New Training Program and Modalities in Basic and Advanced EGD procedures

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Topics

• Endoscopy training with simulator
• Box simulator (BOXIM) workshop
• Description exercise (DEX) workshop
• How to learn ESD
• Unforgettable case
Endoscopy training with simulators
It is difficult for surgeons to learn endoscopy skills in Korea.

Gastroenterology Fellows alone

Anyone who wants to learn
Old style

2-3 observation sessions

Procedure alone

New style

Box simulator training (BOXIM)

Description exercise (DEX)

Book reading, EndoTODAY

Clinical observation

Procedure under supervision

CEE (off-line & on-line)
Box Simulator Training (BOXIM)

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I found a box simulator in 2005.
The first BOXIM training in SMC
What kind of simulators?
SMC clinical simulation center
- 5 Olympus endoscopy systems
Simulator room in the endoscopy unit
- 2 Fujifilm endoscopy systems
Rental endoscopes from Pentax
Home-made box for biopsy training
BOXIM workshop (x2/month)
Special BOXIM training for foreigners
- KINGCA2019 Master Class at SMC
BOXIM training outside SMC
- BDN (Boxim Dex Network)

Chungbuk University Hospital

Changwon Samsung Hospital
BOXIM training for medical students
- 성시경 (성균대학교 내시경 동아리)

The younger the better!
Program for BOXIM workshop

- 9:00-9:20 Lecture 1 – Introduction and torque rotation
- 9:20-10:20 Hands-on training 1
- 10:30-10:40 Lecture 2 – Ergonomics and biopsies
- 10:40-11:40 Hands-on training 2
- 11:40-12:00 Lecture 3 – Taking pictures and writing endoscopy reports
- 12:00-13:00 Self training
How to hold the endoscopes

**Bad**

*Two* finger method:
Endoscope is unstable and the forearm is painful.

**Good**

*Three* finger method:
Endoscope is quite stable and there is no forearm pain.
How to prevent endoscopists’ thumb
- DeQuervain’s tenosynovitis of the left thumb
Rotating the scope by the **torque rotation** of the boots portion
Torque rotation is like twisting the axis of a clock by rotating the minute hand.
Torque rotation by **lifting** the boots portion

Hands-on training 1: 내시경 삽입법 훈련

▶ 위치부 후벽 소만을 따라 삽입하기
Passing the throat (Video)

Hands-on training 1: 내시경 삽입법 훈련

Lt pyriform sinus 접근
Many surgeons are coming.
DEX workshop

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Description exercise workshop (DEX)
- an interactive course
How to learn ESD

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The first report on EMR for EGC in Korea

EMR for adenocarcinoma: 19 cases

- operation(+) 7 cases
- operation(-) 12 cases
- 4 resection margin(+)
- 1 incomplete resection
- 2 F/U GFS, recur

Surgical specimen

F/U gastroscopy

cancer(+) 5
cancer(-) 2
cancdr(+) 4
cancer(-) 8

Depth of burning

Poor surgical disease free

Invasion effect

Condition: for 3~13 mo

Low age

(group A) (group B) (group C) (group D)

Lee JH. Korean J Gastrointest Endosc 1996;16:928-934

Endoscopy
- O-240, O-260


Electrosurgical unit
- ERBE ICC 200, ERBE W0030D

Injection needle
- Olympus NM 200L-0423

Needle knife
- Olympus KD 1L-1, KD 100-1

TT knife
- Procure the latest information from the Endo Today site or other reputable sources.

Submucosal injection
- Normal saline 500 ml * 0.4% indigocarmine 10 ml + 1:1000 epinephrine 2.5 ml

Hot biopsy forceps
- Boston Scientific, Microvasive, RADIAL, JW 3

Injection needle
- Olympus NM-200L-0423

Transparent hood
- 2 mm, 4 mm

Petri dish
- Sterilized plastic petri dish

Overtube
- EVL, V

Clipping device
- Olympus HC-6UR-1

Xylocaine jelly
- AstroZeneca 2% (20mg in 1 ml)

Nasal prong
- Disposable, single-use, non-reusable

Address solution
- Sodium bicarbonate 250 ml, sodium chloride 50 ml

http://endotoday.com/endotoday/200406_ncc.html
Tips for ESD (天機漏洩)

EMF, ESD를 시행할 때에 어떤 내시경을 사용하는지 집중하시는 분이 많습니다. 원칙적으로 어떤 내시경을 사용해야 무방하다고 생각합니다. 저는 최근 GIF-Q240을 주로 사용하고 있으며 현재에는 GIF-XQ240을 많이 사용하였습니다. O type의 XQ type에 비해 insertion tube와 outer diameter가 약 2mm 정도 두껍습니다.(2% 차이), 이러한 두께의 차이는 해당 예방적인 내시경 의사 및 보조도로 인해 적절하게 증가합니다. 외란가 부분은 중대한 일 importância 합니다. 보다 중요한 차이는 O type의 insertion tube가 약간 더incinn하다는 점입니다. XQ type은 더욱 flexible하며 전단용으로는 좋으나 치료내시경으로는 O type보다 주로 많이 사용하는 데 적합합니다. 약간صير함 내시경에 치료용으로는 더 좋습니다. O type의 당열은 가격이 다소 비싸다는 점입니다.

위 그림의 제작 사용하는 두 종류의 내시경을 이용한 시술 장면을 capture한 것입니다. GIF-XQ240의 경우 화면이 정사각형으로 나오는 반면 GIF-Q240은 가로와 높이가 같은 직사각형 화면입니다. 처음에는 의사암력이 약간 무지개형과 느껴질 수 있으나 시술을 할 때 마다 전화 본투가 달라지는 정면으로 느껴집니다. 영연한 전단기 모듈로 240 series model에 비해 200 series model의 화질이 더 좋으며, 같은 series에서는 XQ type의 화질에 비하여 O type의 화질이 훨씬 우수합니다. H type는 다다로 좋은 화질을 가지고 있으나 저는 아직 H type으로 EMF를 시행하고 있는 중입니다. (2005, 4, 1)]
Early personal experience of gastric ESD (2005)
ESD for EGC in Korea
- From Nov 2011 – Dec 2014

• Number of ESD for EGC cases: 23,828

• Age: 64.9 +/- 9.9 years (median: 66)

• Male: female = 74.2% : 25.8%

• Hospital stay: 5.0 days

• Medical cost in 2014: 1,510,000 won (1,305 US dollars)

• Surgery within 3 months after ESD: 6.6%

Park CM. 24th KCHUGR Annual Scientific Meeting (2016-12-3)
Treatment of gastric cancer at SMC

In 2015

MERS outbreak

Surgery

ESD
Must knows before starting ESD

• Indications and skills for careful endoscopic evaluation for candidate lesions
• Advantages and disadvantages of each instrument
• Strategies for technically successful ESD
• How to manage complications

• Side by side hands-on training
IT knife and needle-type knife

- Mucosectom
- Flush knife
- Dual knife
- ClutchCutter
- B knife
- Flex knife
- Hook knife
- SAFE knife
- Needle knife
- IT knife
- TT knife
- IT knife2
- SB knife Jr.
ESD knives with water-jet function
H-type ESD knife
- IT-type function + needle type function
ESD using H type ESD knife

Benign ulcer  EGC

I-type tip

O-type tip

W/D tubular adenocarcinoma 10mm in lamina propria, RM (-), L/V (-/-)
ESD using ONESTEP ESD knife
- Both injector and ball-type knife in a single catheter

ENDO-UPEX
ONESTEP
ESD KNIFE

Injector

Ball type knife
병소경계 5mm 바깥에 marking proximity 부위에 추가 marking

충분한 접막하 주사 후 ①, ②, ③의 순서로 marking 5mm 바깥쪽 접막을 충분히 cutting.
Muscularis mucosae 가 완전히 cutting 되어 접막하층이 충분히 보존 되도록
Location matters.

M/D, 8x8mm, MM, RM (-), L/V (-/-)
A large loop approach
Most perforations can be treated endoscopically without surgery

- Primary closure of perforation

Tubular adenocarcinoma (M/D), in lamina propria, RM (-)
When the resection is big and close to the cardia or pylorus, short-term oral steroid can be used.

8 weeks later

6 months later
The hospital stay for gastric ESD is usually 4 days.
For the beginners, hands on training using a pig stomach model is very useful.
ESD hands-on training
- KINGCA2019 Master Class at SMC
Side by side hands-on training
- Changing the role of the main operator and the first assistant
The first ESD of a young fellow endoscopist
Tele-mentoring using Facetime is a very useful tool for ESD beginners.

International mentoring is also possible. If you want some real-time comments from me, send me an e-mail (stomachlee@gmail.com).
Unforgettable case

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ESD for EGC in an surgical ICU
- on ECMO due to dilated cardiomyopathy and waiting for heart transplantation
During the pre-cardiac transplantation workup, an EGC was found. → ESD
ESD for EGC in a patients on ECMO
- Tubular adenocarcinoma, M/D, 16x7mm, MM, L/V/N (-/-/-)
Take home message

• Learning endoscopy starts with box simulators trainings and description exercises in SMC.
• BOXIM and DEX workshops are open not only to physicians but also to surgeons.
• Starting the role of the first assistant is the beginning of learning ESD techniques.