



Splash M-Knife Case Studies

Case studies from clinical practice with Splash M-Knife



Esophagus



Stomach



Colon



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Product Specifications

Features



Multifunction

Fine knife with multi functional features to complete ESD procedures with a single device: marking, incision, dissection & hemostasis.

Increased maneuverability

Developed and designed to achieve clear marking, better hemostasis and smoother and easier operation with fixed knife length and hooking mechanism.

It allows improved hemostasis ability with better bleeding control during a procedure without replacing the knife.

Water-Jet Function

It enables additional injection without changing the device.



The Key Opinion Leaders

PENTAX Medical has been working closely with this group of doctors so that their best practices and scientific evidence using its ESD knife, the Splash M-Knife, can be shared in a peer environment. It will be highly beneficial for those who are starting off in ESD procedures.



Prof. Bo-in, Lee
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Asso. Prof. Jae-Myeong, Cha
Kyung-Hee University
Hospital at Gang-dong,
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Prof. Hyun-Gun, Kim
Soon Chun Hyang University
Hospital Seoul,
South Korea



"The Splash M-Knife has a lot of benefits. I used it mainly for mucosal incision and submucosal dissection during ESD procedure due to safer, faster and more effective dissection outcome over others. Especially for fibrotic lesion in the submucosal layer, the Splash M-Knife showed the true function of the knife disk: "Hooking the tissue". It is effective and safe for fibrotic portions.

In addition, without changing therapeutic devices, it reduces ESD procedure time effectively. One of my favorite features is the maximized hemostatic function. When the knife is retracted, the contact area with bleeding point is increased through the metal ring of the sheath tip.

However, it does not mean I am only using Splash M-Knife. Depending on the depth, type, size and location of lesion, I will select the most suitable and safest knife for my patient. Generally, I am satisfied with the functionality of the Splash M-Knife."

Prof. Bo-in, Lee
The Catholic University of Korea, Seoul St. Mary's Hospital, South Korea

Electrosurgical Unit (Erbe 300D)

Procedure	Mode	Effect	Watt	Duration	Interval	Max. Rated Voltage
Marginal incision	Endocut I	3	-	3	1	
Submucosal dissection	Endocut I	3	-	3	1	
Submucosal dissection (Hypervascular tissue)	Forced Coagulation	2	30			
Hemostasis	Soft Coagulation	4	50	-	-	

Laterally spreading tumor at the Upper Rectum

1. Patient history and information

A 64-year-old male visited the hospital due to a 42-mm laterally spreading tumor [granular type, homogeneous (LST-G, H)] at the upper rectum which was found during a screening colonoscopy (Figure 1).

2. ESD procedure/Treatment

The patient underwent endoscopic submucosal dissection (ESD). A 10% glycerol, 5% fructose, and 0.9% saline mixture solution was used for submucosal injection. A Splash M-Knife was mainly used for mucosal incision and submucosal dissection. Submucosal injection through Splash M-Knife without changing to an injection needle

reduced procedure time significantly (Figure 2). Oozing during mucosal incision and submucosal dissection was easily controlled by the retracted Splash M-Knife. Hemostatic function can be maximized when the knife is retracted since the contact area is increased by the metal ring of the sheath tip.

Submucosal dissection was continued mainly using pocket-creation method (Figure 3).

3. Final Pathology

Colon, ESD, laterally spreading tumor at the upper rectum

- Size: 42 mm
- Granular type, homogeneous (LST-G, H)

- Final histology was consistent with low grade dysplasia. Tumor involvement of vertical and horizontal margin was negative.

4. Outcome/Follow-up

Procedure time: 40 minutes (Figure 4 & 5)

Complications: None

Outcome: Endoscopic and histologic complete resection, *en bloc*.

5. Clinical Images



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5

Laterally spreading tumor involving the entire rectum

Electrosurgical Unit (Erbe 300D)

Procedure	Mode	Effect	Watt	Duration	Interval	Max. Rated Voltage
Marginal incision	Endocut I	3	-	3	1	
Submucosal dissection	Endocut I	3	-	3	1	
Submucosal dissection (Hypervascular tissue)	Forced Coagulation	2	30			
Hemostasis	Soft Coagulation	4	50	-	-	

1. Patient history and information

A 70-year-old female was referred to the hospital due to a huge laterally spreading rectal tumor which was detected during screening colonoscopy in a local clinic. She has no specific past or family history (Figure 1).

2. ESD procedure/Treatment

The patient underwent endoscopic submucosal dissection (ESD). Biopsy was not performed because of the risk of post-biopsy submucosal fibrosis and the reported discrepancy of histology between forceps biopsy and resected specimen.

A 2% of lidocaine solution was added to a 10% glycerol, 5% fructose, and 0.9% saline mixture solution with 1:1 ratio for pain control during perianal dissection, and only a 10% glycerol, 5% fructose, and 0.9% saline mixture solution was used for submucosal injection of non-

perianal region. Splash M-Knife was used mainly for mucosal incision and submucosal dissection (Figure 2). Submucosal tunneling technique was applied for safe and effective dissection (Figure 3). After 11 hours of submucosal dissection, finally *en bloc* resection of the tumor was accomplished (Figure 4). The cylinder-shaped specimen was cut longitudinally and fixed with pins on a cork plate (Figure 5) for formalin fixation.

3. Final Pathology

Colon, ESD, laterally spreading tumor involving the entire rectum

- Size: 180 mm
- Granular type, homogeneous (LST-G, H) involving the entire rectum circumferentially from the dentate line to the rectosigmoid junction
- Final histology was consistent with low grade dysplasia. Vertical margin

was negative and the anal side of lateral margin was involved by the tumor. Only endoscopic follow-up was planned since lateral margin involvement was considered as a result from close precutting at the anal side and electrocautery effect.

4. Outcome/Follow-up

Procedure time: 11 hours

Complications: None

Outcome: Endoscopic complete resection, *en bloc*

Triamcinolone was injected at the ulcer base and oral prednisolone was prescribed for 3 weeks to prevent from stenosis.

Follow-up plan: After one month

- Follow-up sigmoidoscopy showed mild stenosis of the ESD site, but endoscopic patency was preserved (Figure 6). There was no obstructive symptom.

5. Clinical Images

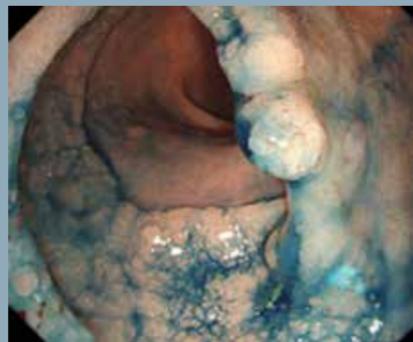


Figure 1



Figure 2



Figure 4



Figure 5



Figure 3



Figure 6

Visible Dysplasia in a patient with ulcerative pancolitis

Electrosurgical Unit (Erbe 300D)

Procedure	Mode	Effect	Watt	Duration	Interval	Max. Rated Voltage
Marginal incision	Endocut I	3	-	3	1	
Submucosal dissection	Endocut I	3	-	3	1	
Submucosal dissection (Hypervascular tissue)	Forced Coagulation	2	30			
Hemostasis	Soft Coagulation	4	50	-	-	

1. Patient history and information

A 79-year-old female was referred because of a 4-cm visible dysplasia encircling 4/5 of the lumen at the sigmoid colon (Figure 1). She has a history of ulcerative pancolitis for 5 years. Pre-procedural biopsy finding at the referring hospital was consistent with high grade dysplasia.

2. ESD procedure/Treatment

Endoscopic submucosal dissection was planned for *en bloc* resection of the dysplasia. A 10% glycerol, 5% fructose, and 0.9% saline mixture solution was

used for submucosal injection. Only a Splash M-Knife was used for mucosal incision and submucosal dissection. After mucosal incision, adipose tissue was seen in the submucosal tissue, which was frequently observed in senile patients and easily mistaken as perforation and visceral fat exposure (Figure 2). Broad and massive fibrosis was observed in the submucosal layer. "Hooking the tissue" with Splash M-Knife was very effective for safe and effective dissection of fibrotic portions (Figure 3).

En bloc resection of the dysplasia was performed successfully (Figure 4).

3. Final Pathology

Colon, ESD

- Size: 40 mm
- Visible dysplasia encircling 4/5 of the lumen at the sigmoid colon
- Final histology was consistent with high grade dysplasia. Tumor involvement of vertical and horizontal margin was negative.

4. Outcome/Follow-up

Procedure time: 100 minutes

Complications: None

Outcome: Endoscopic and histologic complete resection, *en bloc*.

5. Clinical Images



Figure 1



Figure 2



Figure 3

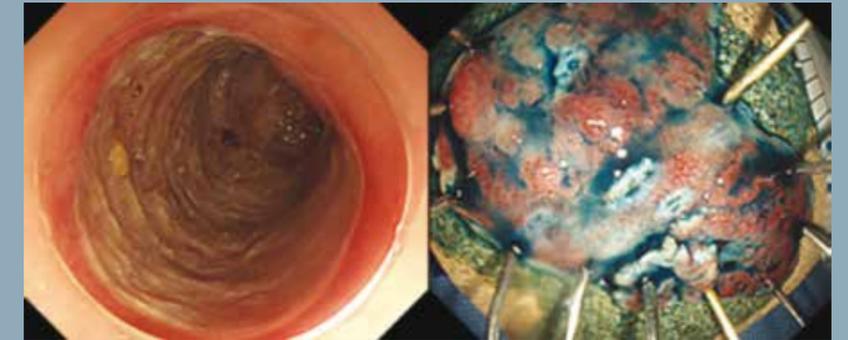


Figure 4



"Comparing Splash M-Knife to other knives, I think it is a Roman soldier's sword. The longer sword seems better valued but early ancient Roman army favored shorter. This is the intended discomfort that can be easily understood by looking at the tactics of the Roman army at that time, the mode of fighting (from Gladius). The knife length of Splash M-Knife is 2.0 mm and this is very short for upper GI therapeutic procedure.

It is a very safe length, considering that the thickness of the stomach wall is generally 5.0 mm. Generally, gastric wall thickness on the average measured 15.933 +/- 4.471 mm in neoplastic patients and 5.107 +/- 1.100 mm in normal subjects.

Due to the short knife length and relatively wider cross-sectional area of the Splash M-Knife, I can see several advantages. In terms of hemostasis, Splash M-Knife has a strong coagulation function if the incision is made at the site where bleeding is expected to be severe. This is unlike an insulated tip (IT) knife but a short knife length is an appropriate device for lesion of the posterior wall in lower gastric body which is not easily accessible. This knife length will be beneficial when the submucosal fibrosis is severe or if it involves an ulcerous lesion or a severe pyloric channel that is expected to be. However, there is one limitation which I have observed: it does not go beyond the capability of the existing flush knife because the water pressure is not too strong and the volume also depends on the size of the syringe. Regardless, I am satisfied with the overall results and outcome through using the Splash M-Knife."

Prof. Woo-Chul, Chung

The Catholic University of Korea, St. Vincent's Hospital, South Korea

Electrosurgical Unit (Erbe 300D; Tübingen, Germany)

Submucosal dissection with the monopolar endo-knife were: ENDO CUT Q; SWIFT COAG

Procedure	Mode	Effect	Watt	Duration	Interval	Max. Rated Voltage
Marking	Endocut Q	2	Max.44	2	4	Cutting Mode:770vp
Marginal incision	Endocut Q	2	Max.44	2	4	Cutting Mode:770vp
Submucosal dissection	Endocut Q	2	Max.44	2	4	Cutting Mode:770vp
Hemostasis	Swift Coagulation	4	Max.40			Coagulation Mode:1210vp

ESD for Early Esophageal Cancer

1. Patient history and information

A 70-year-old male with no symptom had an annual cancer screening in early January 2019 and a flat depressed lesion (30 mm x 30 mm) with mucosal nodularity was observed in the esophagus. Based on the pathological report, it turned out to be a moderately differentiated Squamous Cell Carcinoma.

Patient underwent laparoscopic anterior resection for colon cancer after a month in early February 2019.

[Moderately differentiated adenocarcinoma. pT3N0M0. L/N(0/33). Lymphovascular invasion (+) final TNM II stage, high risk]

2. ESD procedure/Treatment

The size of esophageal wall was approximately 3 mm in thickness. It is well-known that esophageal ESD is very difficult to perform in such a case due to thin wall and small luminal space. Splash M-Knife has a relatively short knife head so it was very useful for esophageal ESD. The patient underwent endoscopic submucosal dissection (ESD) in late March 2019.

3. Final Pathology

Esophagus, Midthoracic, ESD: moderately differentiated Squamous cell carcinoma.

Depth of invasion:

- Submucosa: 500 μm from muscularis mucosa (pT1b)
- Lympho-vascular invasion: Absent

4. Outcome/Follow-up

Procedure time: 50 minutes

Complications: None

Unaffordable condition for esophagectomy due to submucosal invasion. He is receiving adjuvant chemotherapy for advanced colon cancer. Double primary cancers: presence of two primary cancers of different organs in the same patient.

Outcome: To avoid risk of open surgery, the patient opted for an ESD procedure as an alternative treatment.

A 3-month follow-up was then scheduled.

5. Clinical Images



ESD for EGCa with Severe Fibrosis

Electrosurgical Unit (Erbe 300D; Tübingen, Germany)

Procedure	Mode	Effect	Watt	Duration	Interval	Max. Rated Voltage
Marking	Endocut Q	2	Max.44	2	4	Cutting Mode:770vp
Marginal incision	Endocut Q	2	Max.44	2	4	Cutting Mode:770vp
Submucosal dissection	Endocut Q	2	Max.44	2	4	Cutting Mode:770vp
Hemostasis	Swift Coagulation	4	Max.40			Coagulation Mode:1210vp

1. Patient history and information

A 66-year-old female with no medical history had a general health screening endoscopy in early March 2019 in a local clinic. A depressed mucosal lesion of 2.0 cm with marginal elevation was observed at lesser curvature side of lower gastric corpus. The pathological report showed that it was Atypical Glandular Proliferation.

2. ESD procedure/Treatment

Severe fibrosis occurred at posterior wall side in the stomach and the patient underwent endoscopic submucosal dissection (ESD) between mid to late March 2019. In cases of severe fibrosis, the rate of complete resection was relatively low.

Splash M-Knife has a unique knife head with distal tip and that allows a wide range and sharp of cutting techniques in fibrosis lesion.

3. Final Pathology

Stomach, LC of low body, ESD: well (M1) and moderately (M2) differentiated Tubular Adenocarcinoma.

- Size: 0.9 cm x 0.3 cm (M1) & 0.6 cm x 0.2 cm (M2)
- Depth of invasion (M1 & M2): Muscularis mucosa (pT1a)
- Lympho-vascular invasion: Absent
- Resected margin involvement: Absent
- Safety margin: Lateral - 0.4 cm

4. Outcome/ Follow-up

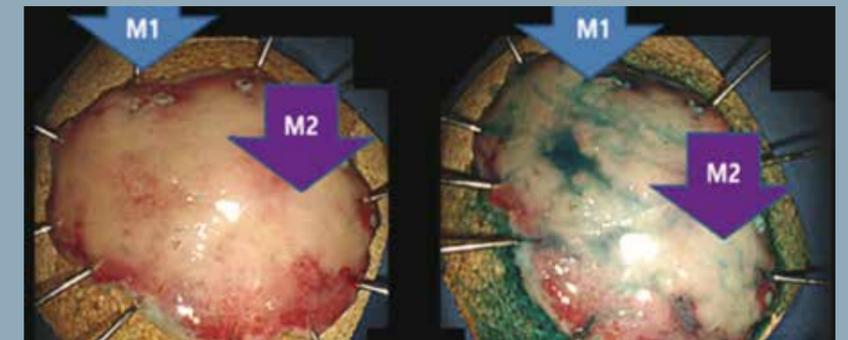
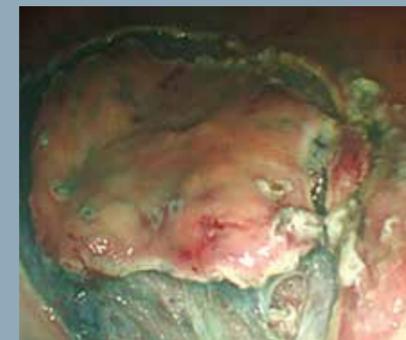
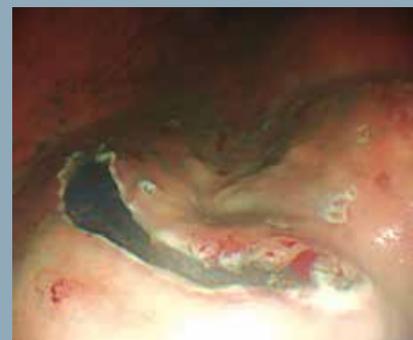
Procedure time: 30 minutes

Complications: None

Outcome: Complete resection of EGCa with severe fibrosis.

A six-month follow-up has been scheduled for two years. Subsequently, an annual check-up is required for the next three years.

5. Clinical Images



ESD of the lesion involving pyloric channel

Electrosurgical Unit (Erbe 300D; Tübingen, Germany)

Procedure	Mode	Effect	Watt	Duration	Interval	Max. Rated Voltage
Marking	Endocut Q	2	Max.44	2	4	Cutting Mode:770vp
Marginal incision	Endocut Q	2	Max.44	2	4	Cutting Mode:770vp
Submucosal dissection	Endocut Q	2	Max.44	2	4	Cutting Mode:770vp
Hemostasis	Swift Coagulation	4	Max.40			Coagulation Mode:1210vp

1. Patient history and information

A 1.5 cm of circumferential depressed lesion with marginal elevation was observed at pyloric channel in a 70-year-old female during mid-October 2018. After six months, she had a regular follow-up medical check-up for small gastric epithelial neoplasia with low grade adenoma. Pathological report showed that it was Tubular Adenoma with High grade Dysplasia (EGCa II c + II a).

2. ESD procedure/Treatment

Patient underwent endoscopic submucosal dissection (ESD) from early to mid-April 2019.

In general, the mucosal lesions with pyloric channel and gastric cardia were very difficult to perform ESD but the procedure was safely performed due to the Splash M-Knife's relatively short knife length.

3. Final Pathology

Stomach, Pyloric change, ESD: well differentiated Tubular Adenocarcinoma.

- Depth of invasion: Mucosa (lamina propria) (pT1a) N0M0
- Lympho-vascular invasion: Absent

4. Outcome/Follow-up

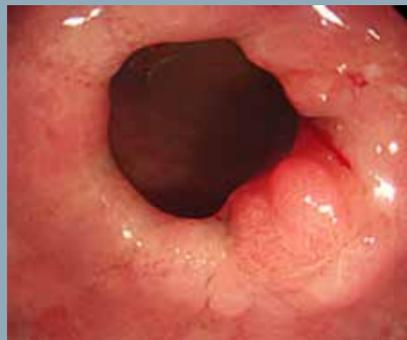
Procedure time: 40 minutes

Complications: None

Outcome: Complete resection of Tubular Adenocarcinoma in pyloric channel.

A bi-annual follow-up was scheduled for the next two years followed by an annual follow-up for three years subsequently.

5. Clinical Images



ESD of the Stomach Ulceration

Electrosurgical Unit (Erbe 300D; Tübingen, Germany)

Procedure	Mode	Effect	Watt	Duration	Interval	Max. Rated Voltage
Marking	Endocut Q	2	Max.44	2	4	Cutting Mode:770vp
Marginal incision	Endocut Q	2	Max.44	2	4	Cutting Mode:770vp
Submucosal dissection	Endocut Q	2	Max.44	2	4	Cutting Mode:770vp
Hemostasis	Swift Coagulation	4	Max.40			Coagulation Mode:1210vp

1. Patient history and information

A 69-year-old male had been treated radical cholecystectomy due to gallbladder cancer (pT2 N0 M0) in mid-May, 2016. Then he had a regular health screening endoscopy in early/mid-April, 2018 and 1.7 cm size of elevated mucosal lesion with focal ulceration was observed at greater curvature side of proximal gastric antrum. The pathological report showed that it turned out to be a well-differentiated Tubular adenocarcinoma (Early Gastric Cancer-a II a+ III / ulcer).

2. ESD procedure/Treatment

It was recommended that the early gastric cancer with ulceration was a surgical consideration in the past. With advanced ESD technology, ulceration itself would not be a contraindication of endoscopy treatment.

Splash M-Knife might be a good choice for endoscopic treatment of EGCa with ulceration and fibrosis due to a relatively short knife length. Finally, he underwent endoscopic submucosal dissection (ESD) in mid-April, 2019.

3. Final Pathology

Stomach, GC of mid antrum, ESD: well differentiated Tubular Adenocarcinoma.

- Size: 2.0 x 0.9 cm
- Depth of invasion: Mucosa (lamina propria) (pT1a) N0M0
- Lympho-vascular invasion: Absent
- Resected margin involvement: Absent
- Safety margin: Lateral (3.0 mm) & Deep (1.0 mm).

4. Outcome/Follow-up

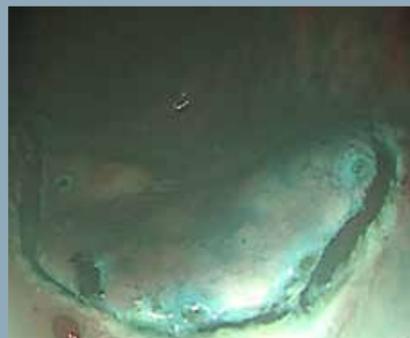
Procedure time: 20 minutes

Complications: None

Outcome: Complete resection of EGCa with ulceration lesion.

A bi-annual follow-up was scheduled for the next two years followed by an annual follow-up for three years subsequently.

5. Clinical Images





"The ideal ESD knife should avoid making complications such as perforations and heavy bleeding and yet can still allow a clean cut of lesion at a time. I don't think there is a perfect ESD knife due to many reasons. However, I would say the Splash M-Knife is one of preferred options for good ESD knives because it is able to perform not only dissection but also lifting of the mucosa by injecting solution into submucosal layer. This leads to shorter procedure time and increase efficiency because I do not need to change device. Another strength of the Splash M-Knife is its hemostasis function. With the large disk of the knife distal end, it is much easier and faster to make bleeding stop during the procedure.

However, it does not mean Splash M-Knife is perfect. It also has its limitation but I am fairly satisfied with Splash M-Knife. In certain occasions, completion of ESD procedure may not be required but some cases are necessary to diagnose the lesion accurately and perform ESD."

Asso. Prof. Jae-Myeong, Cha

Kyung-Hee University Hospital at Gang-dong, South Korea

Electrosurgical Unit (Erbe 300D)

Procedure	Mode	Effect	Watt	Duration	Interval	Max. Rated Voltage
Marking	Endocut Q	2	-	4	3	Cutting Mode: 155 vp
Marginal incision	Endocut Q	2	-	4	3	Cutting Mode: 155vp
Submucosal dissection	Endocut Q	2	-	4	3	Cutting Mode: 155vp
Hemostasis	Forced Coagulation	2	80	-	-	Coagulation Mode: 1100vp

LST of Rectum Case

1. Patient history and information

A 71-year-old female with postoperative hysterectomy in 1993 was in Diabetes Mellitus/Hypertension (-/-) condition. 4.5 cm x 5.0 cm size of laterally spreading tumor (LST) was observed at lower rectum. Pathological report showed that it is Tubulovillous Adenoma with Low Grade Dysplasia (TA-LGD).

2. ESD procedure/Treatment

The patient underwent endoscopic submucosal dissection (ESD). The Splash M-Knife enabled smooth dissection and was easy to control

which not only for decreased the procedure time but also generated strong hemostasis effect. Therefore, it is a considerably good multi-functional accessory for completing ESD procedures with a single device.

3. Final Pathology

Colon, LST of Rectum, ESD: TA-LGD

- Size: 4.5 cm x 5.0 cm
- Tubulovillous Adenoma with low grade dysplasia
- Clear resection margin

4. Outcome/Follow-up

Procedure time: 62 minutes

Complications: None

Outcome: Clear resection margin. The patient was discharged from the hospital after 36 hours.

A colonoscopy was scheduled after 12 months and 36 months.

5. Clinical Images



SET of Stomach

Electrosurgical Unit (Erbe 300D)

Procedure	Mode	Effect	Watt	Duration	Interval	Max. Rated Voltage
Marking	Endocut Q	2	-	4	3	Cutting Mode: 155 vp
Marginal incision	Endocut Q	2	-	4	3	Cutting Mode: 155vp
Submucosal dissection	Endocut Q	2	-	4	3	Cutting Mode: 155vp
Hemostasis	Forced Coagulation	2	80	-	-	Coagulation Mode: 1100vp

1. Patient history and information

A 58-year-old female was referred to the hospital for surgical resection of antral SET with large size and changed mucosal surface. A tumor size of 25 mm was observed at antrum of stomach. Pathological report showed that it was Gastritis cystica profunda. This case was an unusual presentation of gastritis cystica profunda, mimicking SET.

2. ESD procedure/Treatment

The patient underwent endoscopic submucosal dissection (ESD). Splash M-Knife has helped to reduce procedure time due to its multi-functional characteristics; marking, incision, dissection, co-agulation and additional injection.

3. Final Pathology

Stomach, SET of Stomach, ESD: Gastritis cystica profunda

- Size: 25 mm
- SET of Stomach: Gastritis cystica profunda
- This case was an unusual presentation of Gastritis cystica profunda, mimicking SET.

4. Outcome/Follow-up

Procedure time: 25 minutes

Complications: None

Outcome: Clear resection margin. The patient was discharged from the hospital after 24 hours.

Follow up plan: Follow-up EGD after 12 months

5. Clinical Images





"Splash M-Knife is convenient for performing ESD procedure because this knife saves procedure time due to its multi-functions such as injection, pre-cutting and dissection even co-agulation. A complete ESD is not always necessary but is necessary in cases such as an exact diagnosis of lesion.

Particularly for fibrosis, this knife shows a strong advantage. Direct water injection into the submucosal layer is possible and this makes it easy to dissect the fibrotic tissue. In addition, the contact area of the tissue is wider than other knives, so it is able to catch the bleeding quickly."

Prof. Hyun-Gun, Kim
Soon Chun Hyang University Hospital Seoul, South Korea

Electrosurgical Unit (Erbe 300D)

Procedure	Mode	Effect	Watt	Duration	Interval	Max. Rated Voltage
Marking	Endocut I	1	-	3	3	
Marginal incision	Endocut I	1	-	3	3	
Submucosal dissection	Endocut I	1	-	3	3	
Hemostasis	Swift Coagulation	4	40	-	-	

LST of Rectum Case

1. Patient history and information

A 73-year-old male with no medical and family history had a 2.5 cm x 2.0 cm LST nodular mixed type with central dimpling. Previous biopsy result showed that it was Tubulovillous Adenoma under Type 2 and 2A in NICE and JNET classification. Pathological report showed that it was Tubulovillous Adenoma with Low Grade Dysplasia (TA-LGD).

2. ESD procedure/Treatment

He underwent endoscopic submucosal dissection (ESD). Saline with Indigocarmine mixture solution was used for submucosal injection.

According to the previous multiple biopsies performed at a local clinic, the lesion had a moderate to severe fibrosis in the center as well as a large central nodule. The knife was handy to dissect fibrotic tissue on the central lesion, and procedure time could be saved by direct injection of water during the procedure. And, bleeding during the procedure was easily controlled by smooth and effective hemostasis using the knife.

3. Final Pathology

Colon, LST of Rectum, ESD: TA-LGD

- Size: 2.5 cm x 2.0 cm
- Tubulovillous Adenoma with low grade dysplasia
- Clear resection margin

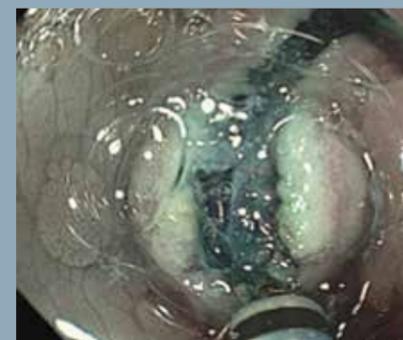
4. Outcome/Follow-up

Procedure time: 19 minutes

Complications: None

Outcome: Clear resection margin.

5. Clinical Images



LST of Hepatic flexure case

Electrosurgical Unit (Erbe 300D)

Procedure	Mode	Effect	Watt	Duration	Interval	Max. Rated Voltage
Marking	Endocut Q	2	-	2	3	
Marginal incision	Endocut Q	2	-	2	3	
Submucosal dissection	Endocut Q	2	-	2	3	
Hemostasis	Swift Coagulation	4	40	-	-	

1. Patient history and information

A 52-year-old male with no medical and family history; had 30 mm LST NG type at hepatic flexure on TC.

Previous biopsy result was Tubular adenoma and final pathology result also showed Tubular adenoma with focal high-grade dysplasia.

2. ESD procedure/Treatment

The patient underwent endoscopic submucosal dissection (ESD). Saline with Indigocarmine mixture solution was used for submucosal injection.

The lesion was NG type LST, *en-bloc* resection was planned. However, as the lesion was located at the hepatic flexure medial side on T-colon, dependent portion, the procedure needed very high techniques. Usually, I set Endo-cut I during the ESD, but Endo-cut I mode made some burning effect during incision with Splash M-Knife. I had to switch to Endo-cut Q mode during the next procedure. Moderate to severe fibrosis was diffusely observed on the entire lesion. Direct water injection into the submucosal layer using Splash M-Knife was very useful in dissecting the fibrotic tissues and shortened the procedure time.

3. Final Pathology

Colon, LST of Rectum, ESD: TA-LGD

- Size: 30 mm
- Tubular adenoma with focal high-grade dysplasia
- Clear resection margin

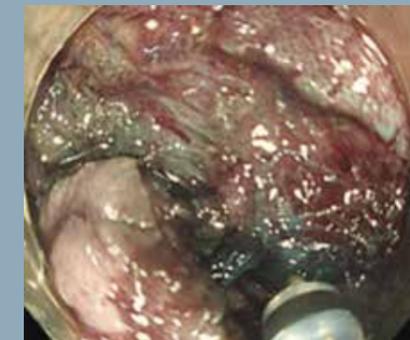
4. Outcome/Follow-up

Procedure time: 83 minutes

Complications: None

Outcome: Clear resection margin.

5. Clinical Images

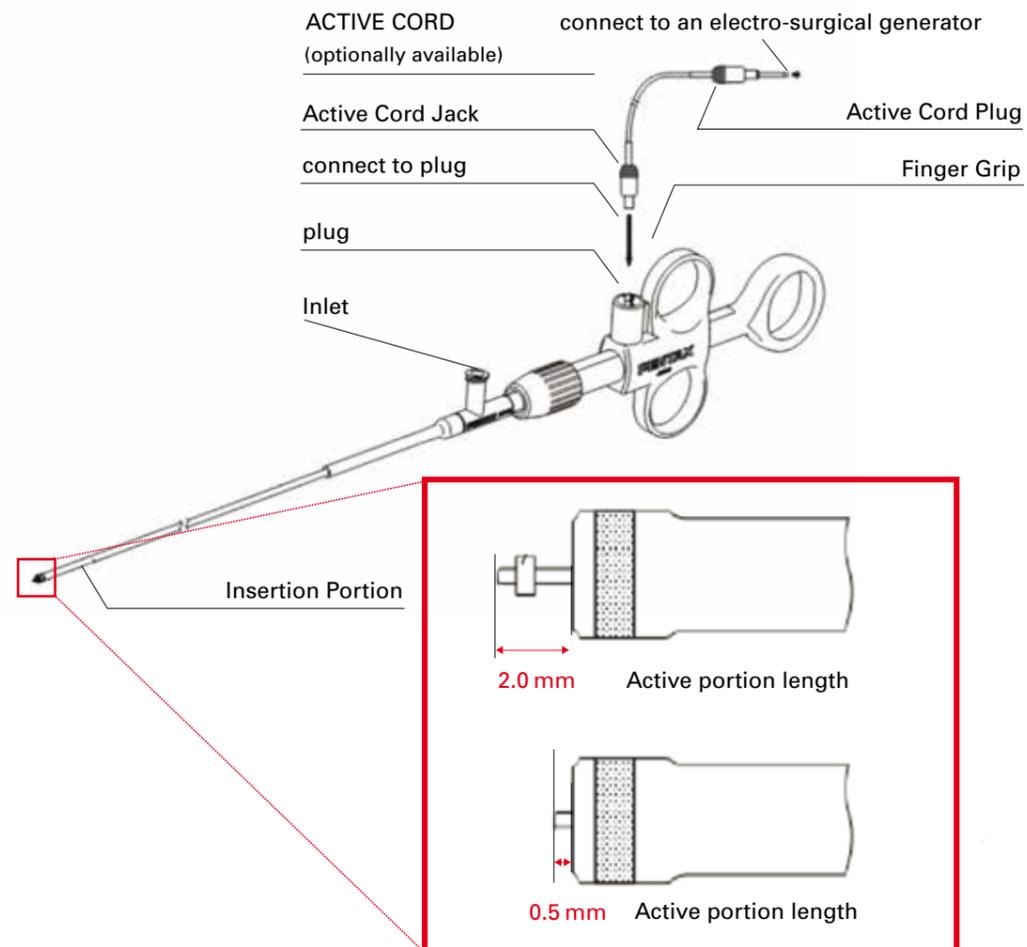


Splash M-Knife

Product Specifications



Product Name		DN-D2718B	DN-D2722B
Working Length		1800 mm	2200 mm
Maximum Insertion Portion Width		2.7 mm	2.7 mm
Active Portion Length	Extended	2.0 mm	2.0 mm
	Retracted	0.5 mm	0.5 mm
Compatible Endoscopes	Minimum Instrument Channel Width	2.8 mm or more	2.8 mm or more
	Working Length	1500 mm or less	1900 mm or less
Water Jet Function		Yes	Yes

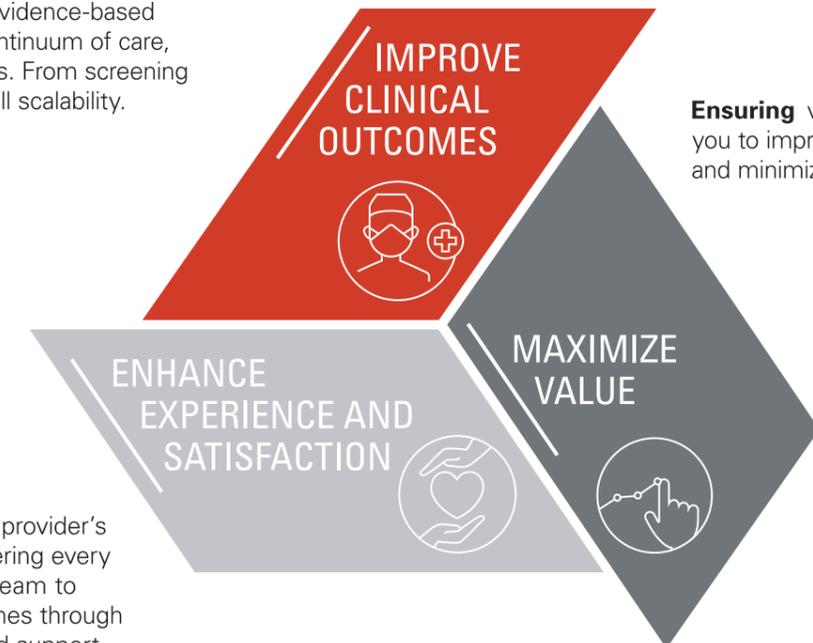


PENTAX Medical's Triple Aim

Our **Triple Aim** program is designed to deliver on our commitment to support you and your healthcare organization's wider objectives by providing programs, products and solutions to help you reach your goals.

Enabling you to improve patient outcomes by offering evidence-based solutions across the continuum of care, dedicated to your needs. From screening through therapy with full scalability.

Ensuring value by enabling you to improve your efficiency and minimize healthcare costs.



Enriching patient and provider's experience by empowering every member of your care team to achieve optimal outcomes through products, education and support.

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TÜV Süd CE0123 • Medical device class: IIb • This product must be used only by healthcare professionals. Before usage and for detailed product specifications, please refer to the instructions for use. In the interest of technical process, specifications may change without notice.

PENTAX
MEDICAL
Excellence in Focus