A new device scopes out cancer in the lungs

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Latest technology developed by a Plymouth company lets cancer doctors guide scopes through labyrinthine airways without cutting tissue.

Go deep inside a human lung, where a suspicious mass may be cancer.

Above you, broad airways offer cancer doctors’ probes relatively easy access to snip out samples and test them for cancer. But down below, an explosion of tiny airways shoots off in every direction, concealing the potential tumor somewhere among a maze of tens of thousands of branches in the lung’s lower half.

Several methods exist to reach lumps deep inside the lung, but most involve slicing through tissue to get there. That can be bad. Open-chest surgery, even minimally invasive surgical procedures, can collapse a lung — a risk that discourages some people from getting tests to find out if they have cancer.

Yet lung cancer keeps killing Americans in large numbers. About 160,000 died from the disease last year, more than cancers of the colon, breast and prostate combined.

Tucked away in a business park along Interstate 494, a Plymouth company called superDimension Inc. is perfecting the latest iteration of what it says is a technology that could boost lung-cancer survival rates by taking the bloody incisions out of lung biopsies.

The “Super D” system uses advanced imaging and computer modeling to help a doctor guide a skinny probe through existing airways to within millimeters of a lesion, without boring holes or cutting skin. The procedure is called electromagnetic navigation bronoscopy, or ENB.

“In the past, patients used to go to surgery, and their big chunk of lung tissue comes out, and then they see it’s not cancer. People used to get surgery for not a good reason,” said Dr. Erhan Dincer, a lung-cancer doctor at the University of Minnesota Medical Center. “With this, we can do a biopsy of the lung, and see, no this is not lung cancer, without surgery.”

SuperDimension was founded in Israel and maintains U.S. operations on Cheshire Lane in Plymouth. The company was bought for about $300 million in 2012 by global health care supplier Covidien, which is now in the process of merging operations with Medtronic through a $43 billion acquisition expected to close early this year.

While older versions of superDimension’s ENB technology improved on the system's technical operation, Covidien engineers have worked mainly to improve its user interface, which now includes slick 3-D graphics and a GPS-like navigation system, offering turn-by-turn directions for how to park next to a lesion.

“Ease of use becomes really important. It becomes an indirect determinant of patient outcomes,” said Chuck Brynelsen, president of the Covidien early technology division that includes superDimension. “By virtue of having a safer alternative, doctors are more likely to go in and do a diagnosis earlier.”