EndoVision

Surgical Simulator

Diagnostic and Surgical Skills in Endoscopy

MAVERICK
Technology Transformation Partners

www.mavericsolution.com

Real-feel surgical simulation

EndoVision

EndoVision sets the standard in simulation for hands-on-training in endoscopic procedures. Allowing trainees realistic and safe clinical experiences, EndoVision offers exposure to an extensive library of modules and patient cases to challenge diagnostic and psychomotor skills in preparation for real presentations.

True-to-life instruments for procedures in Bronchoscopy, Gastroscopy and Colonoscopy, along with an interactive 3D anatomy atlas, videos, texts and automatic data capture for quality debriefing, high standards of competency are assured.

The simulator offers various modules and their combinations, i.e. bronchoscopy, gastroscopy, colonoscopy and an all-in-one version.

EndoVision Standard

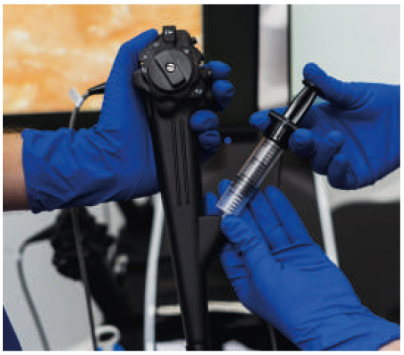
- Manage complications caused by trainee's actions
- 2 FullHD displays with one of them being a touchscreen for all your menu controls
- Haptic feedback for realistic tissue resistance
- Interactive 3D anatomy atlas with real-time tracking of the instrument
- Real patient cases
- Detailed automatic recording of all actions
- A set of virtual tips with videos, texts and visual cues
- Mobile wheelbase
- Height adjustable

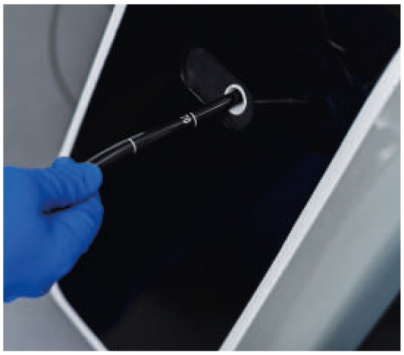
Software

- Training and exam modes
- Detailed statistics after each module
- High definition 3D graphics
- Visual tips and guidelines
- Video and text materials
- 3D anatomy atlas

Endoscopy intruments

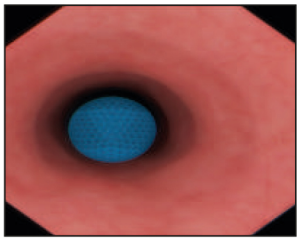
- Real adapted gastroscope and colonoscope
- High-precision no-lag instrument tracking system provides accurate, smooth response for all your actions



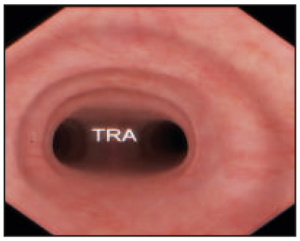


Bronchoscopy Modules

Essential skills

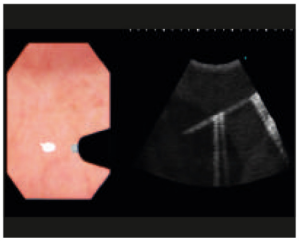


Bronchoscope Handling Skills in Real Anatomical Environment

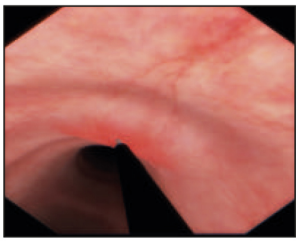


Knowledge of Anatomy in Bronchoscopy

Transbronchial needle aspiration

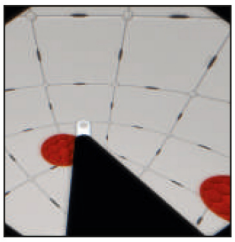


EBUS-TBNA

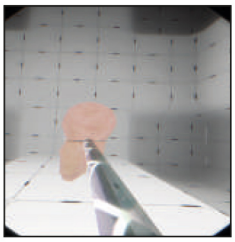


TBNA

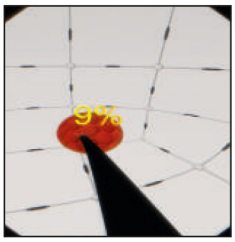
Instrument handling skills



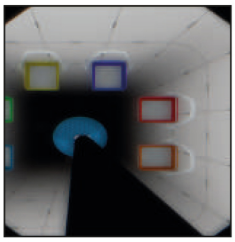
Biopsy forceps



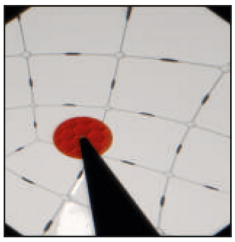
Endoloop



Coagulator Control (monoelectric and argon plasma unit)

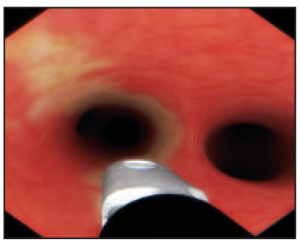


Forceps for Grab of a Subject

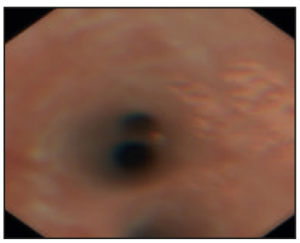


Puncture Needle

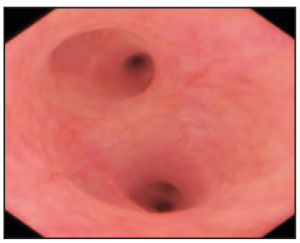
Diagnostic Bronchoscopy



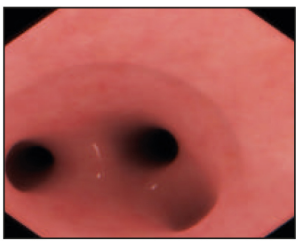
Biopsy in Bronchoscopy



Bronchoalveolar Lavage

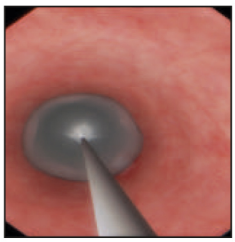


Pediatric Bronchoscopy

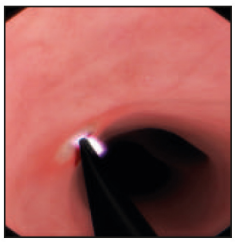


Routine Endoscopy Skills

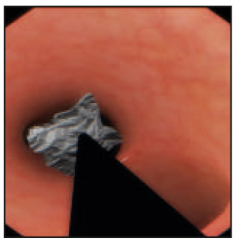
Therapeutic Bronchoscopy



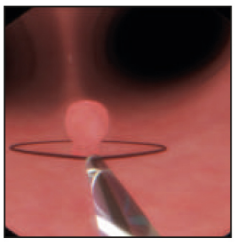
Balloon dilatation



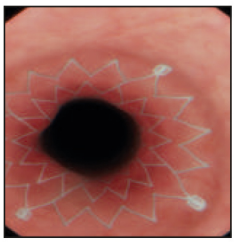
Bleeding Control



Foreign Body Removal

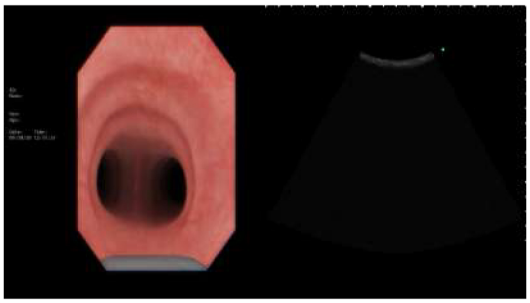


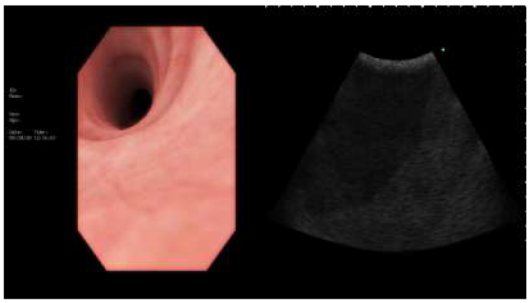
Polypectomy in Bronchoscopy



Stenting

Endobronchial ultrasound transbronchial needle aspiration





Due to the close proximity of vessels and unavailability of endoscopic landmarks, we have to use something that could indicate the location of the anatomical structures outside the walls of the bronchi. That “something” is ultrasound (US), and the procedure becomes an ultrasound-guided TBNA technique.

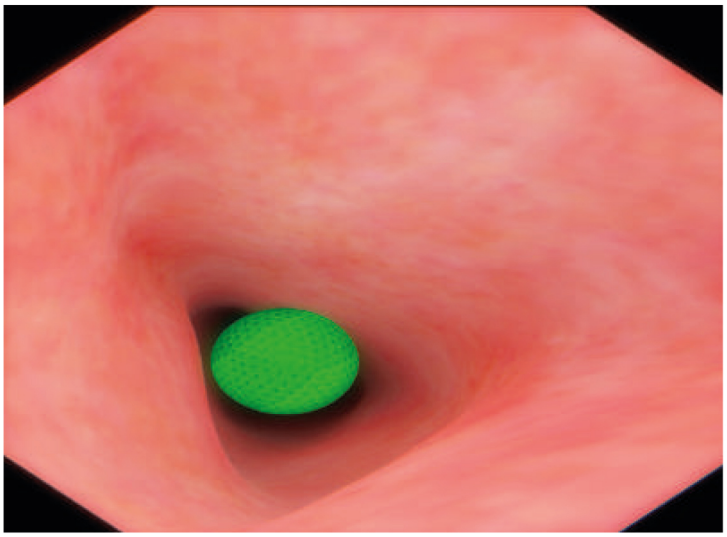
How to actually perform an ultrasound scanning, if standard probes are not designed to reach these nodes? EBUS bronchoscope, i.e. a bronchoscope with an ultrasound sensor in the tip making it possible to run an ultrasound-guided procedure.
The TBNA procedure is completely the same, but now it is possible to provide real-time imaging of the nearby anatomical structures behind the bronchial wall.

In such bronchoscopes, the lenses have such an angle of view (30 to 45 degrees) that would make it possible to maximally remove the probe from the field of view, but at the same time maintain the usual view.

Upper GI Endoscopy

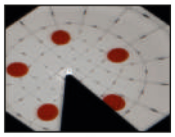
Gastroscopy Modules

Essential skills

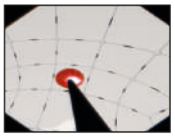


Gastroscope Handling Skills in Real Anatomical Environment

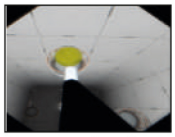
Instrument handling skills



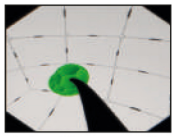
Biopsy forceps



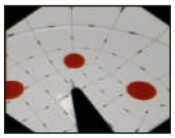
Coagulator Control (monoelectric and argon plasma unit)



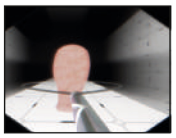
Forceps for Grab of a Subject



Injection needle

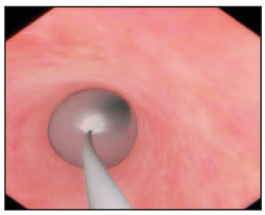


Puncture needle

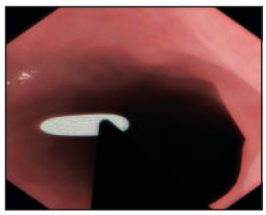


Endoloop

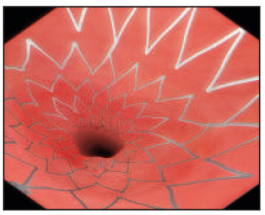
Therapeutic Gastroscopy



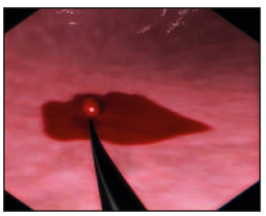
Balloon dilatation



Foreign Body Removal

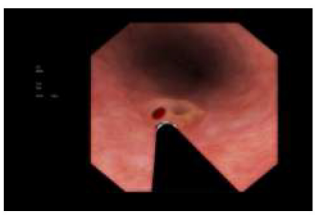


Stenting

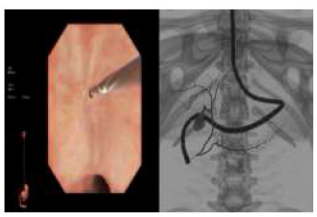


Upper GI Bleeding

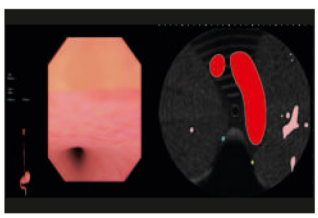
Diagnostic Gastroscopy



Esophagogastroduo-denoscopy (EGDS)

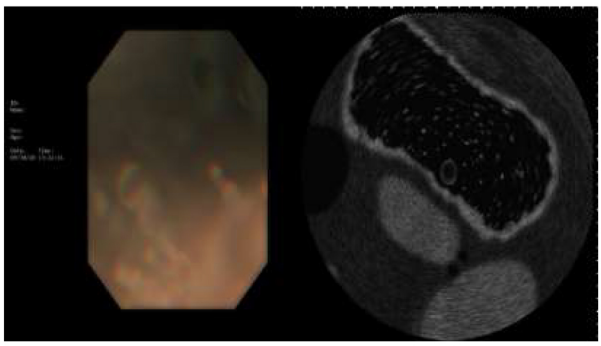


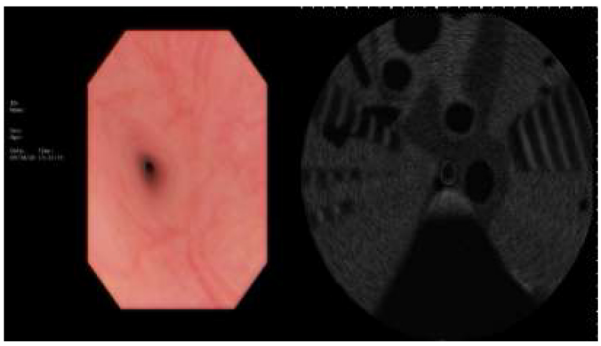
Endoscopic Retrograde Cholangiopancreatography



Endoscopic Ultrasonography

Endoscopic Ultrasonography





An obvious advantage of this technique is the ability to produce images of organs that are inaccessible by conventional ultrasound scanning, i.e the mediastinum organs and structures such as vessels, lymph nodes, etc. It is also possible to see organs "from the other side" adding funstionality to conventional ultrasound examination. One more important feature to mention is the examination of gastric submucosal tumors (or deeper layers of the GI tract walls), which allows making diagnosis when regular biopsy is not informative or sampling is not possible.

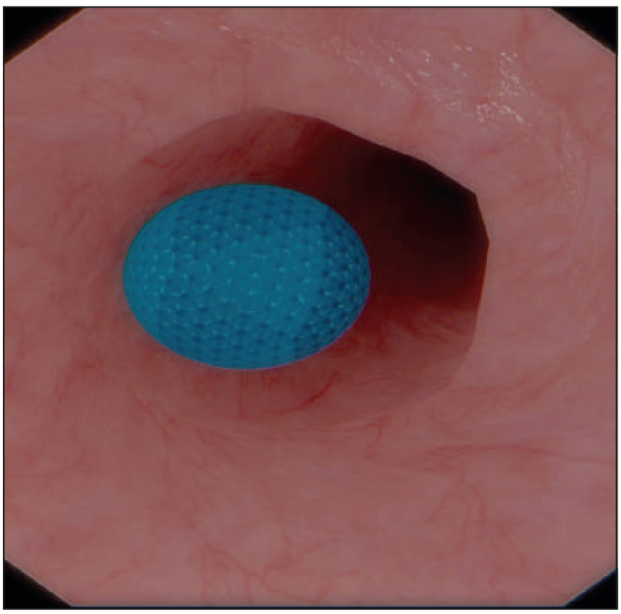
Along with ultrasonic bronchoscopes, ultrasound gastroscopes are used. There are two types of ultrasound gastroscopes: a curved, linear-array gastroscope (similar to EBUS-TBNA bronchoscope) and a radial-array gastroscope. The latter allows imaging in a circular plane. Considering that such imaging is untypical and requires certain skills, the design of our simulator is focused on the radial-array type of probes.

The module contains 4 clinical cases:
- Healthy Patient (Mediastinal Examination)
- Neoplasm in the Lung
- Healthy Patient (Abdominal Examination)
- Choledocholithiasis (Gallstone Disease)

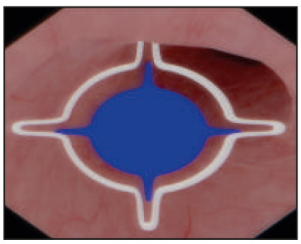
Lower GI Endoscopy

Colonoscopy Modules

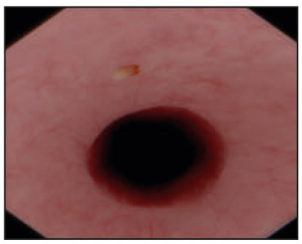
Essential skills



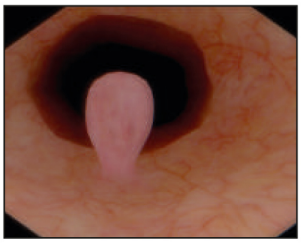
Colonoscope Handling Skills in Real Anatomical Environment



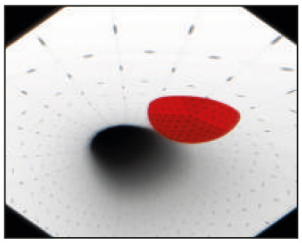
Colonoscopy Navigation



Mucosal Assessment Skills in Colonoscopy

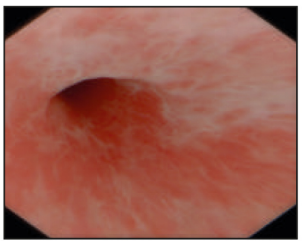


Pathology Visualization Skills

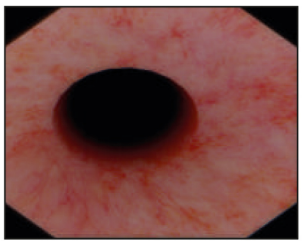


Targeting in Colonoscopy

Sigmoidoscopy

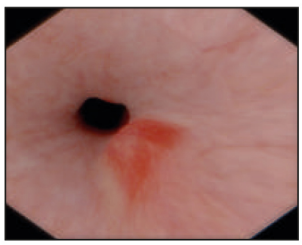


Random Anatomy of Sigmoidoscopy

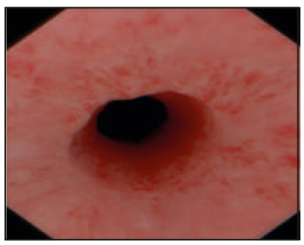


Sigmoidoscopy

Diagnostic colonoscopy

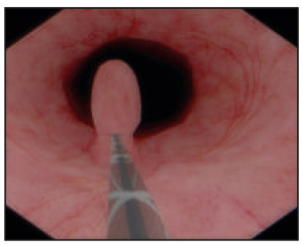


Biopsy in Colonoscopy

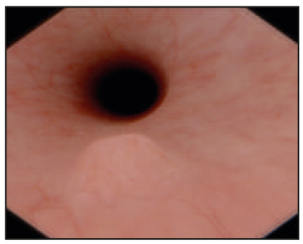


Colonoscopy

Therapeutic colonoscopy

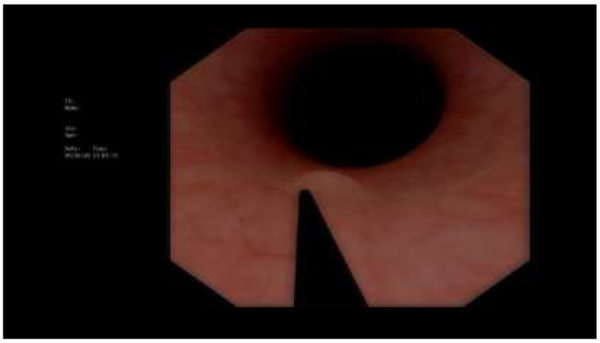
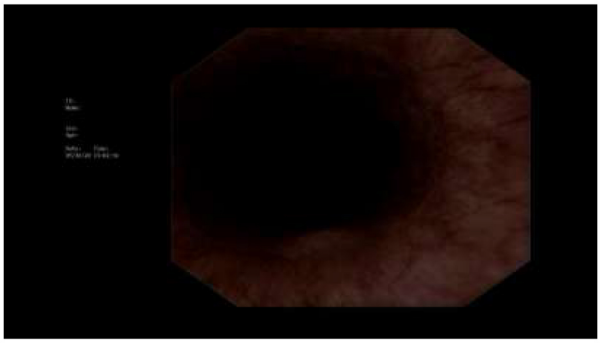
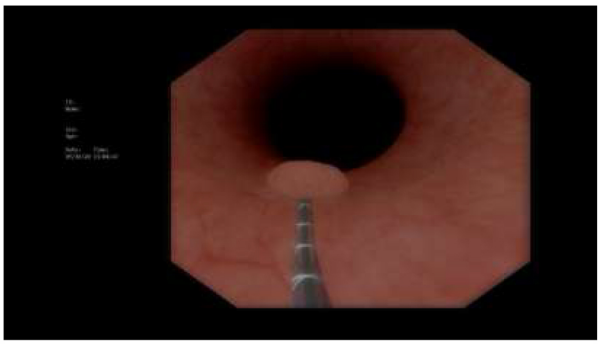
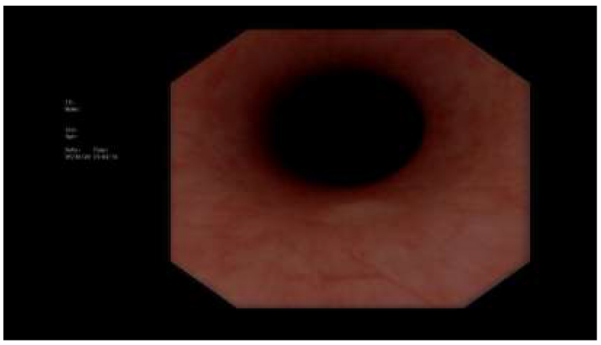


Polypectomy in Colonoscopy



Endoscopic Mucosal Resection

Endoscopic Mucosal Resection

One of the standard treatments for patients with early-stage colon cancer is endoscopic mucosal resection (EMR). Under certain criteria, neoplasms can be resected in a minimally invasive manner preventing more serious forms of cancer. This is one of the cornerstones of modern endoscopy.

The purpose of the module is to learn and practice the main stages of the procedure and to demonstrate the possibility of using extra types of examination such as narrow band imaging endoscopy.

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