery with those of waterjet surgery in one instrument.

FURTHER READING – http://www.erbe-med.com/de/medical-technology/public/Products/Waterjet-Surgery/Instruments/HybridKnife
OLYMPUS

Endo-Lifter: Single-use grasping forceps

NAME of the product: Endo-Lifter

CODE : LA-201
MANUFACTURER: OLYMPUS ENDOSCOPY

DESCRIPTION

The EndoLifter is a grasping forceps connected to a distal attachment, that runs outside the endoscope to allow better manipulation of the lesion to be resected, allowing sufficient traction on the tissue where to apply energy for cutting and coagulating. Acting like an extra hand it provides optimal lesion counter-traction and supports Endoscopic Submucosal Dissection (ESD).

FEATURES

• Makes it easy to slip the endoscope tip into the submucosa
• Ensures a broader view by lifting up the tissue
• Facilitates visual confirmation of blood vessels, supporting preventive haemostasis
• Supports effective dissection by providing the necessary amount of tension to the mucosa
• Two locks prevent inadvertent movement

UNIQUE DIFFERENCES (to other instruments)

EndoLifter is a potential extrahand to allow tissue manipulation with a better triangulation compared to the use of double channel scopes

**Hook Knife: Single use electrosurgical knife**

**NAME of the product:** Hook Knife: Single use electrosurgical knife

**CODE:** KD-620LR  
**MANUFACTURER:** OLYMPUS ENDOSCOPY

**DESCRIPTION**

The distal L-shaped hook with rotation function allows incision and dissection in longitudinal and lateral directions in Endoscopic Submucosal Dissection (ESD). The particular tip shape should allow better manipulation of the lesion to be resected, allowing sufficient traction on the tissue where to apply energy for cutting and coagulating. Acting like a laparoscopic hook it provides tissue traction when applying energy.

**FEATURES**

- Distal L-Shaped hook and rotation function for incision and dissection in longitudinal and lateral directions
- Turn and lock design
- The knife is used to hook tissue and draw it away from the mucosa while diathermy is applied to cut.

**UNIQUE DIFFERENCES (to other instruments)**

The Hook knife allows incision and dissection by exerting traction on the tissue before applying energy to cut and coagulate.

NAME of the product: IT Knife2

CODE: KD-611L

MANUFACTURER: OLYMPUS ENDOSCOPY

DESCRIPTION

The distal ceramic tip electrode design allows dissection in longitudinal and lateral directions in Endoscopic Submucosal Dissection (ESD). The particular tip shape should reduce the risk of perforation whilst introducing the tip into the submucosal layer. The triple hook shape of the electrode, covered by the ceramic cap, allows tissue encirclement and traction before applying energy for cutting and coagulating.

FEATURES

• Ceramic tip electrode design on the proximal side of the tip to minimize risk of perforation
• The electrode design makes it possible to perform lateral cutting, incision and submucosal dissection from a vertical approach
• Coiled sheath with optimised rigidity to allow sufficient manoeuvrability
• The knife is used to hook tissue and draw it away from the mucosa while diathermy is applied to cut.

UNIQUE DIFFERENCES (to other instruments)

The IT-knife allows lateral dissection by exerting traction on the tissue before applying energy to cut and coagulate, while its ceramic tip reduces the risk of perforation.

Dual Knife: Single use electrosurgical knife

NAME of the product: Dual Knife

CODE : KD-650L

MANUFACTURER: OLYMPUS ENDOSCOPY

DESCRIPTION

The Dual knife has a dome shaped ceramic sheath tip that results less traumatic when in contact with tissue. Moreover, the knob-shaped needle knife tip makes the needle less likely to slip, simplifies marking and monopolarhaemostatis.

The knife is available in two different knife lengths. Each knife features two-steps knife adjustment (retracted and extended) for smooth and efficient cutting in all ESD applications.

The slim sheath is designed to be pressed on the tissue while its rigidity is conceived to make it easier to hook the needle on the tissue of the submucosal fibers, for smooth and efficient cutting in all ESD applications, to perform lateral cutting, incision and submucosal dissection from a vertical approach.

FEATURES

• Knob-shaped needle knife tip makes the needle less likely to slip, simplifies marking and haemostatis
• The electrode design makes it possible to perform lateral cutting, incision and submucosal dissection from a vertical approach
• The knife features two-steps knife adjustment (retracted and extended) for hooking of tissue and smooth cutting in all ESD applications.
• Knife length can be fixed at either of the two positions - retracted or extended - for reliable, confident cutting

UNIQUE DIFFERENCES (to other instruments)

The Dual-knife allows lateral dissection by exerting pressure on the tissue before applying energy to cut and coagulate, while its knob-tip allows hooking of tissue fibers.

Triangle Tip Knife: Single use electrosurgical knife

NAME of the product: Triangle Tip Knife

CODE : KD-640L

MANUFACTURER: OLYMPUS ENDOSCOPY

DESCRIPTION

The Triangle-tip knife is a sort of distal L-shaped hook in three directions, this way avoiding the need of rotating the tip to achieve the right angle of incidence towards the tissue. This way it allows incision and dissection in longitudinal and lateral directions in Endoscopic Submucosal Dissection (ESD) without need of rotation. The particular tip shape should allow better manipulation of the lesion to be resected, allowing sufficient traction on the tissue where to apply energy for cutting and coagulating. Acting like a laparoscopic hook it provides tissue traction when applying energy. The tip design is also suitable for controlling moderate bleeding.

FEATURES

• Triangle tip at the distal end for all procedures allows marking, incision and dissection, including mucosal incision
• It enables to snag and hook tissue
• The electrode design makes it possible to perform lateral cutting, incision and submucosal dissection from a vertical approach
• No need to rotate the knife, as cutting can be performed in any direction
• Tip design suitable for controlling moderate bleeding

UNIQUE DIFFERENCES (to other instruments)

The Triangle-tip knife allows lateral dissection by exerting pressure on the tissue before applying energy to cut and coagulate, while its triangle-tip allows hooking of tissue fibers and coagulating when moderate bleeding need control.

Disposable Coagrasper

NAME of the product: Disposable Coagrasper

CODE : FD-410LR

MANUFACTURER: OLYMPUS ENDOSCOPY

DESCRIPTION

The Coagrasper is a rotatable forceps that allows grasping of bleeding sources to apply effective monopolar coagulation by contact. It combines the mechanical tamponade benefits of a hemoclip with the coagulation benefits of a thermal probe. Due to its characteristics it allows to cauterize, coagulate and stop bleeding in the GI tract during ESD. To improve effective grasping it is designed with a tapered tip and anti-slip jaws construction.

FEATURES

• Hemostatic grasping device combining the mechanical tamponade benefits with the coagulation benefits of a thermal probe
• Designed to cauterize, coagulate and stop bleeding in the GI tract during ESD
• Rotation feature allows approach from any angle
• Tapered tip and anti-slip construction provides enhanced grasping of bleeding point

UNIQUE DIFFERENCES (to other instruments)

The Coagrasper allows monopolar coagulation by means of grasping the potential bleeder or the already active bleeding source between jaws. The use of the Coagrasper allows to verify the exact position of the source, and at the same time to keep a clean field, while applying energy. This enhances the energy effect reducing the need of energy and relative side effects, first of all the risk of perforation.