Diagnostic and therapeutic endoscopy training with simulators

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Diagnostic endoscopy training

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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)
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)

Boxim at Jeju University Hospital (2019-10-5)
BOXIM training for medical students
- 성시경 (성균대학교 내시경 동아리)

The younger the better!
Program for BOXIM workshop

• 9:00-9:10 Lecture (1) - Introduction and learning EGD skills
• 9:10-10:00 Hands-on training (1). How to hold the endoscope, torque rotation, and from the cardia to the angle
• 10:00-10:10 Break
• 10:10-11:00 Hands-on training (2) - From the angle to the end of the examination, biopsy
• 11:00-11:10 Lecture (2) - Passing the throat, Biopsy techniques, Taking pictures
• 11:10-12:00 Hands-on training (3) - Passing the throat and taking biopsy
• 12:00-13:00 Self training with Anymedi simulator
Stepwise Endoscopy Training

- Clinical case
- Anymedi simulator
- Biopsy training
- New Koken simulator
- Old Koken simulator
- Endoscope handling and torque rotation
Stepwise gastroscopy training
Colonoscopy BOXIM
ESD training

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Stepwise ESD training

- Patient
- Live pig
- Ex-vivo pig stomach
- Artificial layer (EndoGEL)
- Basic training with bag and brush
1. Basic training with bag and brush

- Movement of ESD knife is mostly circular and horizontal.
- For the training of knife control in the circular and horizontal direction, I developed training modules.
- ESD bags for circular training
- ESD brushes for horizontal training
Circular movement training with biopsy forceps on the ESD bag.
Horizontal movement training with biopsy forceps on the ESD brush
2. Artificial layer (EndoGEL)
Artificial mucosa (EndoGEL) for gastric ESD hands-on training
EngoGEL + gastroscopy simulator
Platforms for EndoGEL ESD
EndoGEL ESD using needle type knife and traction method
EndoGEL ESD hands-on at KDDW2019
EndoGEL ESD training can be done at any place even at a conference booth.

Live demonstration and hands on training at KDDW 2019.
3. Ex-vivo pig stomach ESD
Ex-vivo pig stomach ESD should be done in a special facility (animal lab)
4. Live pig ESD
- Songdo Olympus Training Center
5. 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).
### 1 week ESD training course at SMC

<table>
<thead>
<tr>
<th>Time</th>
<th>Schedule</th>
<th>Tutor</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>Monday AM</td>
<td>Orientation and introductory lectures</td>
<td>LJH, MYW</td>
<td>Conference room</td>
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<tr>
<td>Monday PM</td>
<td>ESD hands-on training 1 (EndoGEL)</td>
<td>LJH</td>
<td>Simulator room</td>
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<tr>
<td>Tuesday AM</td>
<td>Observation: stomach ESD</td>
<td>MBH, LH</td>
<td>Cancer center endoscopy room</td>
</tr>
<tr>
<td>Tuesday PM</td>
<td>Observation: stomach ESD</td>
<td>LJH</td>
<td>Cancer center endoscopy room</td>
</tr>
<tr>
<td>Tuesday 17:00-18:00</td>
<td>ESD conference - previous week case review</td>
<td>MBH, LH, MYW</td>
<td>Conference room</td>
</tr>
<tr>
<td>Wednesday AM</td>
<td>Observation: stomach ESD</td>
<td>LJH</td>
<td>Main building endoscopy room</td>
</tr>
<tr>
<td>Wednesday PM</td>
<td>Observation: colon ESD</td>
<td>KER</td>
<td>Main building endoscopy room</td>
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<tr>
<td>Thursday AM</td>
<td>ESD hands-on training 2 (EndoGEL or live pig*)</td>
<td>LJH</td>
<td>Animal lab</td>
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<tr>
<td>Thursday PM</td>
<td>ESD planning session - next week cases</td>
<td>LJH, MYW</td>
<td>Conference room</td>
</tr>
<tr>
<td>Friday AM</td>
<td>Observation: EGD and ablation treatment</td>
<td>LJH</td>
<td>Main building endoscopy room</td>
</tr>
<tr>
<td>Friday PM</td>
<td>Observation: colon ESD</td>
<td>HSN</td>
<td>Main building endoscopy room</td>
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</tbody>
</table>

* Live pig ESD hands-on session will be prepared if the number of trainee is 4 or more.
* One day live pig hands-on session is open to everyone, if available.
# 2020년 삼성서울병원 
내시경 교육 안내

삼성서울병원은 내시경을 처음 배우는 분이나 경험이 많지 않은 분들에게 도움이 될 수 있는 체계적인 내시경교육과정을 개설하였습니다. 여러 분들의 많은 참여를 부탁드립니다.

프로그램 책임자 이훈철 교수(삼성서울병원 소화기내과, 내시경실장)

| 주관 | 삼성서울병원 내시경교육연합
| 주최 | 삼성서울병원 소화기내과 내시경실
| 장소 | 삼성서울병원 내시경실(삼성서울병원 소화기내과 내시경실)
| 대상 | 내시경에 관심있는 의사(전 내과과 전형 가능)

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<tr>
<th>교육 과정</th>
<th>교육 일정 및 시간</th>
<th>등록비</th>
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<tbody>
<tr>
<td>DEX : Description Exercise</td>
<td>9:00~12:00, 2/2, 4/19, 10/18</td>
<td>10만원/인</td>
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<tr>
<td>내시경 병소 사진을 통한 description 연습</td>
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<tr>
<td>G-BOXIM : Gastroscopy BOX simulator training</td>
<td>9:00<del>13:00 / 13:30</del>17:30, 1/18, 2/1, 3/7, 5/10, 11/15</td>
<td>50만원/인</td>
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<td>상부내시경 Hands-on 실습</td>
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<tr>
<td>CoL-BOXIM : Colonoscopy BOX simulator training</td>
<td>9:00<del>13:00 / 13:30</del>17:30, 4/18, 6/14, 9/20, 12/20</td>
<td>30만원/인</td>
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<td>대장내시경 Hands-on 실습</td>
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<tr>
<td>ESD-EndoGEL™ : Endoscopic Submucosal Dissection Training</td>
<td>9:00~12:00, 4/11, 9/12</td>
<td>50만원/인</td>
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<td>인공조직을 활용한 ESD 실습</td>
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| 신청 | 원내 DARWIN - 원내공동 - 나의정보 - 교육과정 수강신청 (등록비 전액 지원)
|      | (외부) 삼성서울병원 교육인재개발훈련 홈페이지 게시판 참조
| 문의 | DEX - 은상교육파트 dm613.lee@samsung.com, 02-3410-3678
|      | 교육운영팀 aerin.yoon@samsung.com, 02-3410-3099
Cooperation with foreign doctors

- Training-the-trainer sessions
- Gastroscopy simulator hands-on
- Colonoscopy simulator hands-on
- EndoGEL ESD hands-on
- Live pig ESD hands-on
- 1 week ESD training course at SMC
Take home message

• Diagnostic and therapeutic endoscopy simulators are very useful tools for the endoscopy beginners.

• Learning for diagnostic endoscopy and ESD should be stepwise.