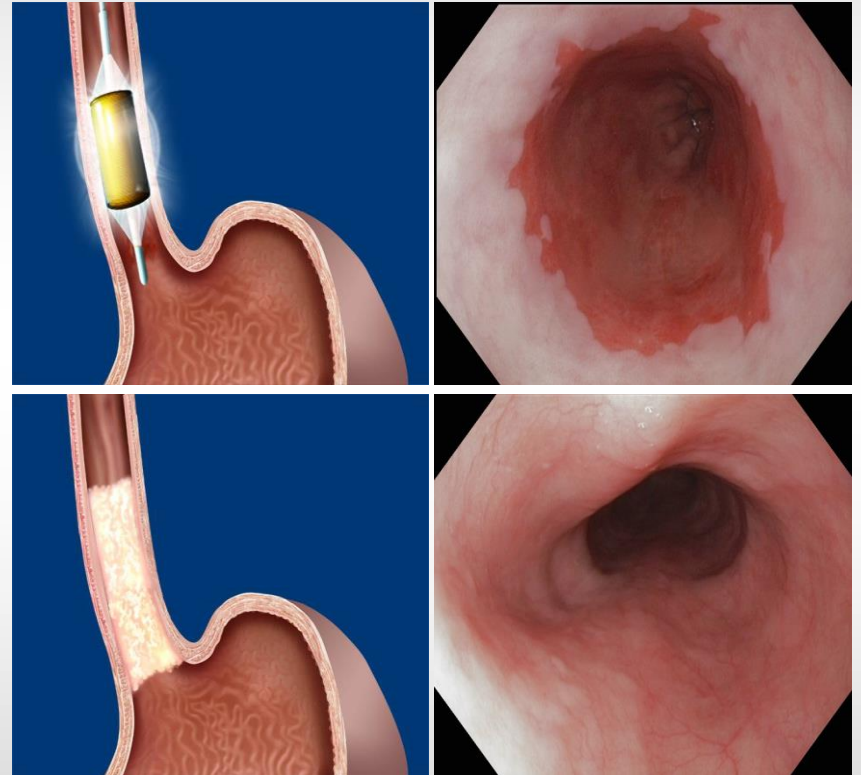
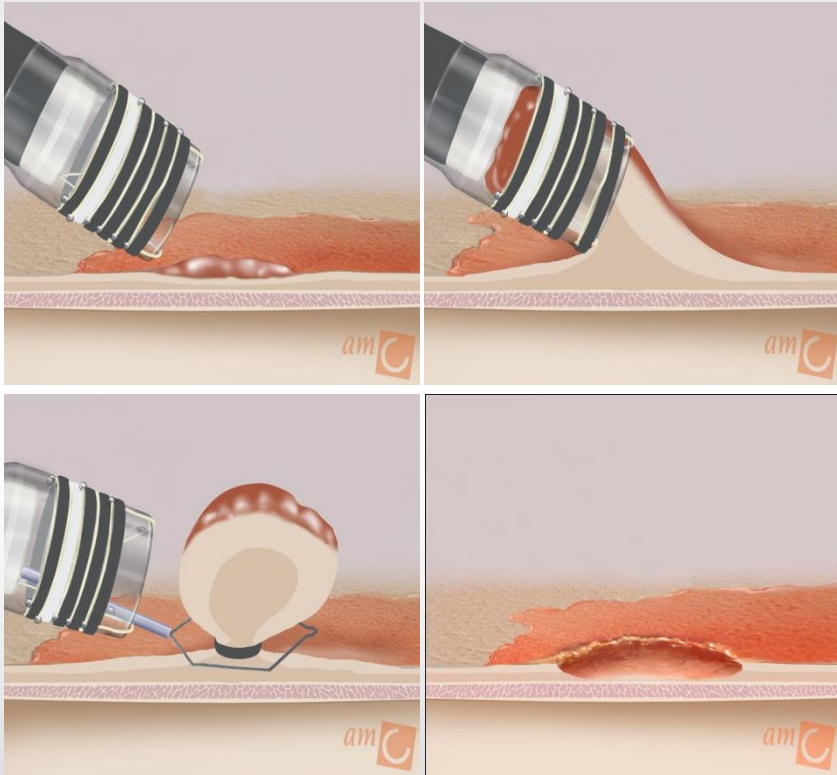
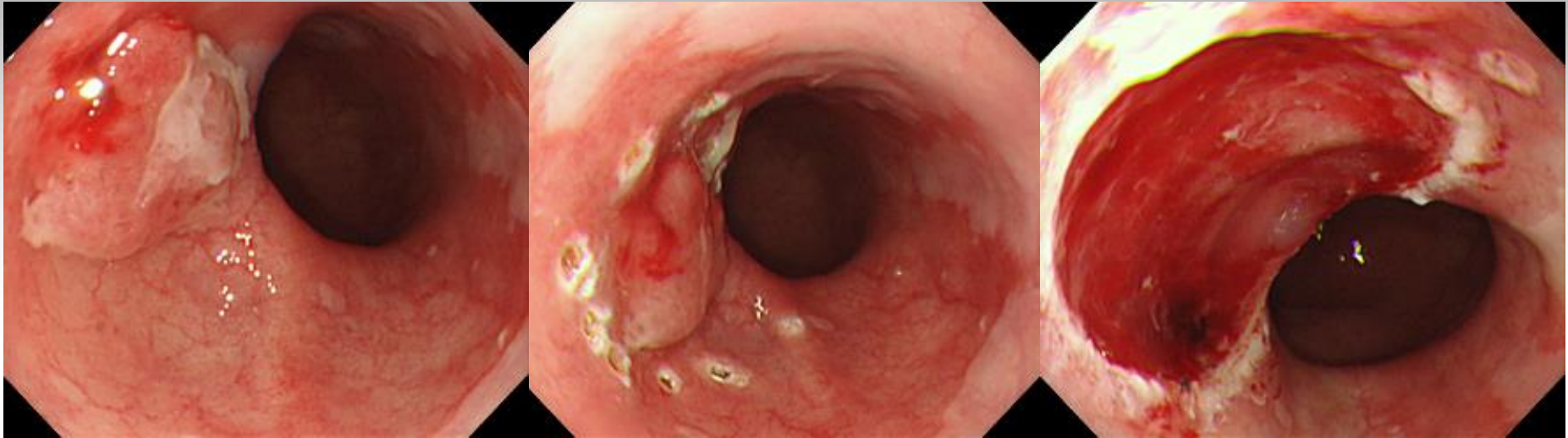


# Endoscopic management of early esophageal neoplasia



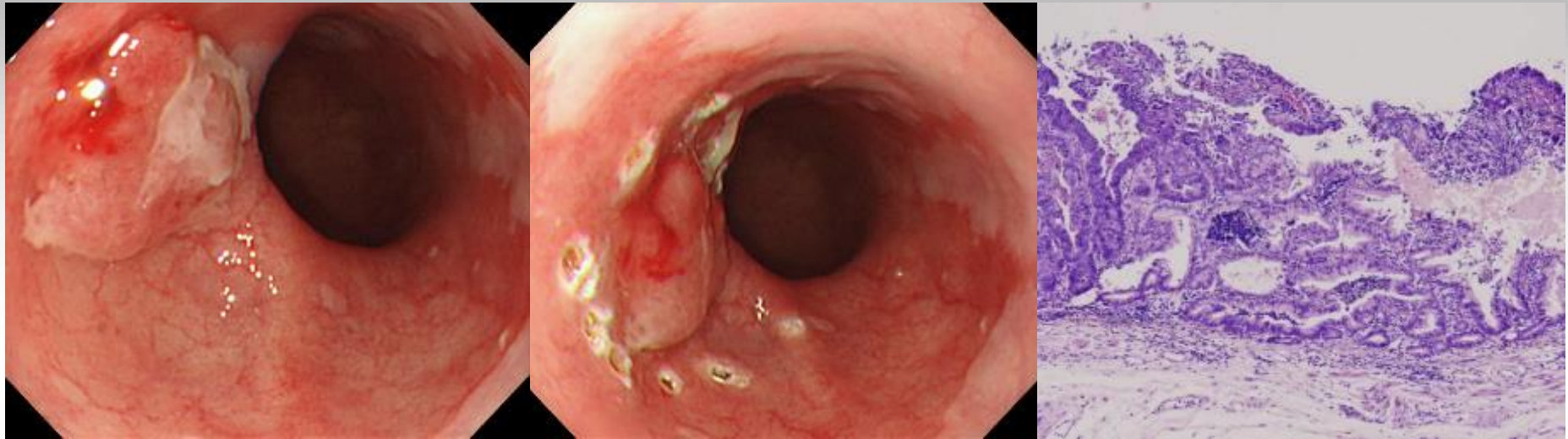
*Jacques Bergman, Academic Medical Centre Amsterdam*

# Endoscopic Resection (ER)



- ER allows for histological correlation, enabling optimal selection of patients for endoscopic treatment.
- The *ONLY* reliable way to distinguish mucosal from submucosal cancers.

# Endoscopic Resection (ER)



- ER allows for histological correlation, enabling optimal selection of patients for endoscopic treatment.
- The *ONLY* reliable way to distinguish mucosal from submucosal cancers.

# Why mucosal?

|                  | Lnn ⊕<br>mucosal ca | Lnn ⊕<br>submucosal<br>ca |
|------------------|---------------------|---------------------------|
| Barrett's cancer | 2.0%                | 24.6%                     |
| Squamous cancer  | 3.6%                | 26%                       |

*Gotoda 2000; Peters 1994; Ruol 1999; Nigro 1999; Sandick 2000;  
Stein 2000; Rice 2001; Fernando 2002; Yoshinaka 1991; Nishimaki 1993;  
Nabeya 1993; Nagawa 1995; Bonavina 1997; Endo 1997; Tachibana 1997;  
Matsubara 1999; Tajima 2000; Fujita 2001; Araka 2001; Nakjima 2002*

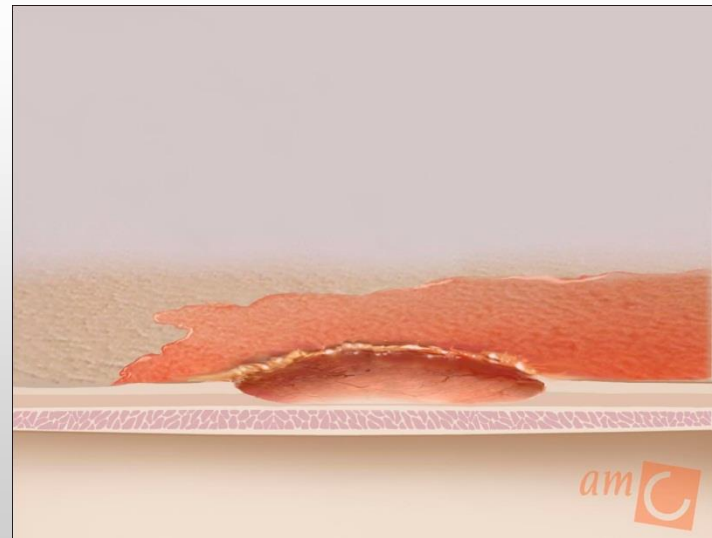
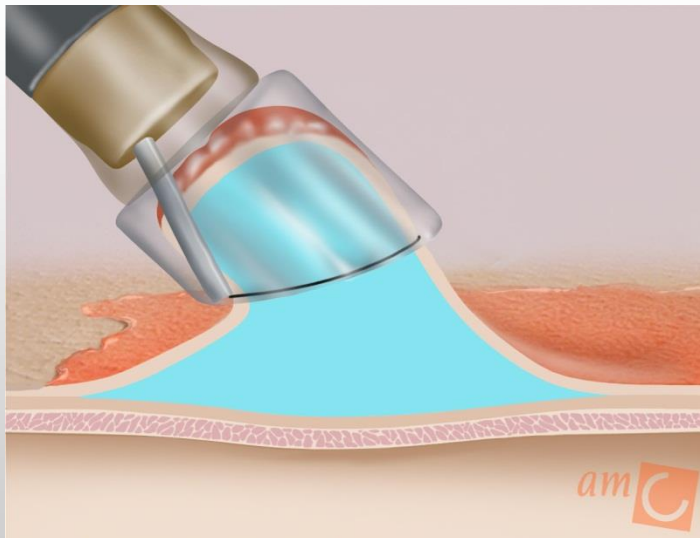
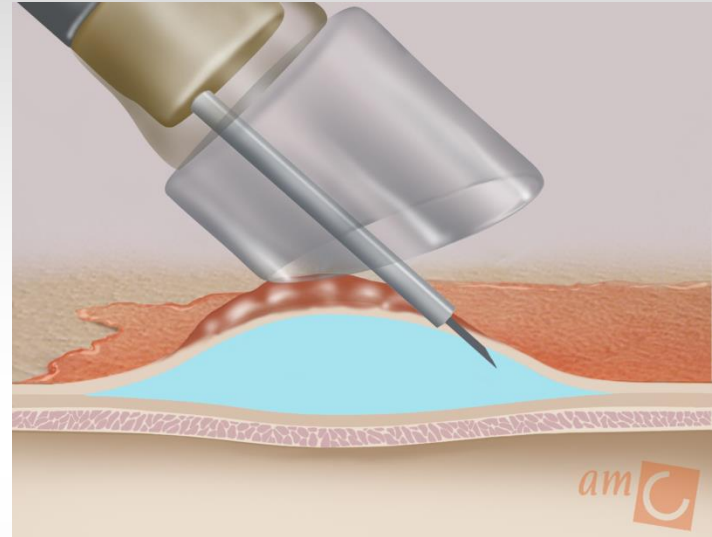
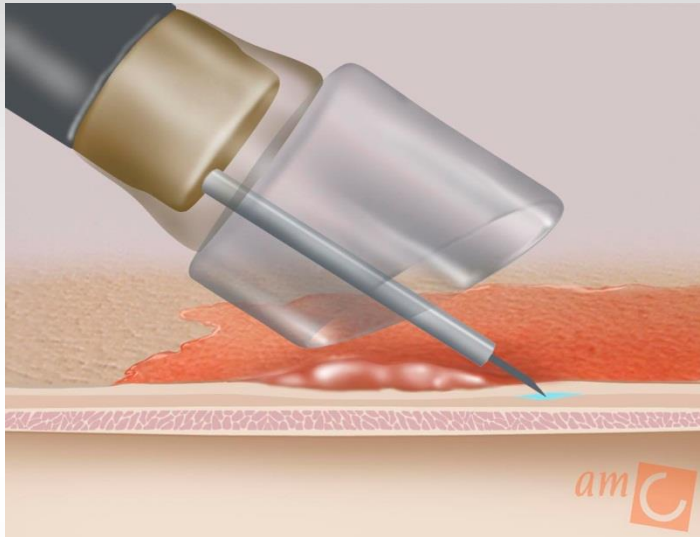
# Why mucosal?

|                  | Lnn ⊕<br>mucosal ca | Lnn ⊕<br>submucosal<br>ca |
|------------------|---------------------|---------------------------|
| Barrett's cancer | 2.0%                | 24.6%                     |
| Squamous cancer  | 3.6%                | 26%                       |

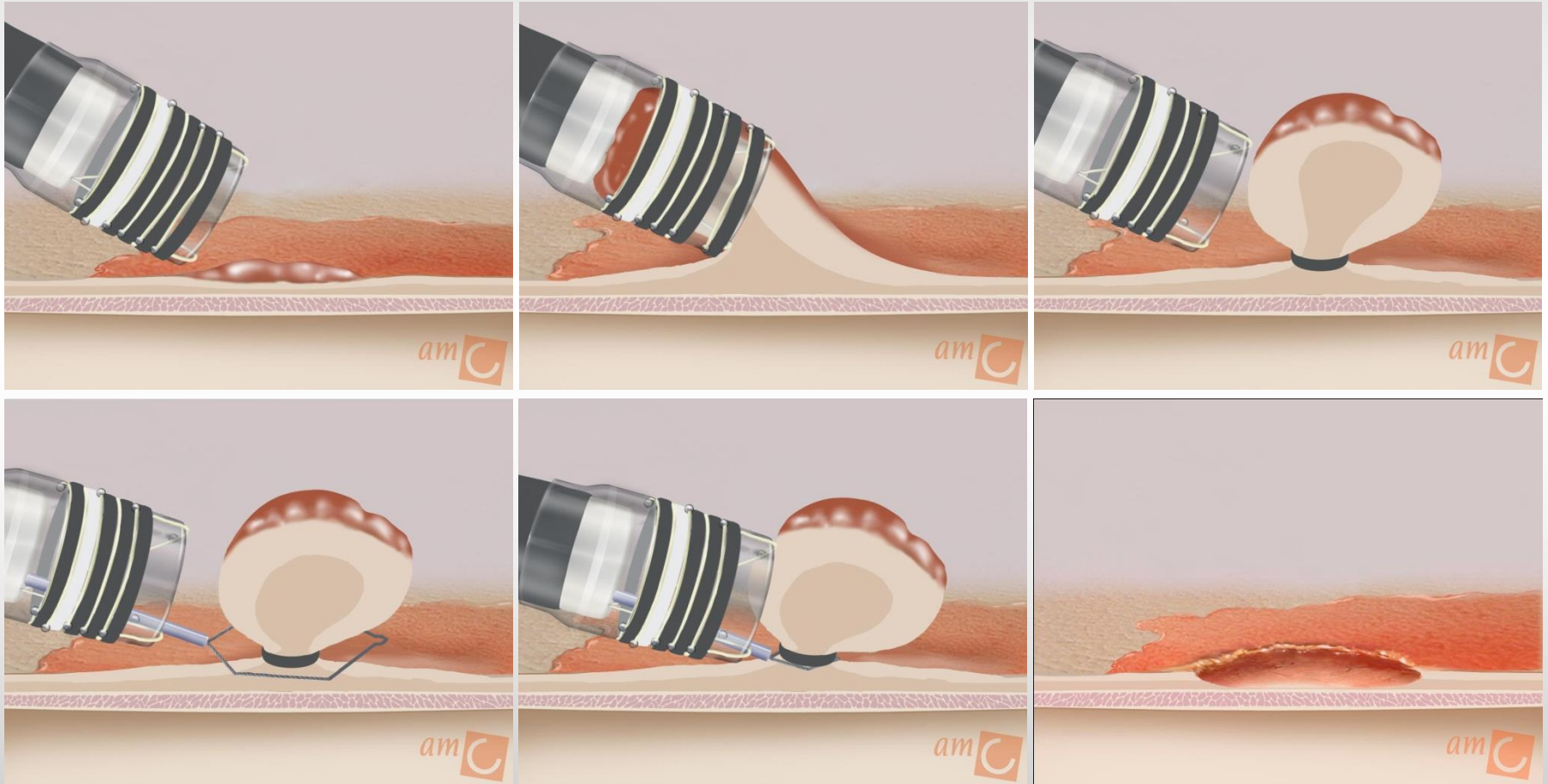
*Gotoda 2000; Peters 1994; Ruol 1999; Nigro 1999; Sandick 2000;  
Stein 2000; Rice 2001; Fernando 2002; Yoshinaka 1991; Nishimaki 1993;  
Nabeya 1993; Nagawa 1995; Bonavina 1997; Endo 1997; Tachibana 1997;  
Matsubara 1999; Tajima 2000; Fujita 2001; Araka 2001; Nakjima 2002*



# EMR-cap technique

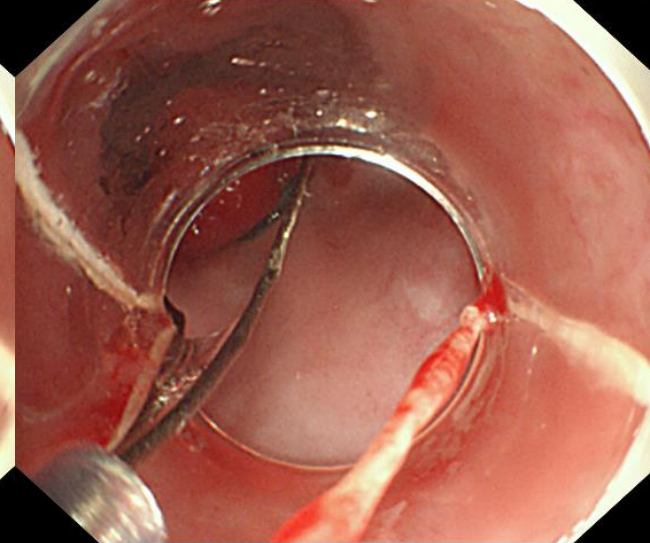
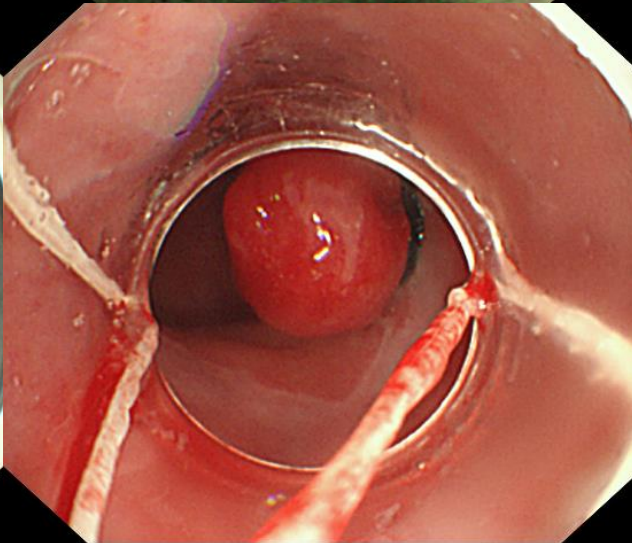
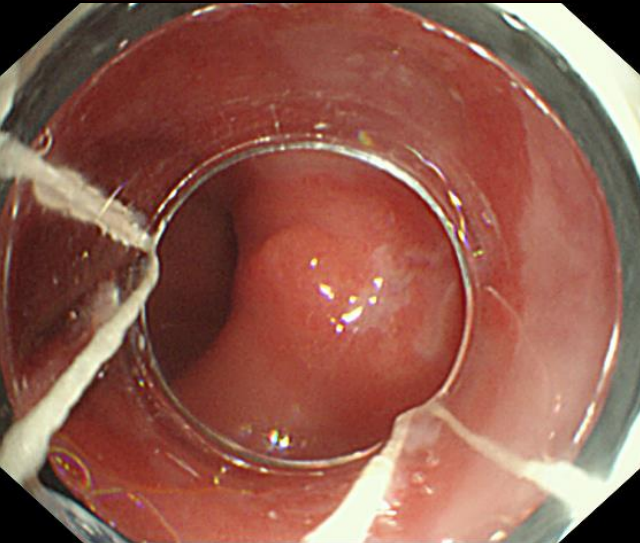
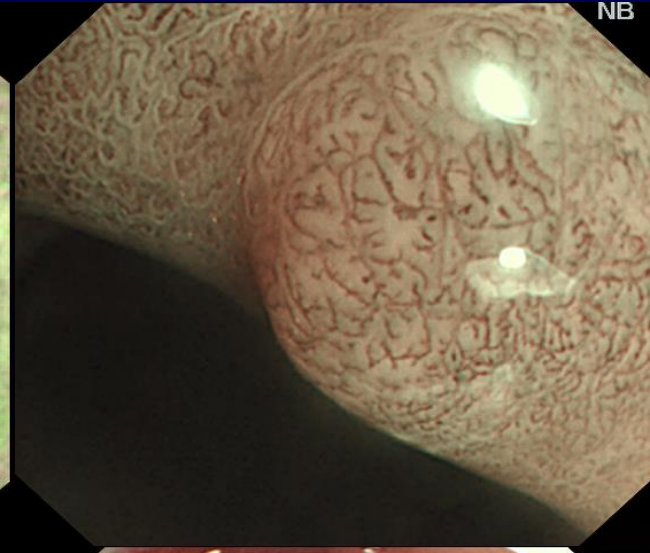
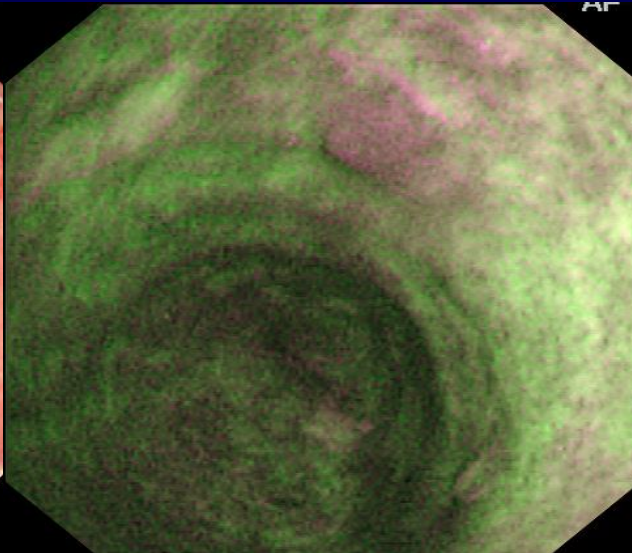
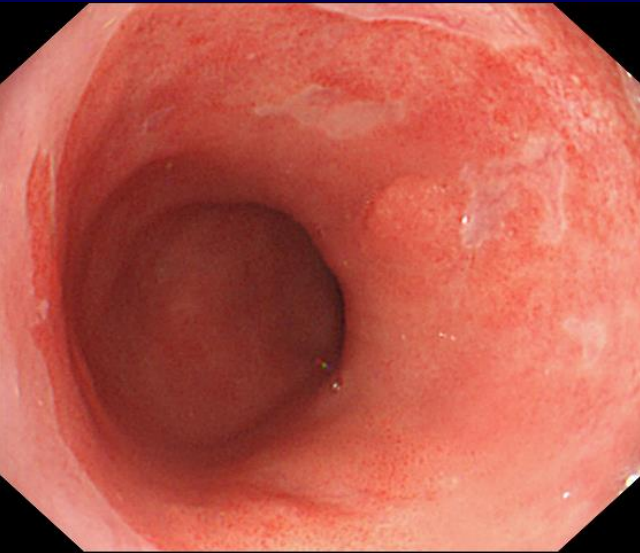


# Multiband Mucosectomy



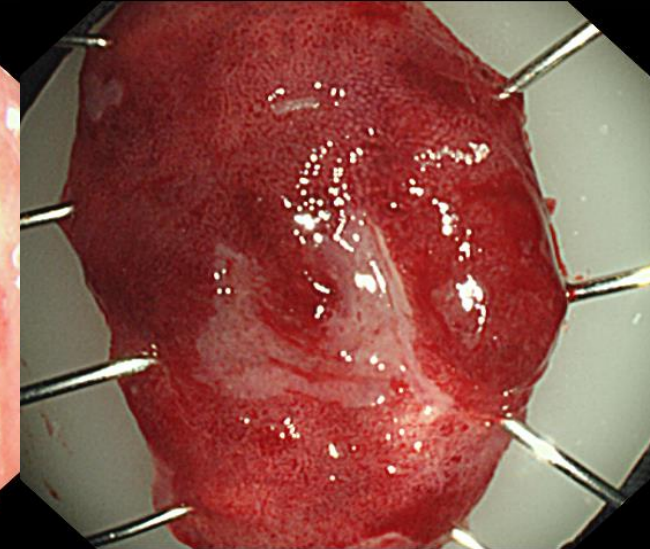
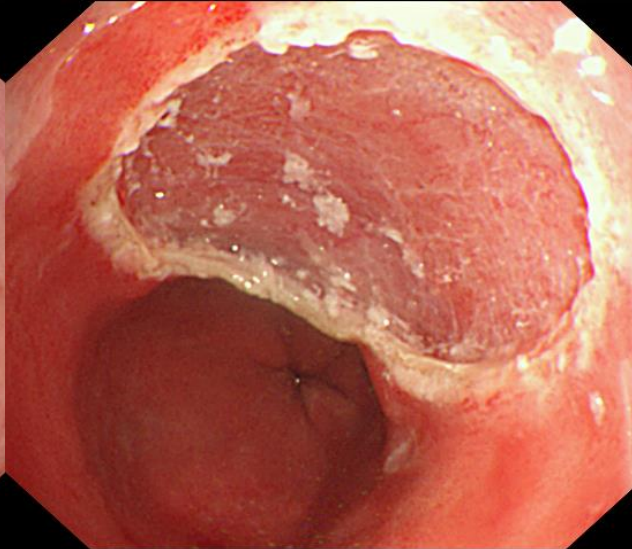
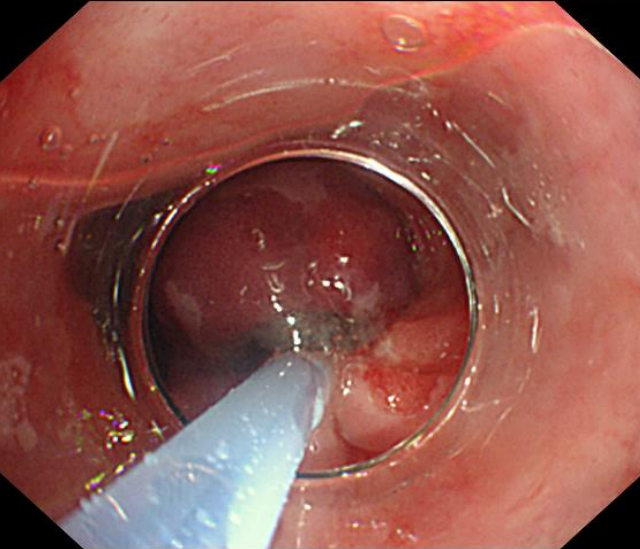
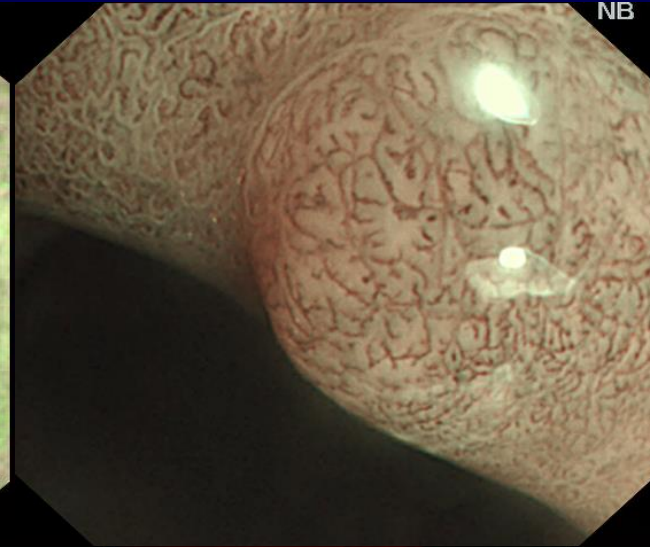
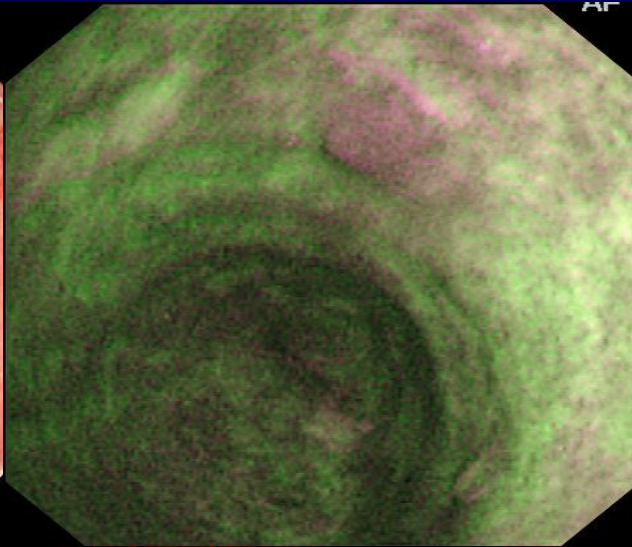
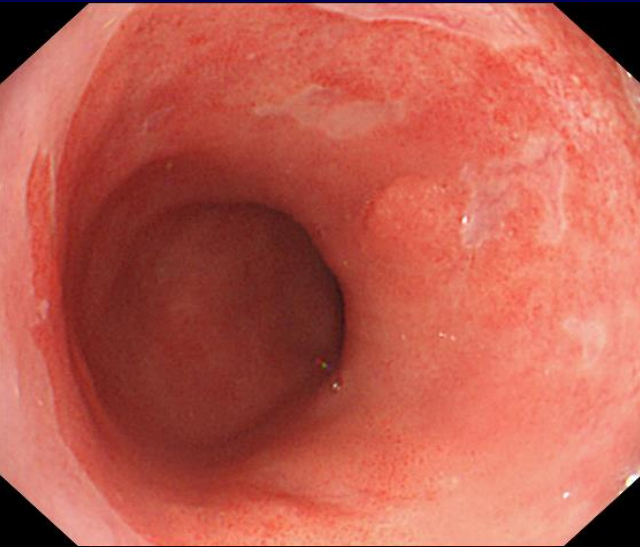


# Multiband Mucosectomy





# Multiband Mucosectomy



# Multiband Mucosectomy

- RCT of ER-cap vs. MBM (*Pouw et al. Gastrointest Endosc 2011*):  
*MBM is easier, quicker, cheaper, maybe safer.*
- *Alvarez-Herrero et al. Endoscopy 2011:*  
*1060 MBM resections, no perforations, 91% complete resection rate.*
- MBM is probably the preferred technique for ***focal ER*** of lesions in BE.

# Focal EMR leads to disease recurrence

|                           | Median FU | Metachronous lesions | Effective endo Tx |
|---------------------------|-----------|----------------------|-------------------|
| May <i>et al.</i> 2005    | 30 mo     | 30%                  | 100%              |
| Peters <i>et al.</i> 2005 | 24 mo     | 27%                  | 100%              |



# Focal EMR leads to disease recurrence

|                           | Median FU | Metachronous lesions | Effective endo Tx |
|---------------------------|-----------|----------------------|-------------------|
| May <i>et al.</i> 2005    | 30 mo     | 30%                  | 100%              |
| Peters <i>et al.</i> 2005 | 24 mo     | 27%                  | 100%              |

- Effective endoscopic therapy in all recurrences.
- Nevertheless, strict endoscopic follow-up is imperative.

# Focal EMR leads to disease recurrence

|                           | Median FU | Metachronous lesions | Effective endo Tx |
|---------------------------|-----------|----------------------|-------------------|
| May <i>et al.</i> 2005    | 30 mo     | 30%                  | 100%              |
| Peters <i>et al.</i> 2005 | 24 mo     | 27%                  | 100%              |

- Effective endoscopic therapy in all recurrences.
- Nevertheless, strict endoscopic follow-up is imperative.
- Recurrence rate < in patients in whom all BE is removed.

*Manner et al. Endoscopy 2013*

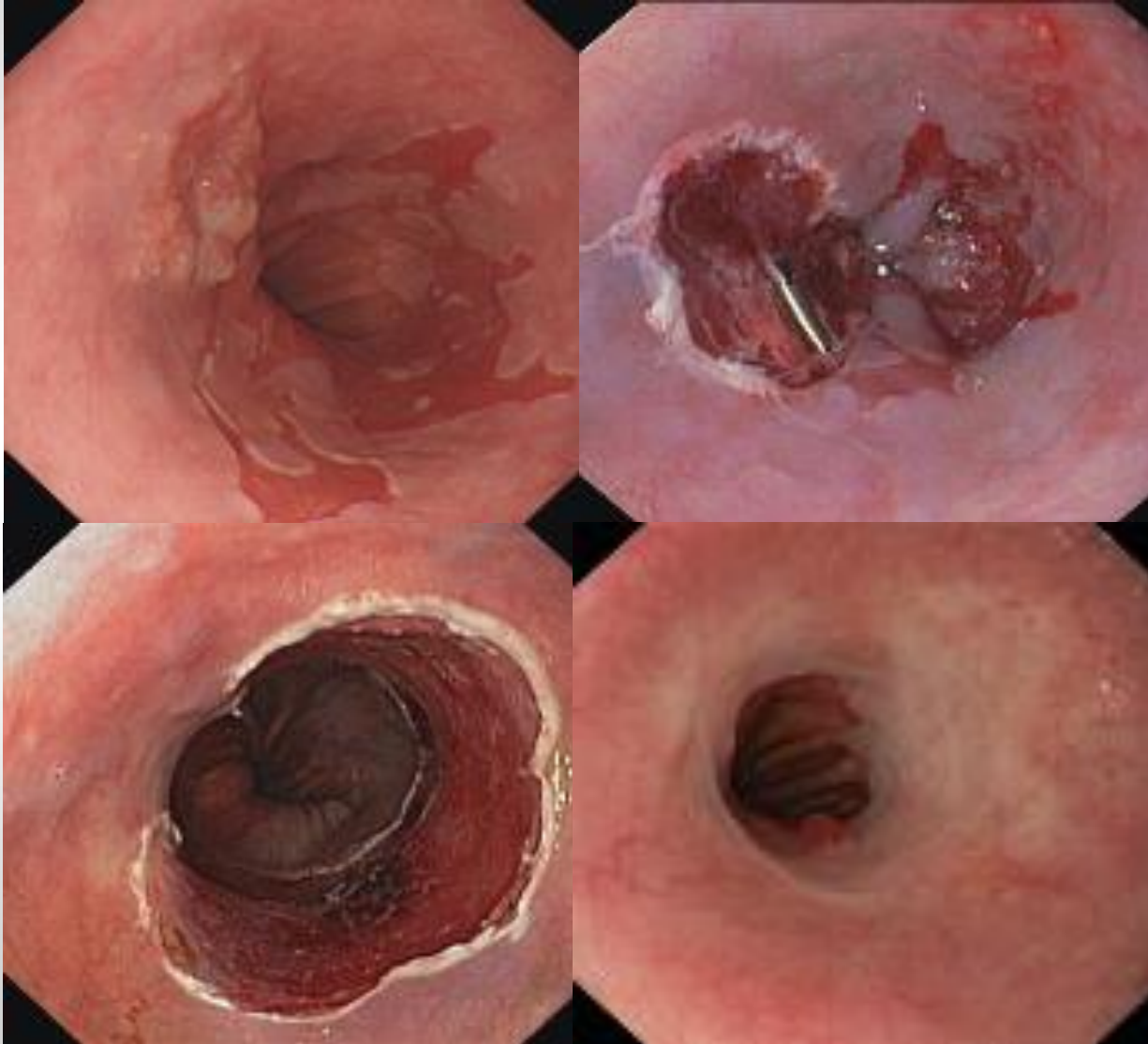
# Focal EMR leads to disease recurrence

|                           | Median FU | Metachronous lesions | Effective endo Tx |
|---------------------------|-----------|----------------------|-------------------|
| May <i>et al.</i> 2005    | 30 mo     | 30%                  | 100%              |
| Peters <i>et al.</i> 2005 | 24 mo     | 27%                  | 100%              |

*Ultimate solution:  
Removal of the whole BE*



# Stepwise radical endoscopic resection



# Stepwise radical endoscopic resection



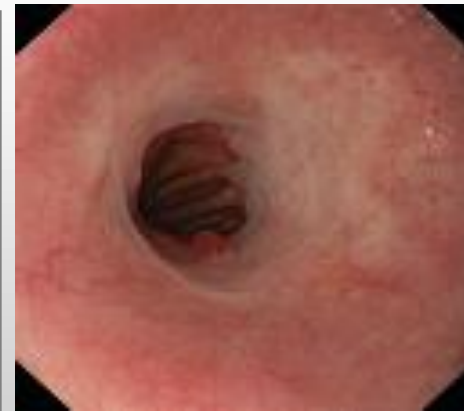
161 patients with HGD or EC



Stepwise Radical  
Endoscopic Resection



Universitätsklinikum  
Hamburg-Eppendorf



# Stepwise radical endoscopic resection

161 patients with HGD or EC

```
graph TD; A[161 patients with HGD or EC] --> B[158 complete removal of all HGD/EC  
Success rate: 98.1%]; B --> C[Median FU 32 mo:  
Recurrence: 1.9%  
(all effectively treated)];
```

158 complete removal of all HGD/EC  
Success rate: 98.1%

Median FU 32 mo:  
Recurrence: 1.9%  
(all effectively treated)

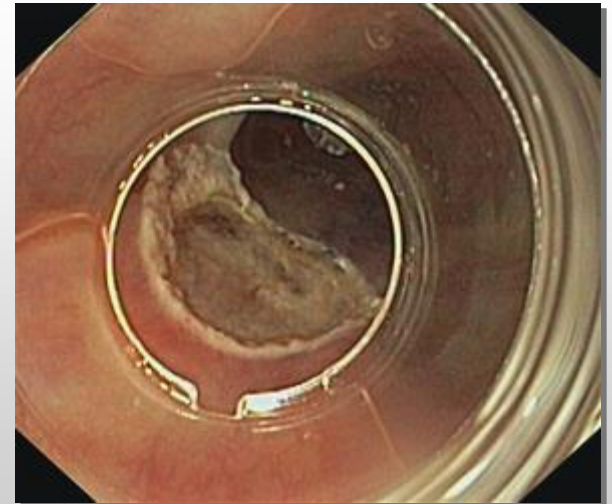
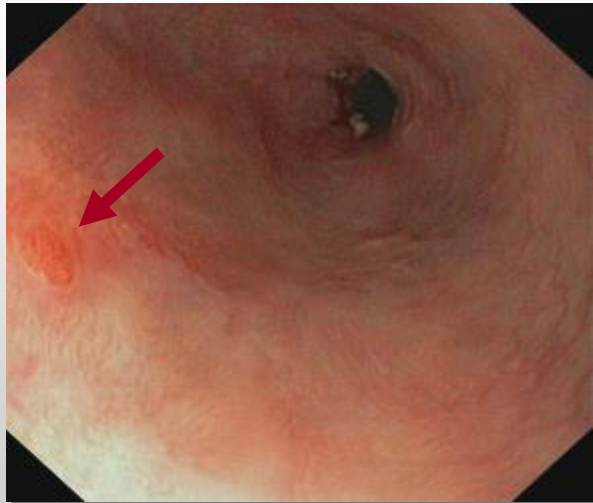


# Stepwise radical endoscopic resection

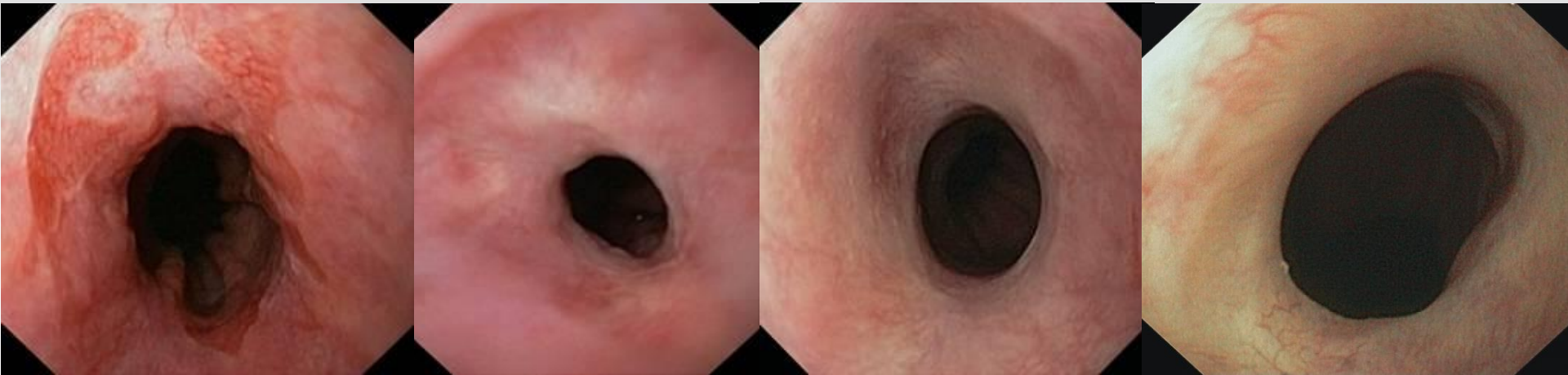
161 patients with HGD or EC

158 complete removal of all HGD/EC  
Success rate: 98.1%

Median FU 32 mo:  
Recurrence: 1.9%  
(all effectively treated)



# Stenosis of SRER



*pre-SRER*

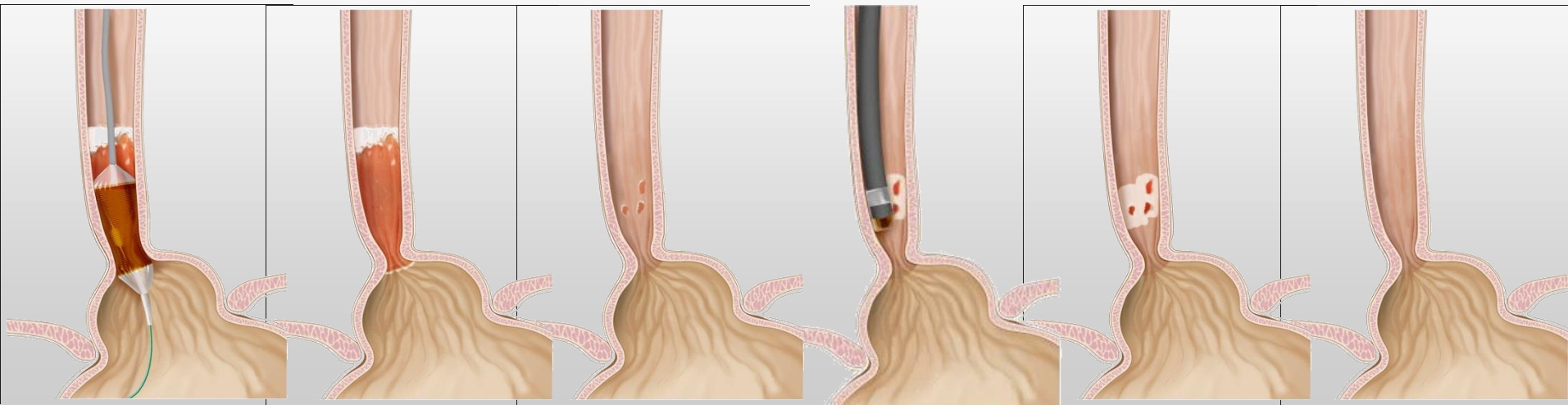
*after SRER*

*after dilation*

*5-yr follow-up*

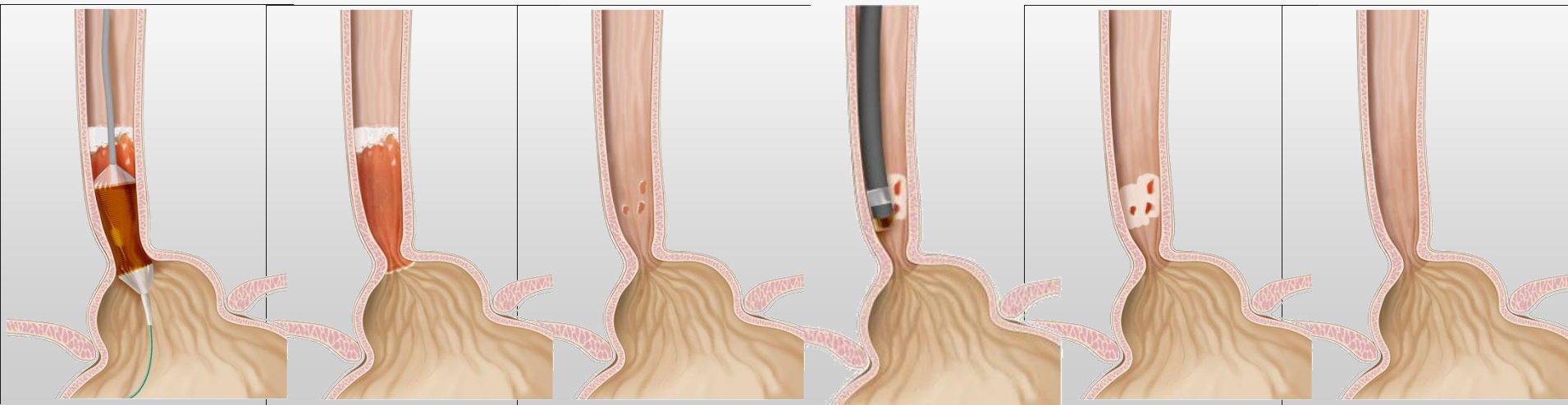
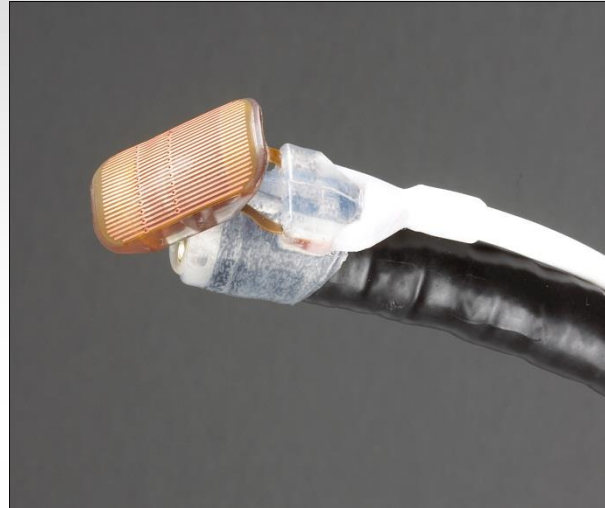
- Symptomatic stenosis in **49.7%** of patients.
- Only for patients with BE < 5 cm in length.
- Technically demanding.
- Do we really have to resect the whole BE?

# Radiofrequency ablation (RFA)



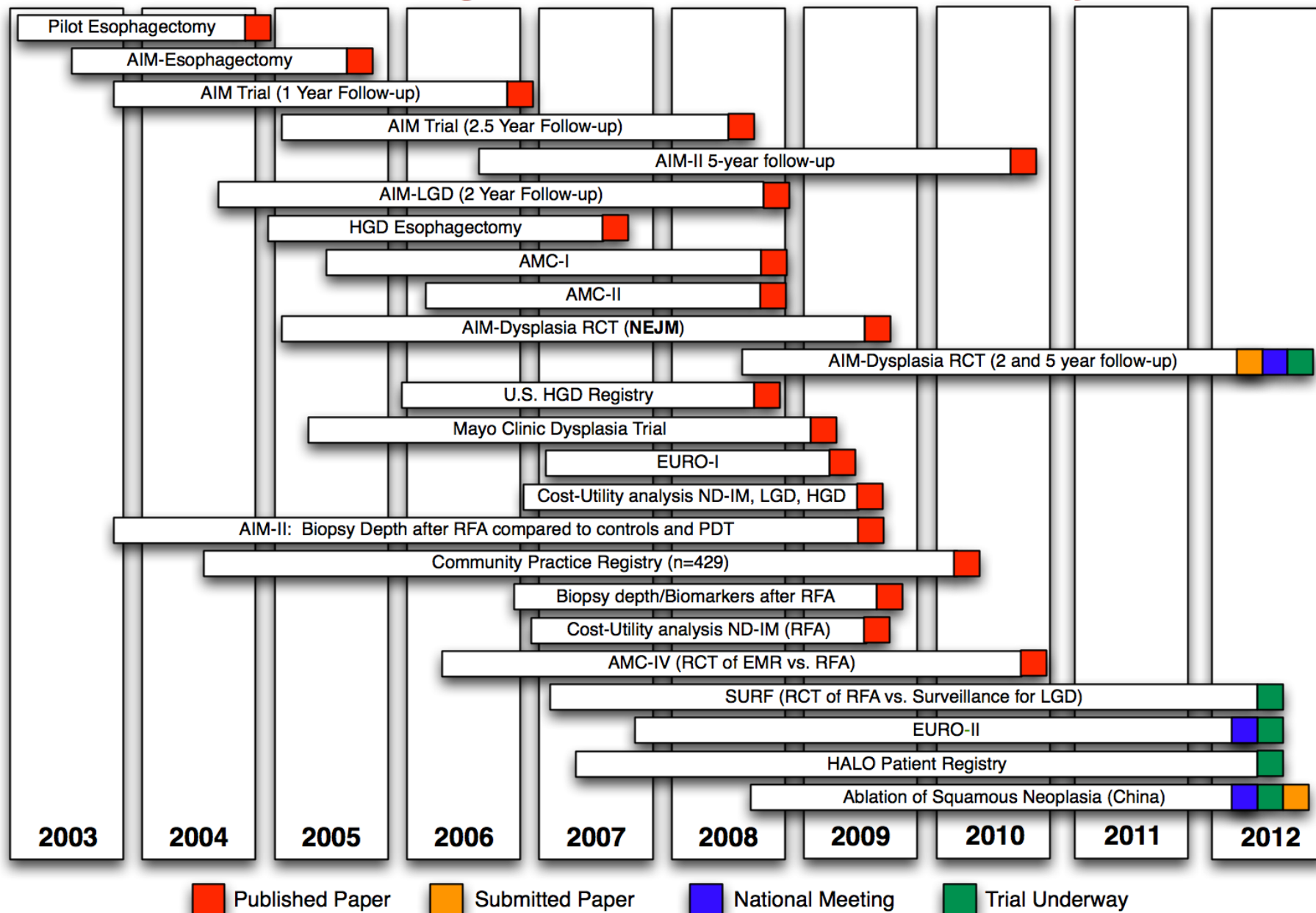


# Radiofrequency ablation (RFA)



# Clinical Trial Timeline

## Studies Assessing the HALO<sup>90</sup> and HALO<sup>360</sup> Ablation Systems



# EURO-II Study



**Städt. Klinikum Karlsruhe**  
gemeinnützige Gesellschaft mbH



**Universitätsklinikum  
Hamburg-Eppendorf**

# EURO-II Study

- 13 leading centres in Europe;
- ER+RFA for HGD/EC in Barrett's
- 132 patients enrolled.
- Eradication of dysplasia and IM >95%.
- 46 months FU
- Persistent remission in 96%

ULB



Nuffield Hospitals

Digestive  
Diseases

EVANGELISCHES  
KRANKENHAUS

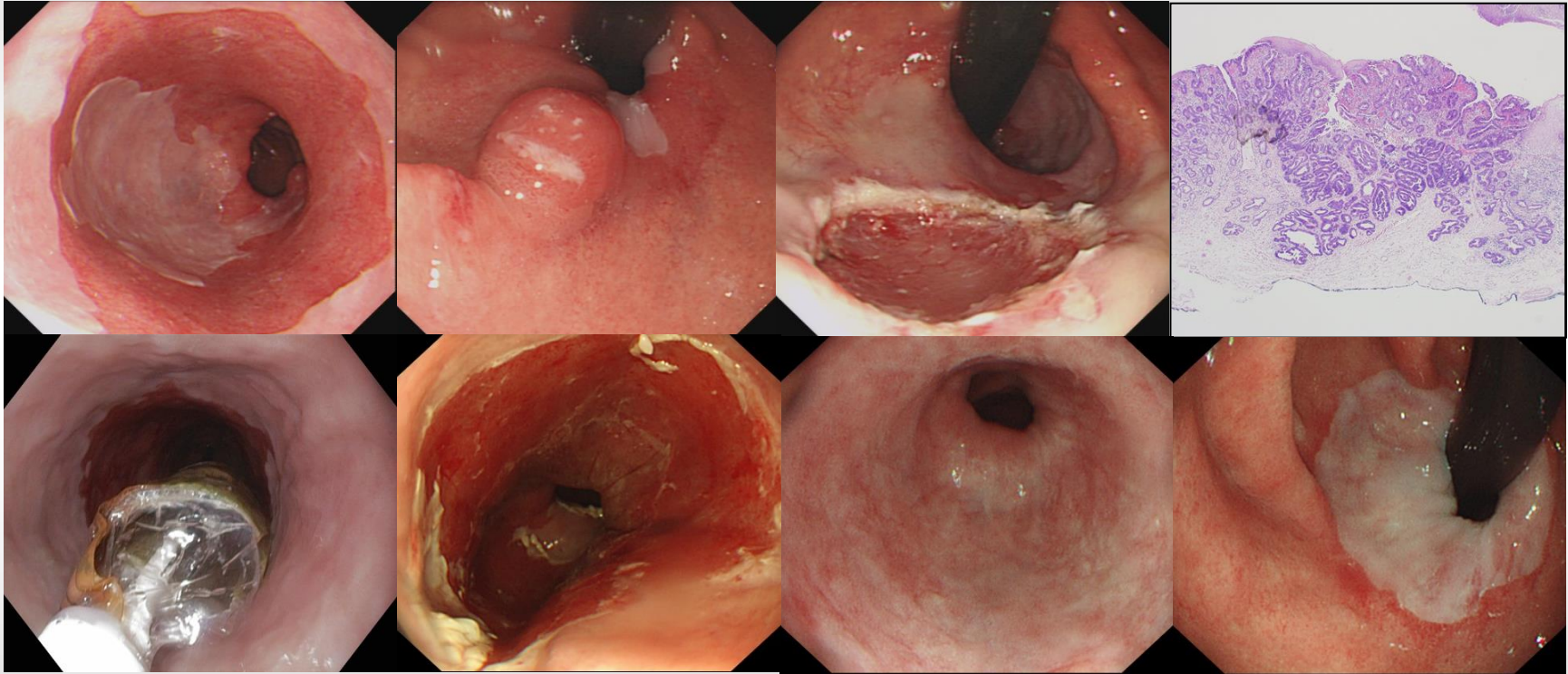


Städt. Klinikum Karlsruhe  
gemeinnützige Gesellschaft mbH



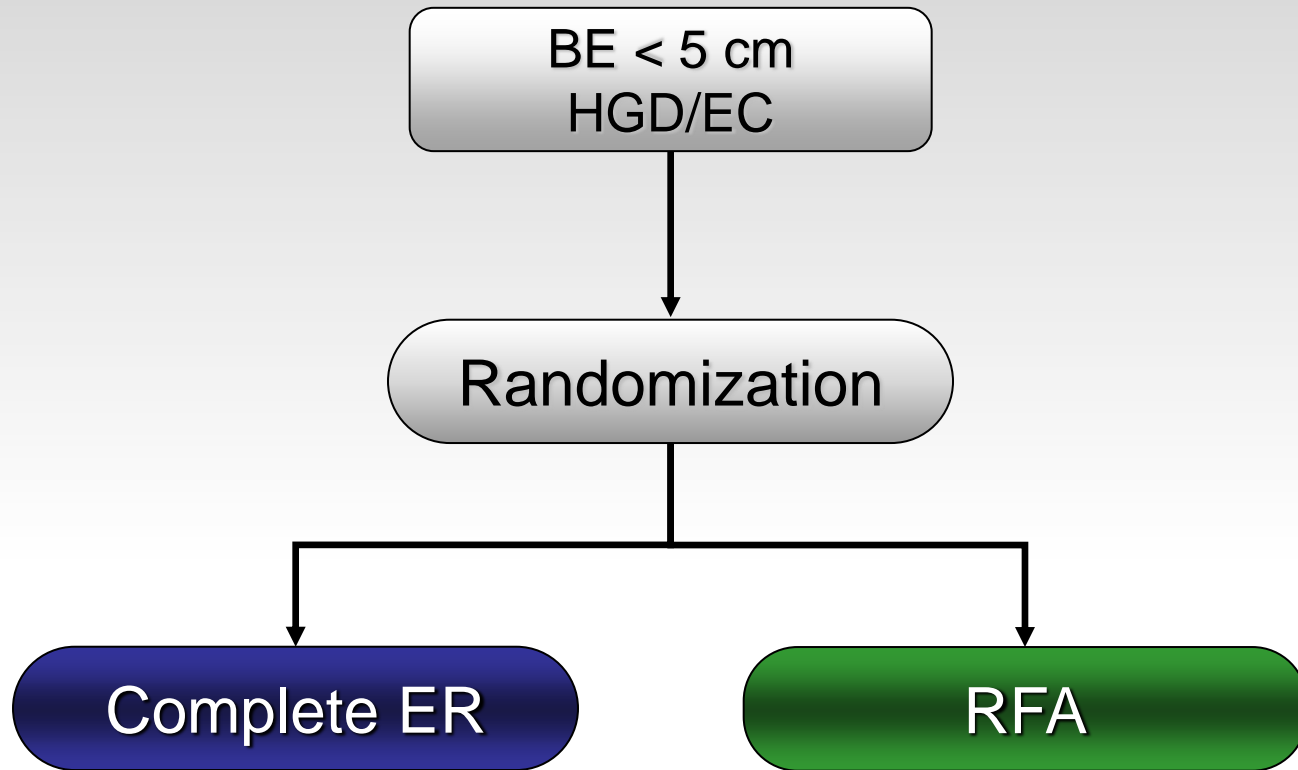
Universitätsklinikum  
Hamburg-Eppendorf





# Complete ER or ER+RFA combi?

*Van Vilsteren et al. Gut 2011*



# Complete ER or ER+RFA combi?

*Van Vilsteren et al. Gut 2011*

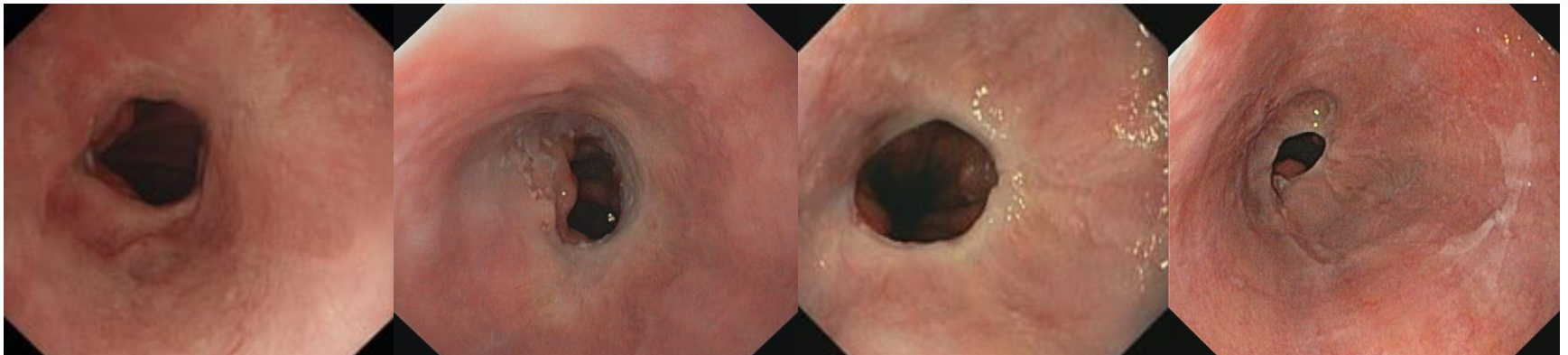
|                          | Complete ER<br>(n=25) | ER+RFA<br>(n=22) |
|--------------------------|-----------------------|------------------|
| Eradication of neoplasia | 100%                  | 96%              |
| Recurrence of neoplasia  | 4%                    | 0%               |

# Complete ER or ER+RFA combi?

*Van Vilsteren et al. Gut 2011*

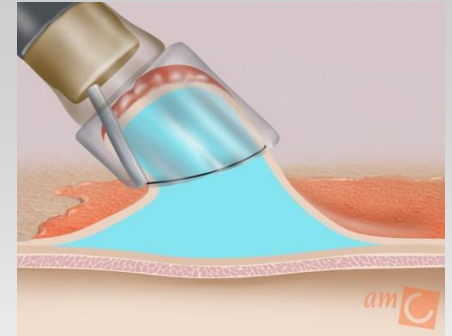
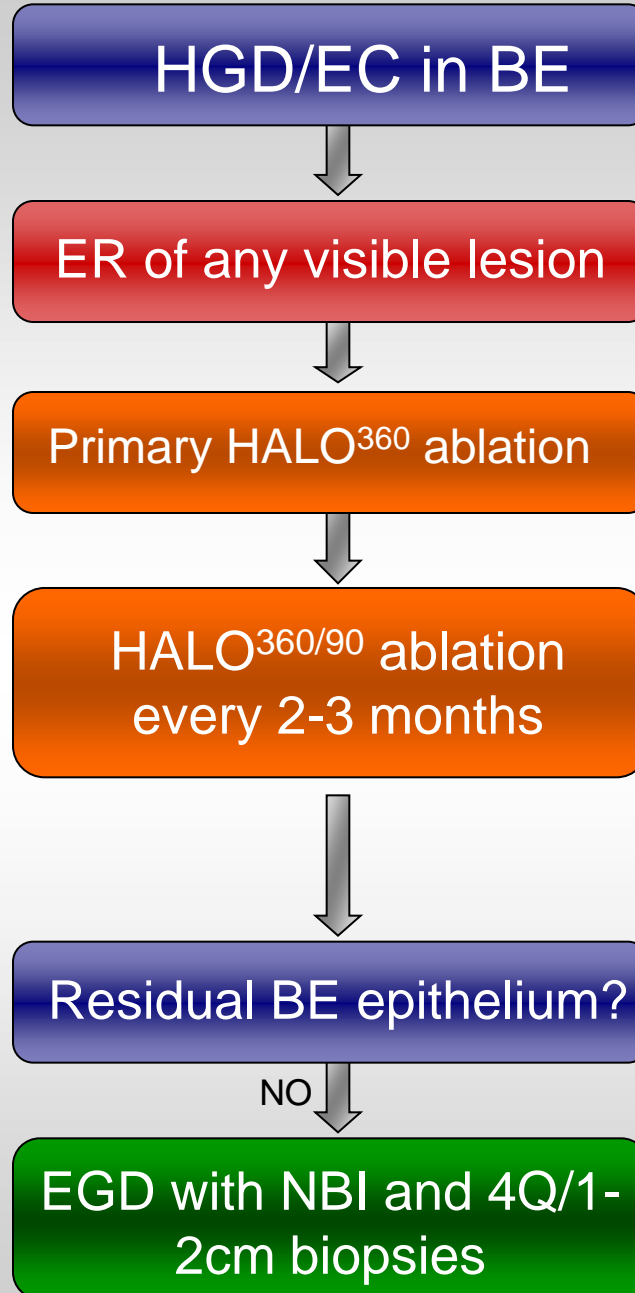
|                             | Complete ER<br>(n=25) | ER+RFA<br>(n=22) |
|-----------------------------|-----------------------|------------------|
| Eradication of neoplasia    | 100%                  | 96%              |
| Recurrence of neoplasia     | 4%                    | 0%               |
| Stenosis                    | 88%*                  | 15%*             |
| Total no treatment sessions | 6*                    | 3*               |

\*P<0.001



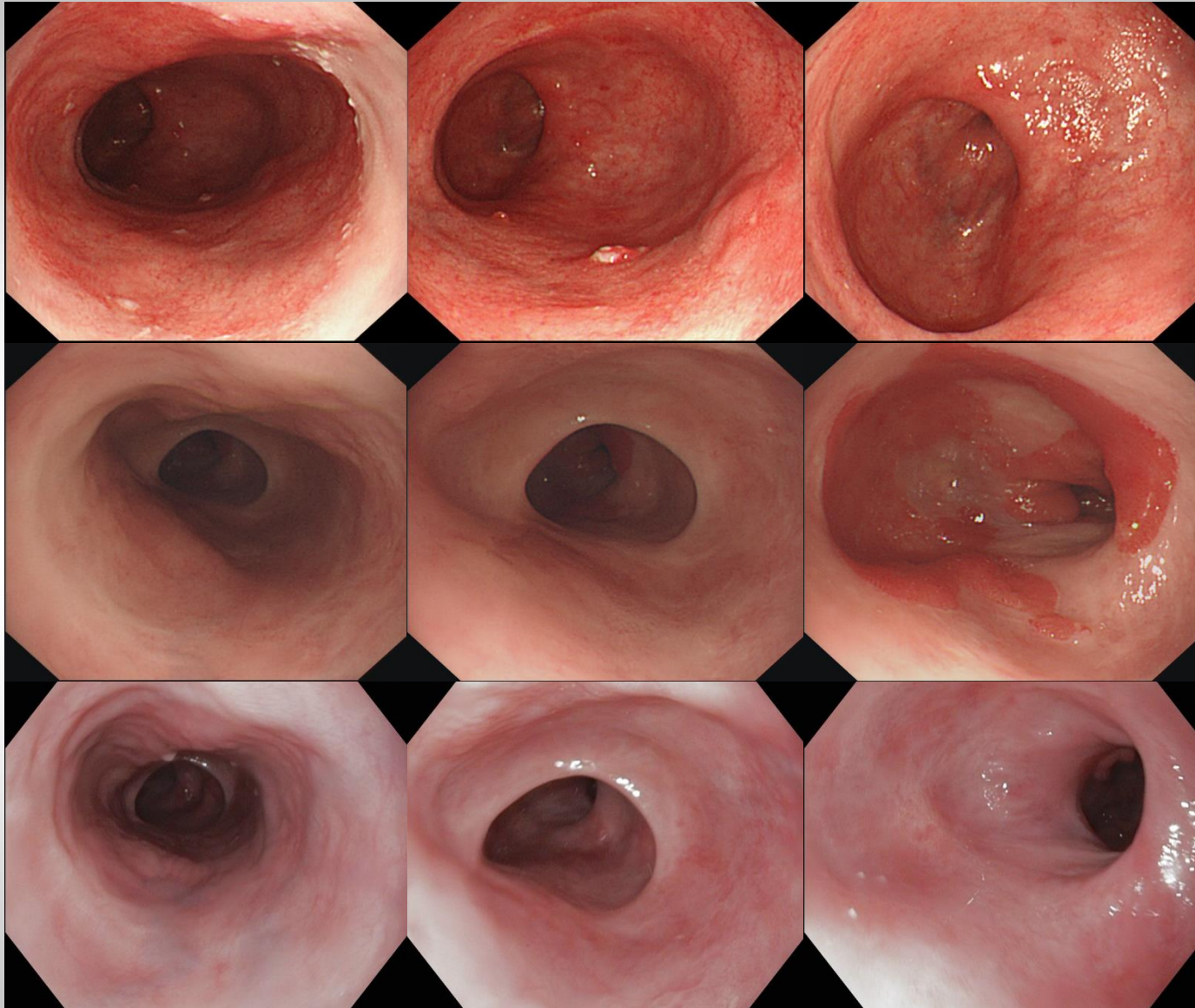


# TREATMENT PROTOCOL



YES

Escape ER

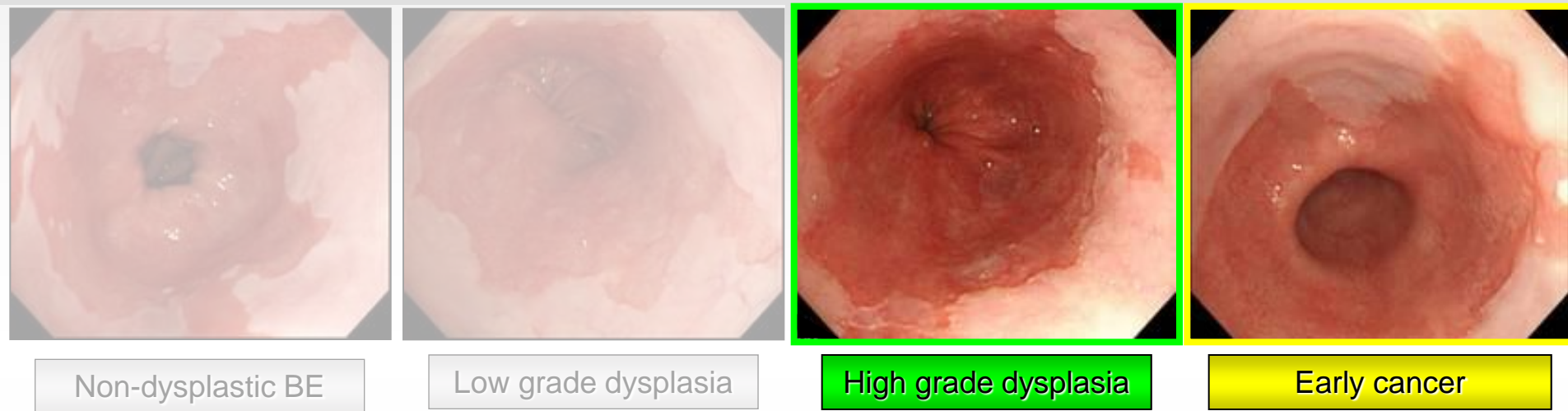


Barrett C7M8  
IMC and HGD

After EMR and RFA:  
85% surface area  
reduction

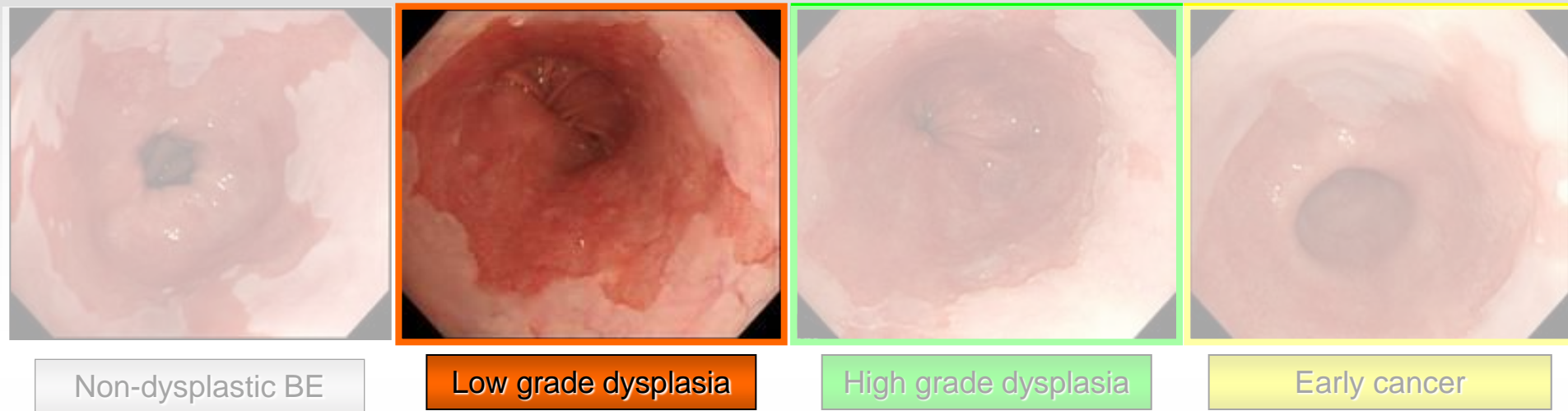
After escape EMR:  
Complete removal of  
dysplasia and IM

# Barrett's esophagus: who to treat?



- HGD: if the patient is properly selected.
- Early cancer: only after endoscopic resection of the lesion.

# Treatment of LGD?



- HGD: if the patient is properly selected.
- Early cancer: only after endoscopic resection of the lesion.
- LGD: not outside clinical trials?



# Is LGD an innocent disease?

Depends on which pathologist makes the diagnosis.

If LGD is frequently diagnosed: the risk is low and vice versa.

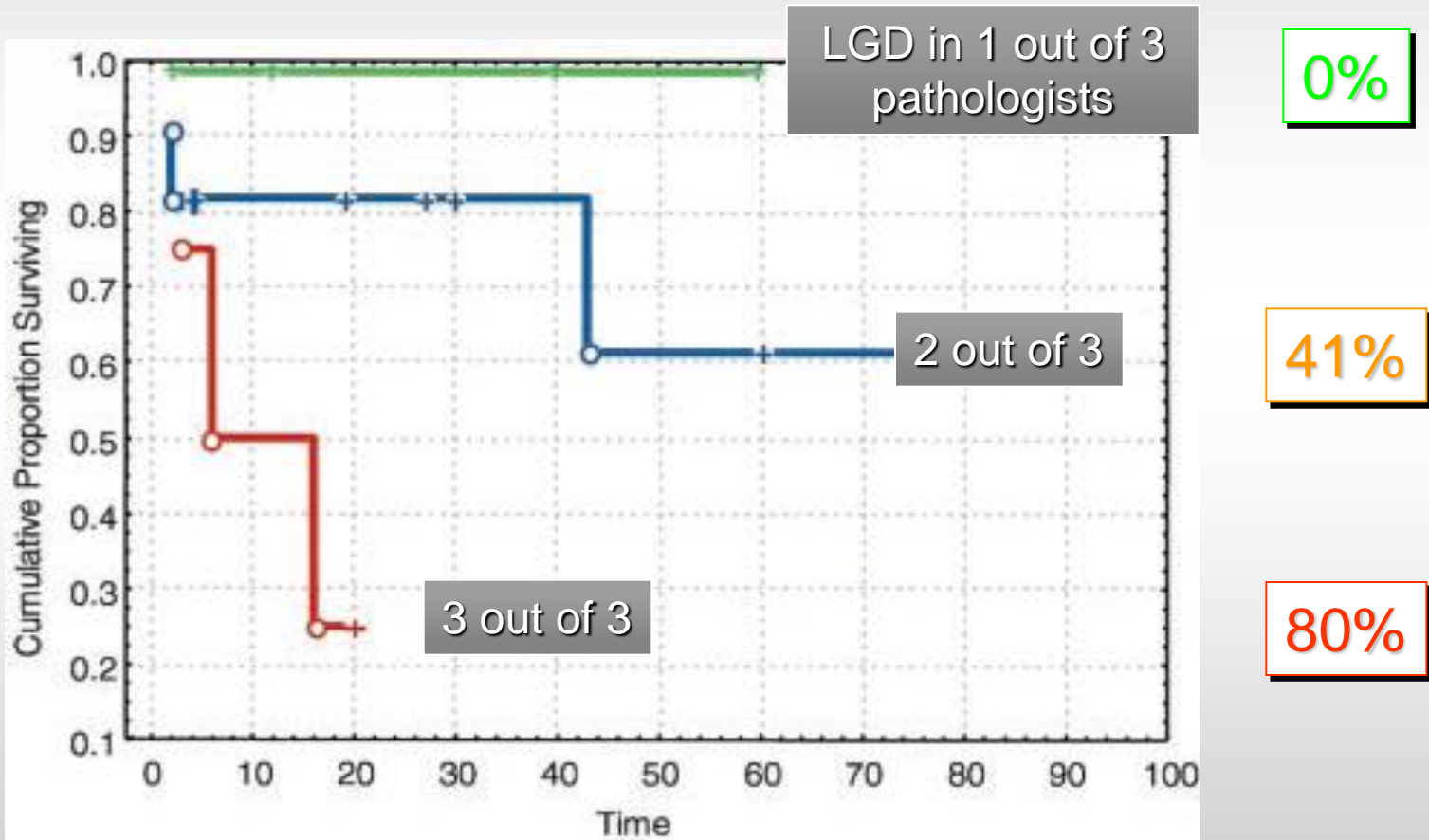
1.4% in 7 yrs

40% in 28 mo

| Study author(s)<br>[ref. no.] | Year | Frequency<br>of LGD |
|-------------------------------|------|---------------------|
| Schnell et al. [4]            | 2001 | 67.2 %              |
| Sharma et al. [5]             | 2003 | 25.0 %              |
| Sharma et al. [6]             | 2006 | 21.4 %              |
| Egger et al. [7]              | 2003 | 20.2 %              |
| O'Connor et al. [8]           | 1999 | 17.6 %              |
| Csendes et al. [9]            | 2003 | 11.9 %              |
| Gopal et al. [10]             | 2003 | 9.7 %               |
| Conio et al. [11]             | 2003 | 9.6 %               |
| Vieth & Stolte [12]           | 2002 | 1.1 %               |

# Correctly diagnosing LGD is tough

*Consensus diagnosis: high risk of progression*



**146 LGD pts reviewed  
by 2 expert pathologists**

**110 pts NDBE  
(75%)**

**14 pts Indef  
(10%)**

**22 pts LGD  
(15%)**

**Median FU of 51 months**

**0.49% per  
patient year**

**No HGD/Ca**

**42% HGD/Ca  
13.4% per pnt yr**

**146 LGD pts reviewed  
by 2 expert pathologists**

**110 pts NDBE  
(75%)**

**14 pts Indef  
(10%)**

**22 pts LGD  
(15%)**

*Over-diagnosed*  
but  
*Under-estimated*

**0.49% per  
patient year**

**No HGD/Ca**

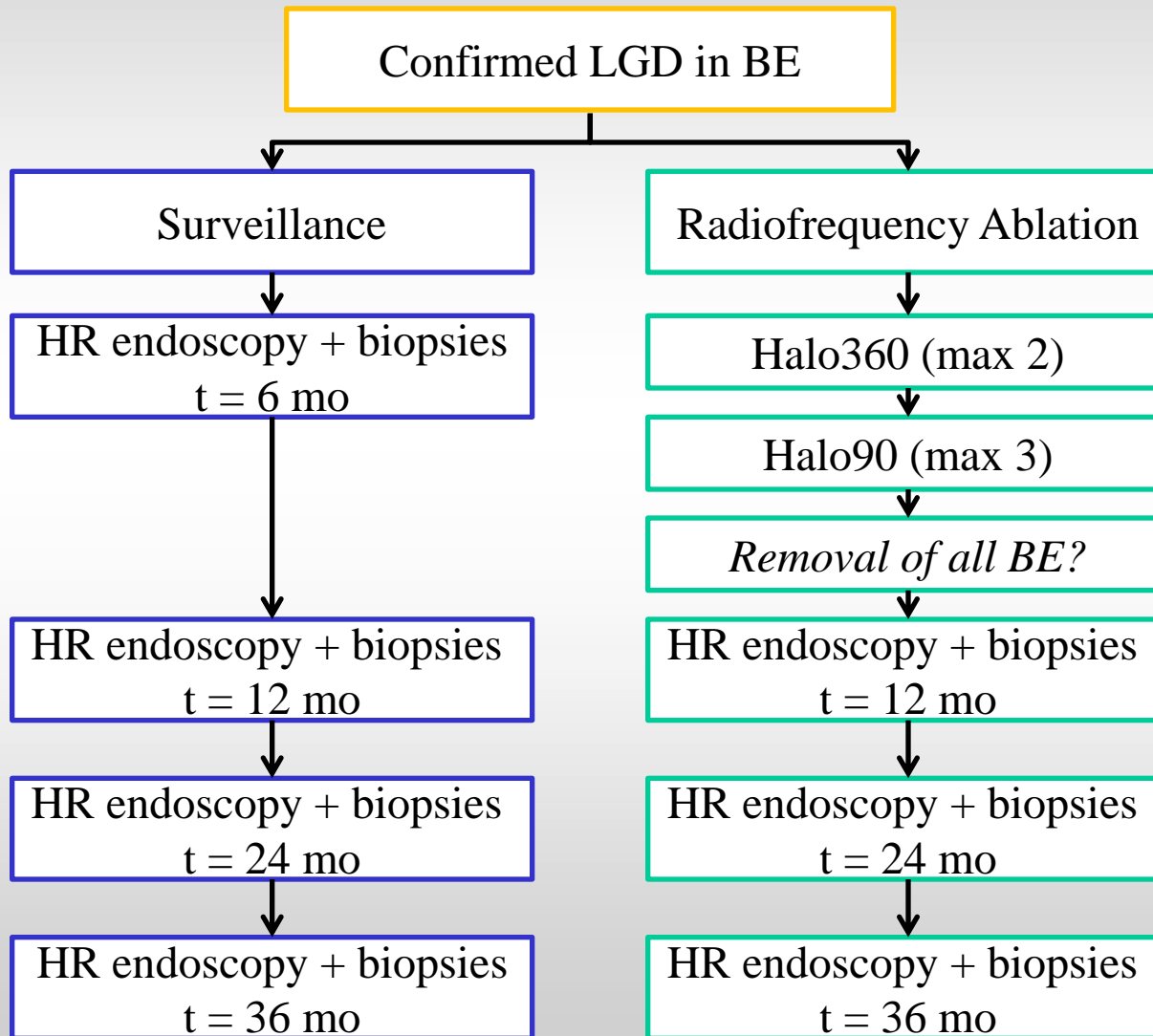
**42% HGD/Ca  
13.4% per pnt yr**



# SURF-Trial

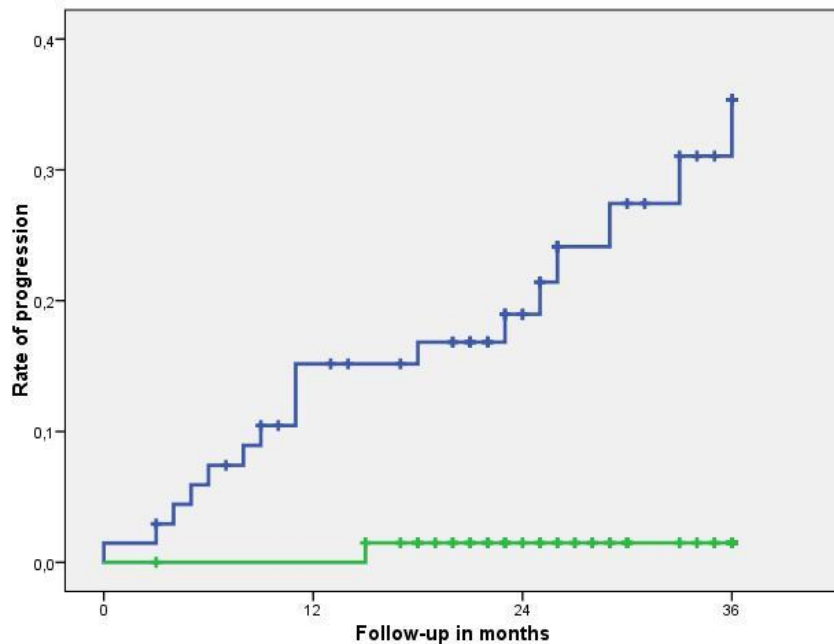
## European multicenter RCT

Phoa et al.JAMA 2014



# SURF-Trial

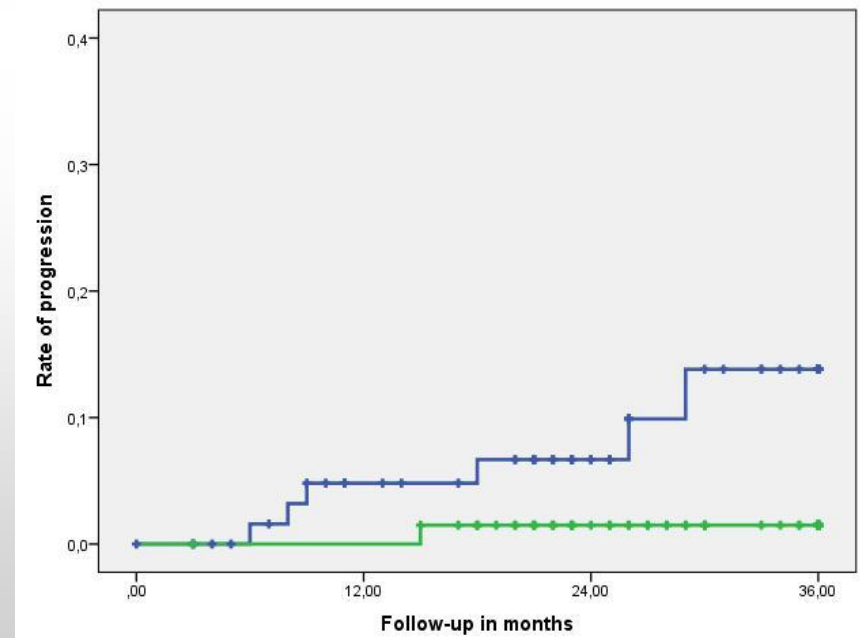
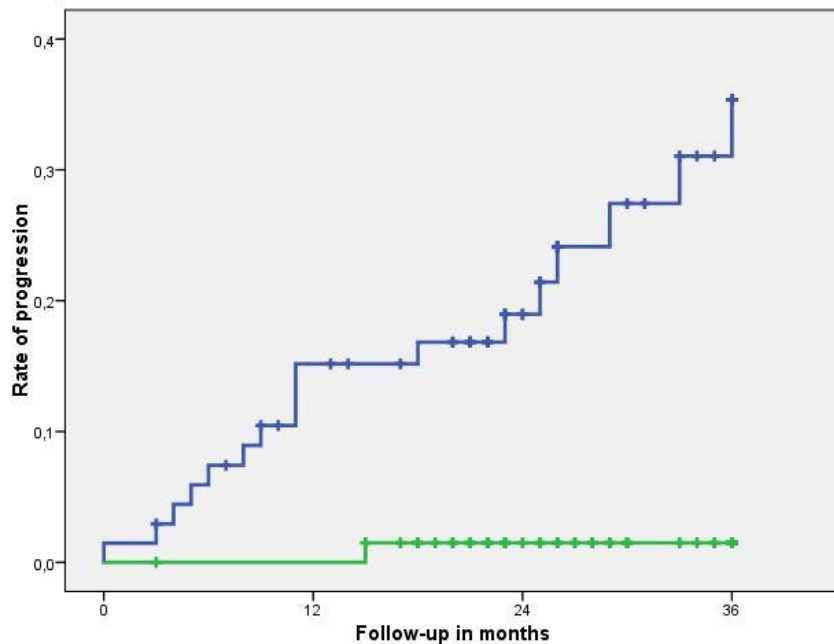
|                        | RFA<br>n=68 | Surveillance<br>n=68 | p-value |
|------------------------|-------------|----------------------|---------|
| Progression to HGD/EAC | 1 (1%)      | 18 (26.5%)           | <0.001  |



— Surveillance — RFA

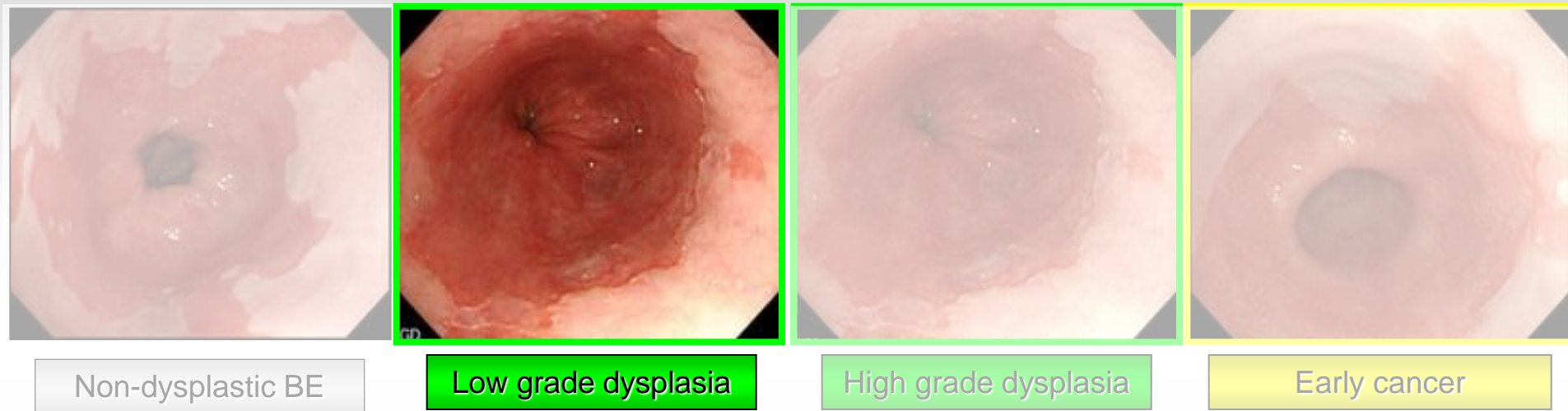
# SURF-Trial

|                        | RFA<br>n=68 | Surveillance<br>n=68 | p-value |
|------------------------|-------------|----------------------|---------|
| Progression to HGD/EAC | 1 (1%)      | 18 (26.5%)           | <0.001  |
| Progression to EAC     | 1 (1%)      | 6 (9%)               | 0.026   |



— Surveillance — RFA

# Treatment of LGD?

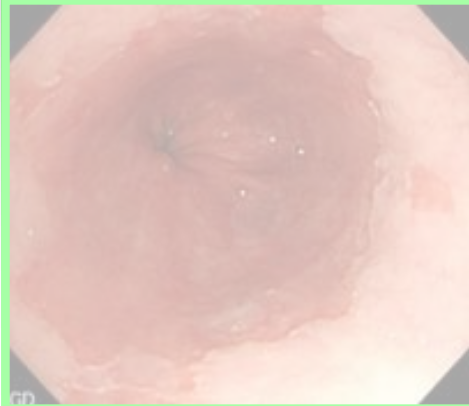


- HGD: if the patient is properly selected.
- Early cancer: only after endoscopic resection of the lesion.
- LGD: if the histological diagnosis is confirmed

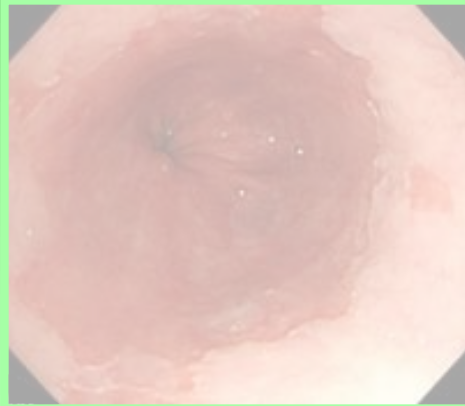
# What about non-dysplastic Barrett's?



Non-dysplastic BE



Low grade dysplasia



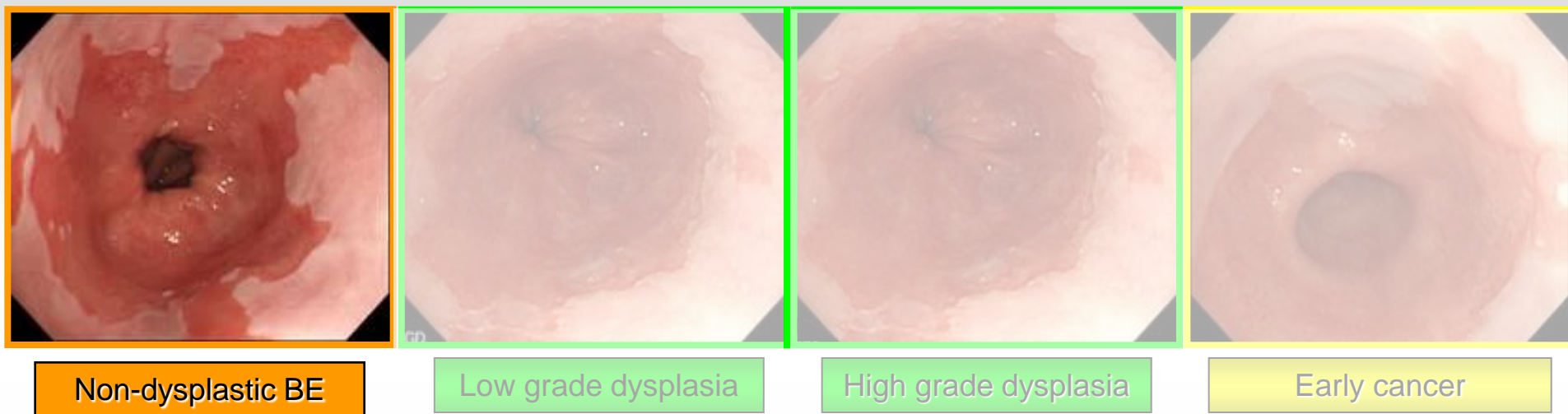
High grade dysplasia



Early cancer



# Ablating non-dysplastic Barrett's?



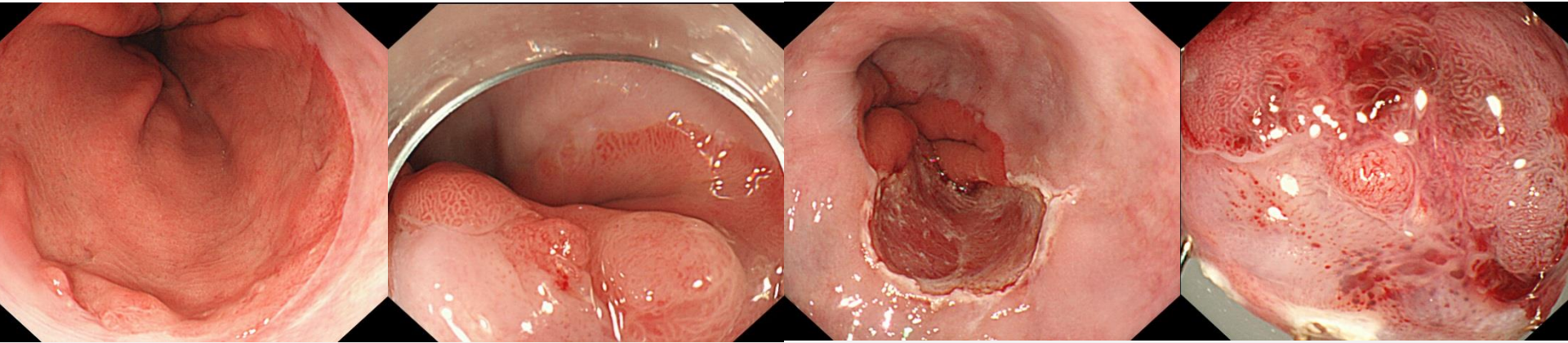
- HGD: if the patient is properly selected.
- Early cancer: only after endoscopic resection of the lesion.
- LGD: if the patient is properly selected (path review!).
- NDBE: selected cases (e.g. <50 years, family history BE-cancer).

# Proper training and centralization

- Few endoscopists are proficient in ER.
- ER and RFA are just part of the game.

# Proper training and centralization

- Few endoscopists are proficient in ER.
- ER and RFA are just part of the game.



- Endoscopic imaging and follow-up are crucial.
- Histopathology of ER-specimens is not easy.



WELCOME TO BEST ACADEMIA  
**BARRETT'S ENDOSCOPIC TRAINING**

**ABOUT THE WEBSITE BEST ACADEMIA**

This website provides information on the endoscopic management of Barrett's oesophagus, including video material and powerpoint presentations to download on [imaging](#), [treatment](#) and [pathology](#), as well as information regarding [training courses](#).





# Amsterdam Live Endoscopy '14

**15 & 16 December 2014, Eighth Annual Course**  
**Hotel Okura Amsterdam, The Netherlands**



[www.amsterdamendoscopy.com](http://www.amsterdamendoscopy.com) for more info and registration

**International symposium  
with 35 live demonstrations  
and 8 break-out sessions**

## **Faculty**

Jacques Devière  
Horst Neuhaus  
Oliver Pech  
Alessandro Repici  
Siwan Thomas-Gibson  
Takashi Toyonaga  
Frank Vleggaar  
Mike Wallace

---

Paul Fockens  
Jacques Bergman  
Evelien Dekker  
Jeanin van Hooft  
Guido Tytgat

