



In Vivo Microscopy

What You Need to Know

In vivo microscopy (IVM) is an increasingly important tool that helps pathologists better serve their patients. With IVM, microscopic images are obtained in real time from living patients using reflected light of various wavelengths. This non-invasive approach creates both 2D and 3D images, and these images can be either static or video.

Uses of IVM Technologies

The FDA has approved confocal microscopy and optical coherence tomography for clinical use. Many other technologies are in active development and in clinical trials, including spectroscopy-based techniques and multiphoton microscopy.

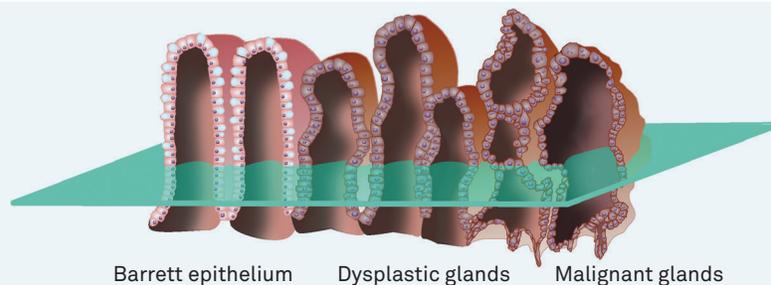
Current uses for IVM technologies include:

- **Gastrointestinal tract endoscopic imaging**
Excellent for making differential diagnoses and identifying areas for biopsy to improve diagnostic yield, decrease sampling errors, decrease morbidity, and trim health care costs
- **Organ screening such as the esophagus for Barrett esophagus**
Can identify small foci of disease, follow up on previously treated areas, and monitor therapies
- **Imaging of coronary vessels during interventional cardiology procedures**
- **Ophthalmology exams**
- **Reflectance confocal microscopy for skin**
Reflectance confocal microscopy (RCM) is an excellent aid to histology to diagnose pigmented skin lesions. RCM is already being used in clinical practice and has CPT codes.

Possible future uses include:

Biopsy guidance in lung or breast lesions

- Diagnosis in critical organs that cannot be safely biopsied, such as brain lesions
- At-risk patients who cannot safely undergo a biopsy procedure, such as cases of fibrotic lung diseases



The growing importance of optical biopsy

Optical biopsy is greatly impacting patient care in areas such as biopsy guidance, whole organ disease screening, and microscopic assessment where traditional biopsy cannot be safely performed. Because of their experience and expertise, pathologists are ideally suited to interpret these images.

Source: Eric F. Glassy, MD, FCAP

The Role of Pathologists in IVM

As a pathologist, take advantage of your expertise in microscopy and histopathologic diagnoses to interpret IVM images. Many experts believe that IVM will become integral to the practice of pathology.

Expert Resources Made For You

Access the CAP's resources that can help you develop a robust IVM practice, including a resource guide, webinars, presentations, and workshops.

To access IVM resources, visit cap.org and search for IVM Topic Center

