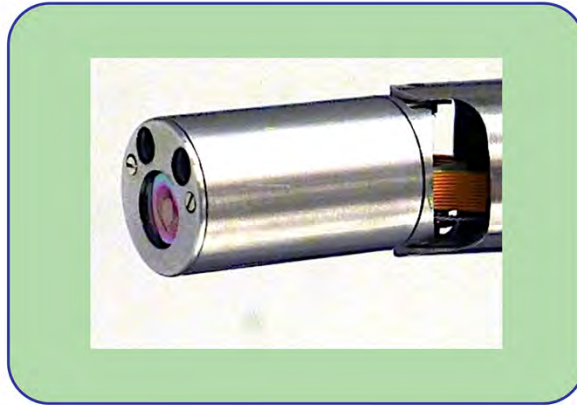




COLDSTEEL LASER

Reinventing Surgery



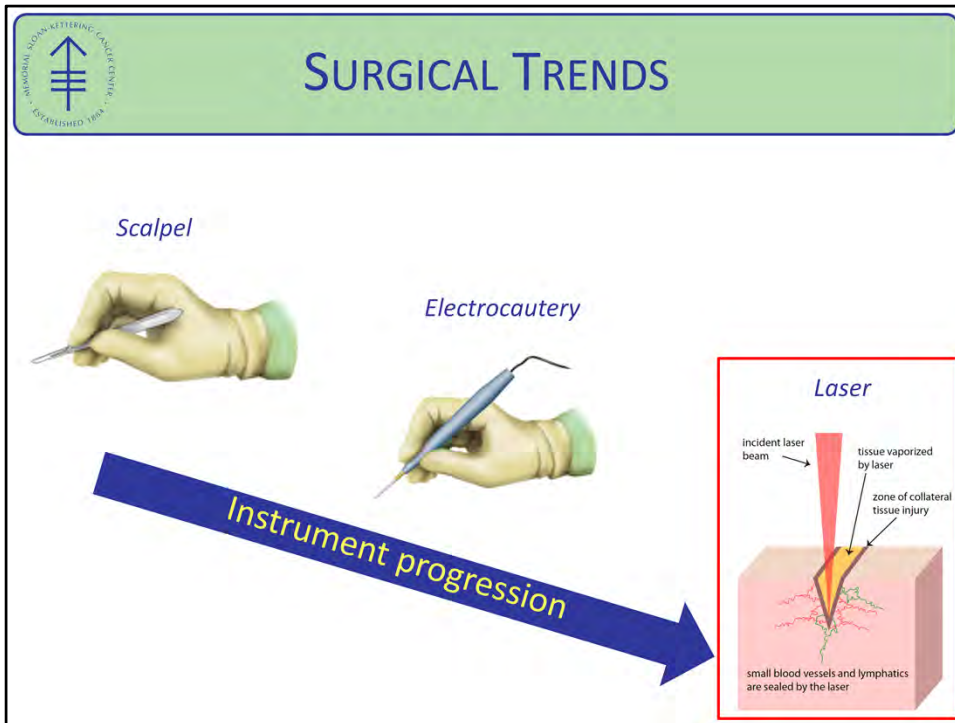
Memorial Sloan-Kettering Cancer Center

Thank you for this opportunity to talk about the ENDOSCOPIC LASER SCALPEL: a novel DEVICE we have been DEVELOPING for ENDOSCOPIC SURGERY.



OVERVIEW


- *Trends in Surgical Innovation*
- *Limitations of Current Technology*
- *Management Team*
- *Endoscopic Laser Scalpel*
- *Market and Finances*
- *Development Timeline*




Surgical instruments have progressed for the benefits of patients. Lasers are current displacing other surgical instruments, but their potential has been underutilized due to limitations of access and control. **27% CAGR**

SURGICAL TRENDS

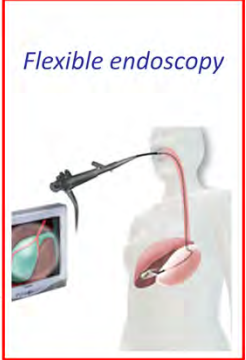
Open surgery



Rigid endoscopy



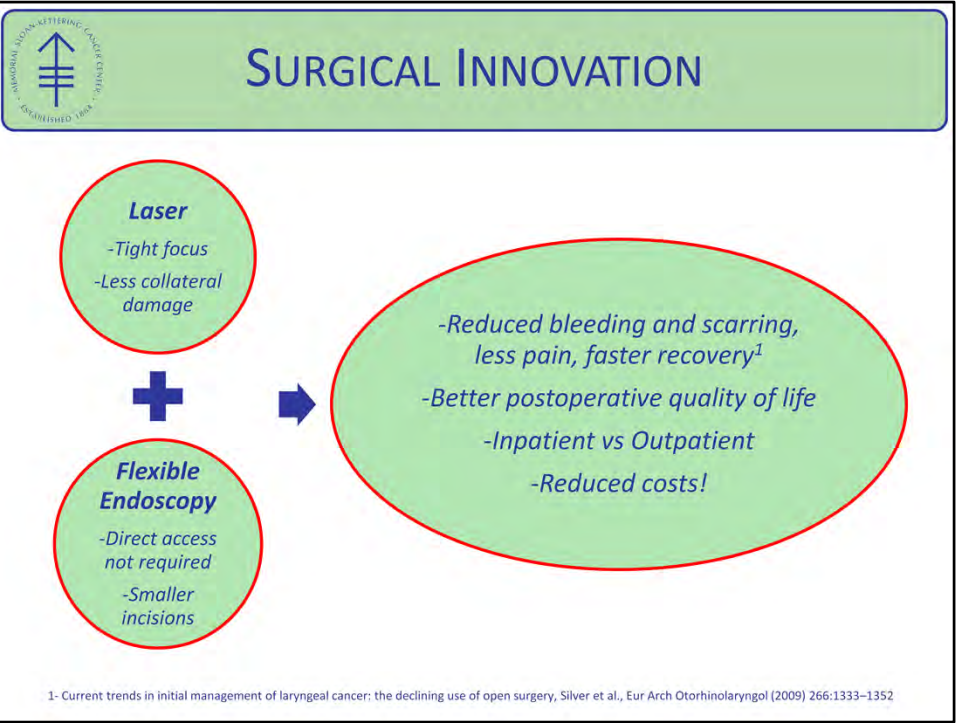
Flexible endoscopy




Increasing Access

"Whoa! Watch where that thing lands— we'll probably need it."

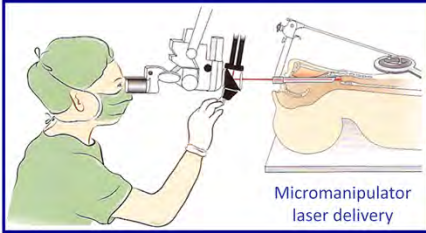
Lasers are stuck at rigid endoscopy



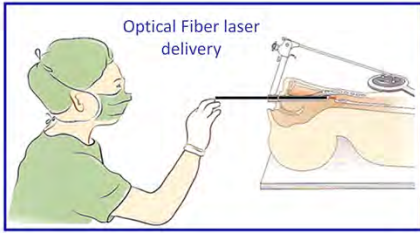


PROBLEM TO BE SOLVED

Current Endoscopic Laser Surgery Procedures



Micromanipulator
laser delivery

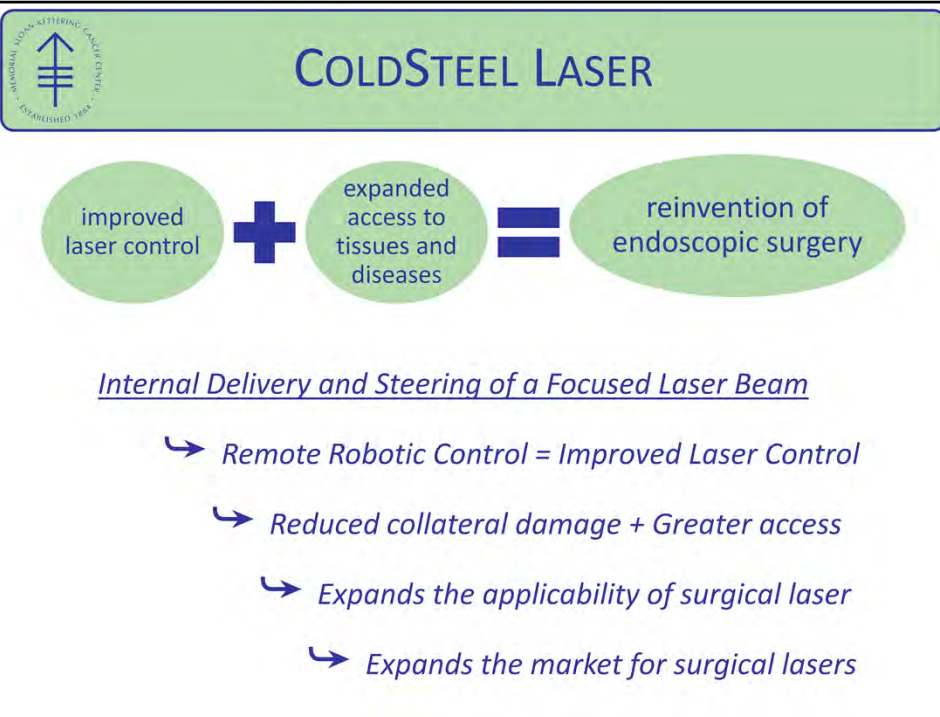


Optical Fiber laser
delivery

- Lasers are controlled and aimed from outside the body
- Can only be used when there is direct external access to the disease
- Control of the laser is limited
- Procedures are technically challenging and limited in their applicability

Current procedures significantly limit the number of surgeries that can benefit from the advantages of the surgical laser

Because light travels in straight paths and is steered with mirrors and lenses, laser scalpel use is easy for procedures where the surgeon has direct access to the tissue or organ being operated as in the case of eye surgery or skin surgery. HOWEVER, controlling a laser scalpel in laparoscopic or endoscopic surgeries is difficult or impossible in the tight spaces and confined body cavities.





COLDSTEEL LASER TEAM



Snehal Patel, MD FRCS

- Head-and-Neck Surgeon. MSKCC
- Expert in laser surgery and advanced instrumentation for endoscopic surgery
- Brain-father of instrument



Milind Rajadhyaksha, PhD

- Engineer. Principal Investigator in the Dermatology Service at MSKCC
- Experienced in start-ups (Lucid Inc.) commercializing a medical instrument.
- 20 years in academia with 5 NIH funded grants



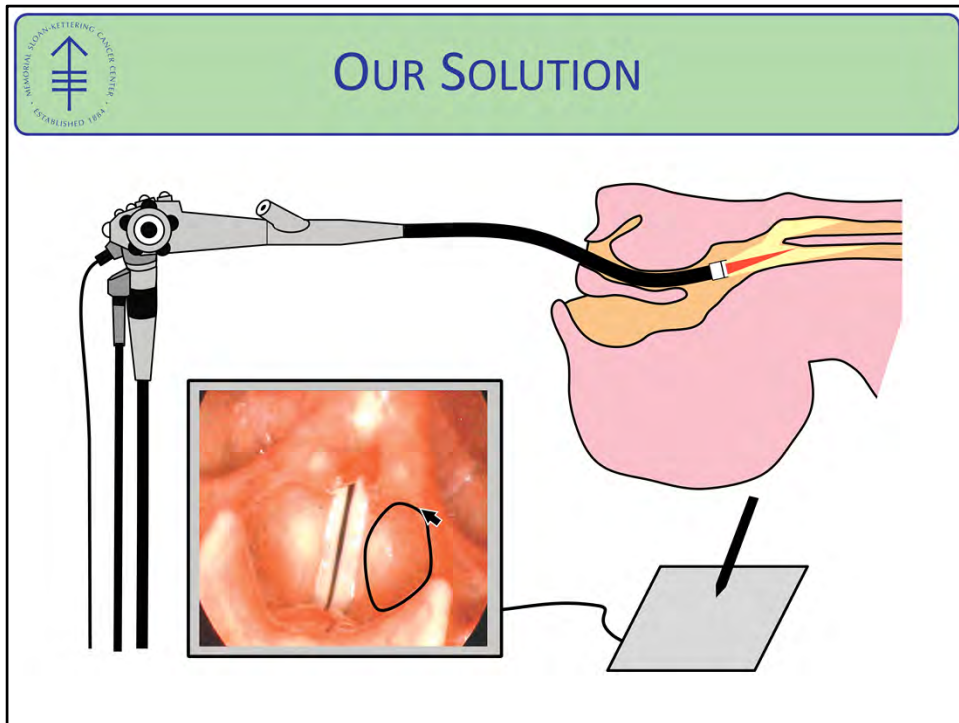
Ricardo Toledo-Crow, PhD

- Physicist. Director of the Research Engineering Laboratory, MSKCC
- Expert in optical and biomedical instruments
- 20 years working in industry and academia



Frank Palmer, BA

- Research Project Coordinator. Head and Neck Service, MSKCC
- CEO and founder of ColdSteel Laser LLC



The device can be adapted to any endoscopic or laparoscopic instrument, shown here on a gastroscope. It is inserted into the body A LIGHTSOURCE AND A VIDEO CAMERA relay the endoscopic image to the surgeon on a remote display. where the surgeon has a pointing device and cursor. By manipulating the pointing device the surgeon can activate the laser and steer it over any path on the tissue displayed on the image. So as the pointing device describes this closed path the focused laser is moved around the imaged tissue.



OUR TECHNOLOGY

Brings the surgical laser to previously inaccessible diseases



O.D. 17mm (can be smaller!) instrument/exhaust channel (not shown)

- *Laser is aimed and controlled from inside the body cavity*
- *Device provides visual feedback and remote control*
- *Optics deliver smaller spot size than existing surgical lasers (1/3!)*
- *Readily integrated with robotic, endoscopic and/or telesurgery platforms*

How it works...

- *A video camera in the device provides an endoscopic image*
- *An opto-mechanical mechanism guides a focused laser locally in response to remote commands from the surgeon*
- *Surgeon controls the delivery with a graphic input device by moving a cursor over the image*
- *Readily integrated to a robotic and/or telesurgery platforms*

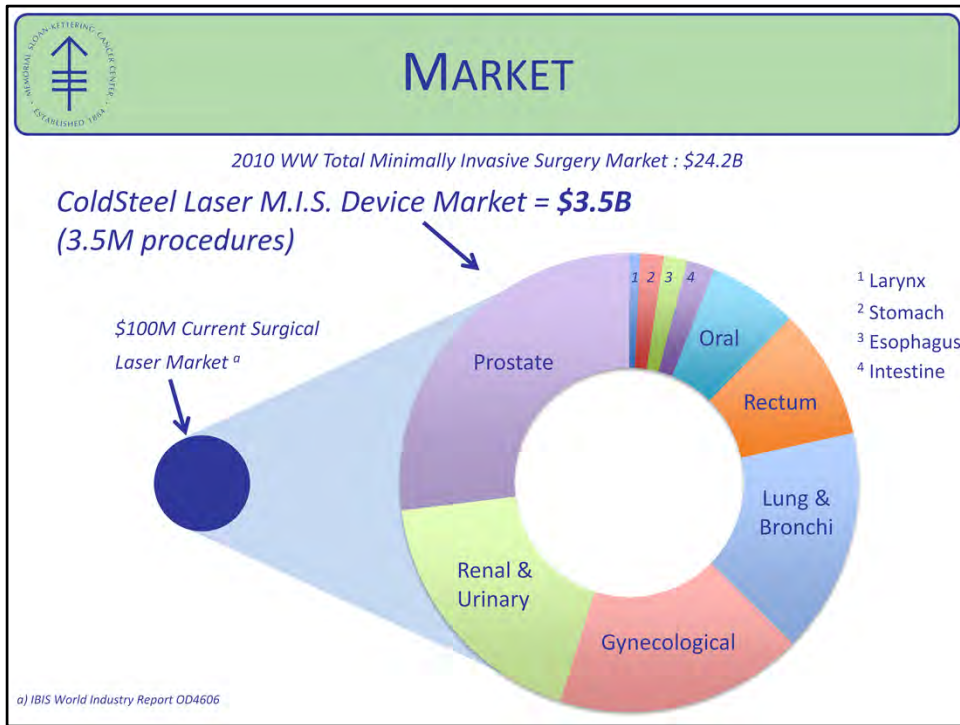


PROTOTYPE (1.0)



Demonstrated:

- ✓ *Physical characteristics (speed, accuracy and resolution)*
- ✓ *Manufacturability (within reasonable time and \$)*



A patient comes in with a growth on their voice box. They are consulted for laser surgery but the surgeon, though skilled, cannot get access to the tissue. Instead, the patient is given radiation therapy five days a week for six weeks. They are out of work for an extended period of time for their treatment and the more money is spent on radiation vs a surgical approach. There were 3.5 million patients last year like this who could have benefited from the endoscopic laser scalpel. We plan to break into the market through head and neck surgery – throat and mouth – because we are well placed for early adoption in that field; a team member is a prominent head and neck surgeon. At 27%, the laser market has a massive growth rate and this will be advantageous while we change the paradigm of current disease management.



COLDSTEEL LASER



contact: admin@coldstellaser.com

Questions?