

The New Colonoscopes: Latest Developments

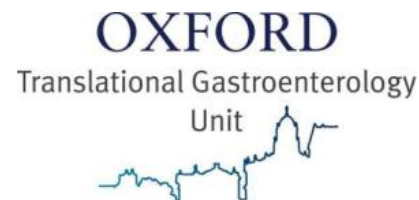
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QUALITY IN ENDOSCOPY

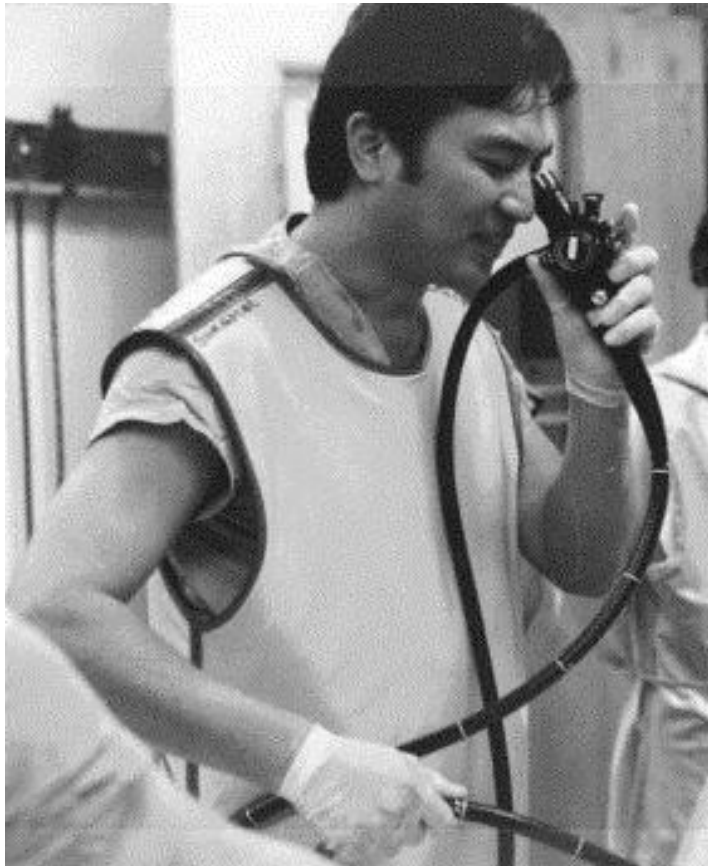
COLONOSCOPY &
COLONIC NEOPLASMS

Berlin, Germany May 4 - 5, 2012



www.quality-in-endoscopy.org

i-Colonoscope



“Push” Colonoscopy

Pros

- Diagnostic and therapeutic
- 30 years clinical experience
- Criterion standard lower GI exam

Cons

- Highly skilled and dexterous operators
- Patient discomfort/ need for sedation
- Risks – perforation
- Reprocessing
- **Expensive**

Stop “Pushing”

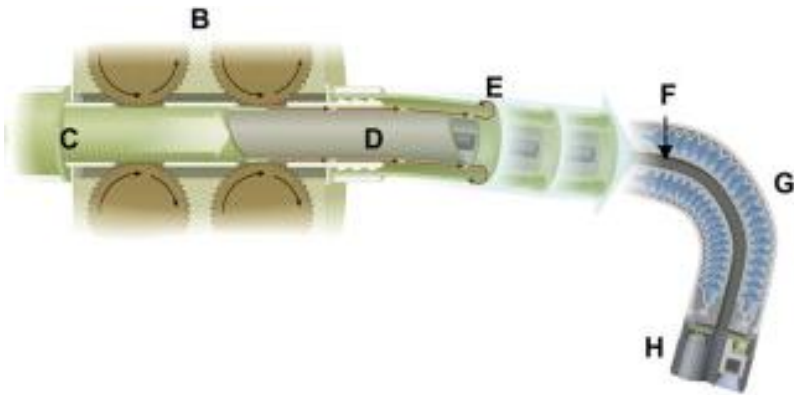
Balloon assisted colonoscopy



- Intubation in >95% difficult or failed cases
- DBE, SBE & balloon colonoscopes
 - **Posters:** 13 Despott; 22 Kurokawa; 28 Semadeni

Gay G *et al.* Endoscopy 2007;**39**:788-792

Invendoscope



Rösch T *et al.* *Gastrointest Endosc* 2008;**67**:1139-46

Invendoscope

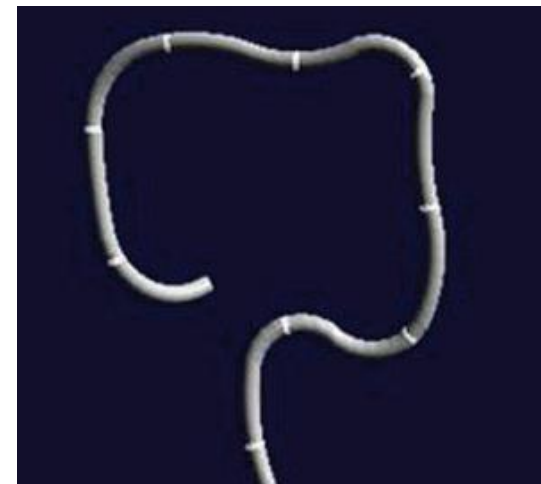
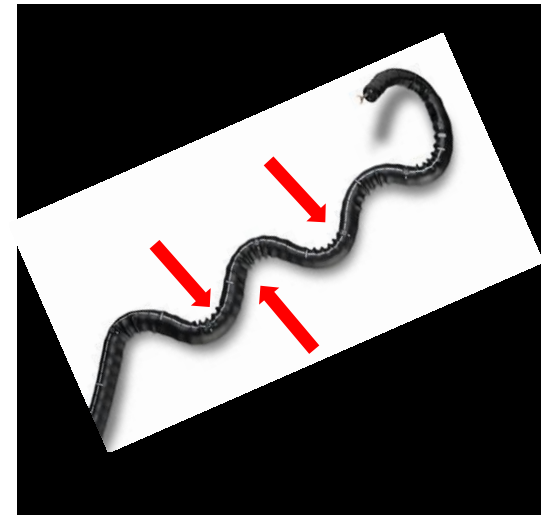
- 61 volunteers patients examined
- 98.4% caecal intubation
 - Low sedation <5%
 - 15mins intubation
 - Low pain scores
- Fully disposable
 - “single use”



Groth S *et al.* Am J Gastroenterol 2011;**106**:1075–1080

Neoguide

- Neoguide system
 - Computer assisted colonoscope
 - Articulated segments
 - “follow-the-leader” style
 - 3D map of scope
- 11 patients examined
 - 10 to caecum
- Needs reprocessing



Eickhoff A *et al.* Am J Gastroenterol 2007;**102**:261-266

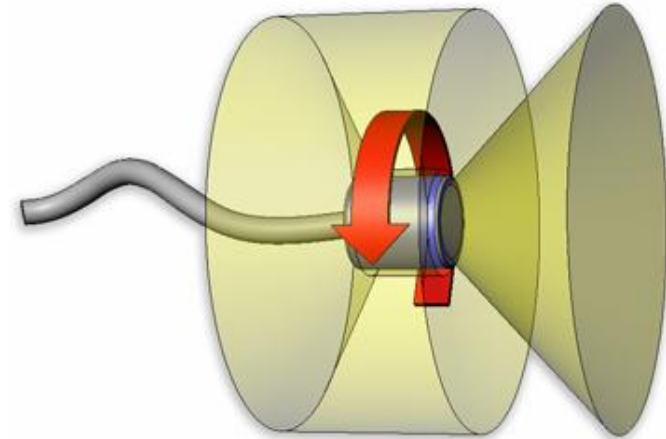
Aer-O-Scope



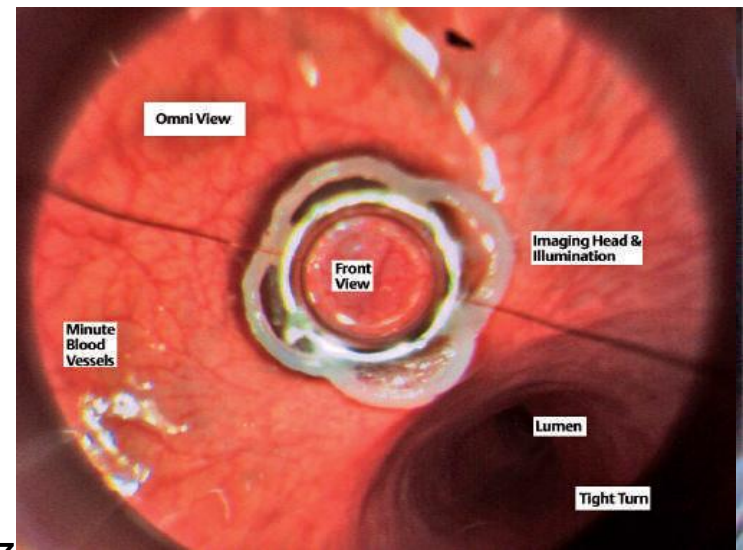
Gastroenterology 2006;**130**;672-77

Aer-O-Scope

- 10/12 to caecum
- Omniview
 - Reportedly views of entire colonic surface
 - 97.5% sensitivity
 - No need for tip manipulation
 - Substantial “fish eye” effect



Omniview (360°) • Front View



Arber N *et al.* Endoscopy 2007;**39**:412-417

i-Aer-O-Scope?



- Dot (Kotego Inc., NY)
 - 360° panoramic video
- Look out for side / wide view colonoscopy at DDW

Therapeutic platforms

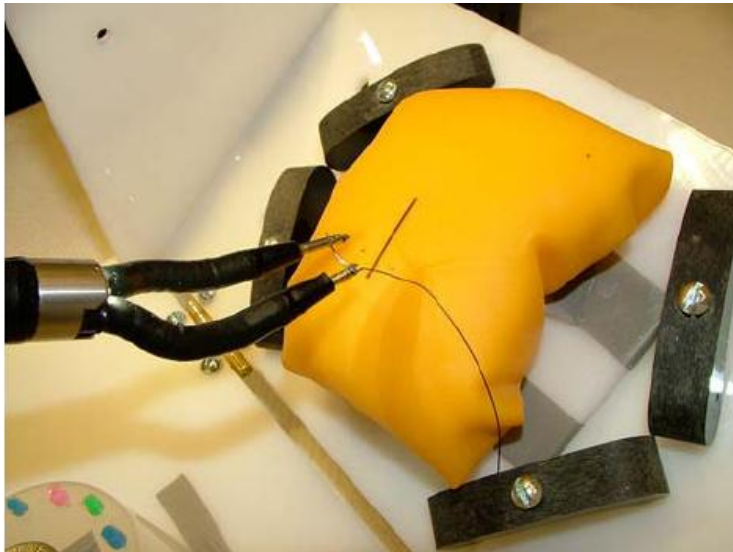
A Direct Drive Endoscopic System for Endoluminal and NOTES Applications

Christopher Thompson¹, Marvin Ryou¹, Richard Rothstein²,
Derek Fong¹, Reina Pai¹, Paul Smith³, Barry Weitzner³

1. Brigham and Women's Hospital, Harvard Medical School
2. Dartmouth Hitchcock Medical Center
3. Boston Scientific

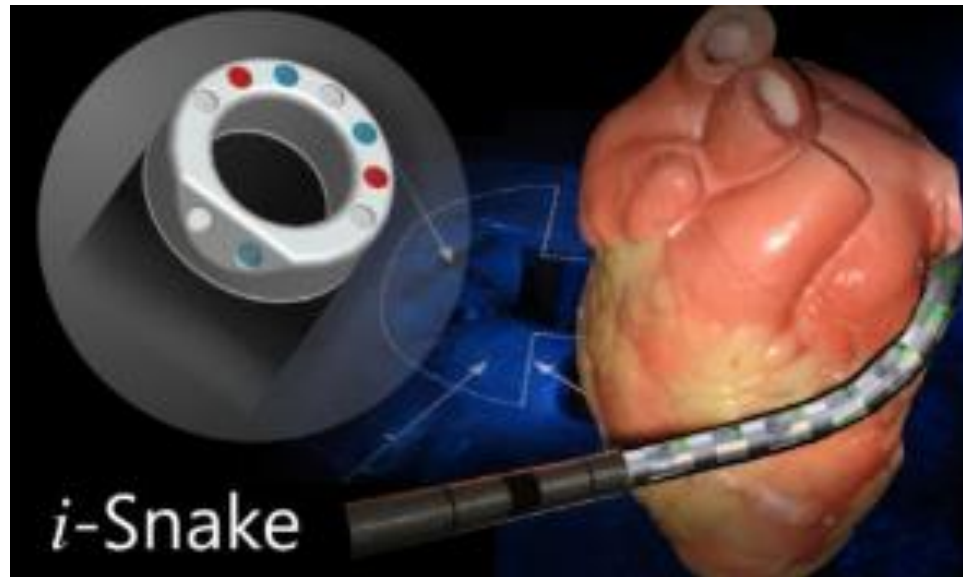


EndoSAMURAI



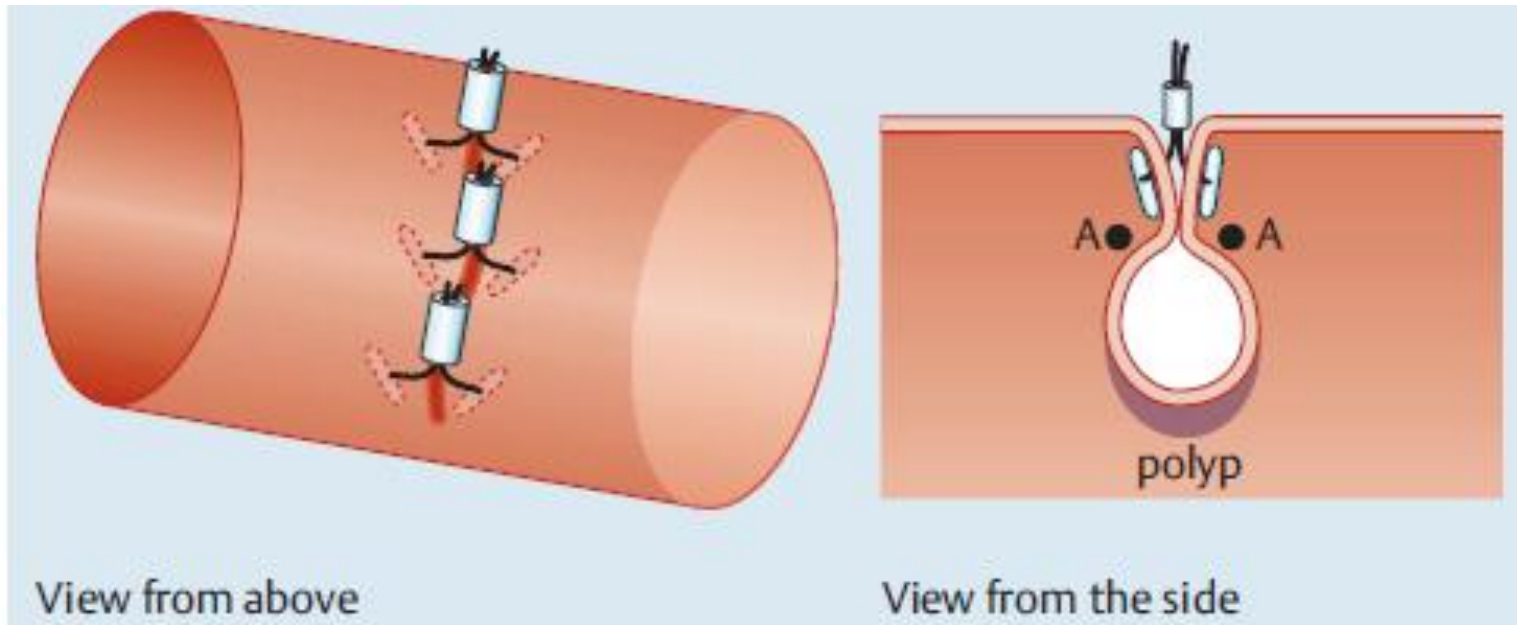
Spaun GO *et al.* Surg Endosc 2009;**23**:2720–2727

i-Snake Robot



- Fully articulated joints powered by special motors
- Multiple sensing mechanisms and imaging tools at its 'head'
- Endoluminal, NOTES and cardiac surgery

FLEX procedure



- Double scope hybrid laparo-endoscopic technique
- Full thickness invaginated polyp resection
- Oncologically sound – no spillage

Kennedy RH *et al.* Endoscopy 2011;**43**: 223–229

i-Colonoscopy

Now

Current Colonoscopy

Highly Dextrous
Expensive
Reprocessing
Uncomfortable

Future

Therapeutic platforms

Advanced diagnostics
Surgical triangulation
Full thickness resection?

Diagnostics

High throughput
Sedation free
Disposable
CT colonography / Capsule