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DEVELOPMENT OF A FLEXIBLE-RIGID ENDOSCOPE (FRE), AND ITS APPLICATION TOWARDS ENDOSCOPIC SURGERY.

Technology Reference

R076

Keyword

Surgical Device

Contact

Lauren Rhone
Technology Transfer
1725 West Harrison, #439
Chicago, IL 60612
P: 312.942.5150
F: 312.942.2874
E: Lauren_rhone@rush.edu

Inventor

Ashok A. Jagasia MD
Instructor/Adjunct Attending
Otolaryngology

Field

Otolaryngology

Patent Status

US Patent Pending

The proposed concept is to use a “flexible-rigid scope” in sinus surgery to allow for combining multiple functions while providing for a substantial increase in reach and control.

AREAS OF APPLICATION

The use of the FRE can be applied to:

- Sinus Surgery
- General Surgery (e.g. laparoscopic surgery),
- Orthopedic Surgery (e.g. arthroscopic surgery),
- OB-GYN (e.g. endoscopic diagnostic procedures),
- Interventional Cardiovascular procedures.
- Otoendoscopy.

ADVANTAGES

- Lightweight and easy to manipulate
- Allows one-handed control in surgeries that require a free hand
- Remarkably wider surgical access with multiple degrees of rotation
- Provide better surgical orientation reducing intra-operative complications
- Reduce operating time and trauma to nasal mucosa by using only one endoscope during ESS
- Provide a more comfortable experience for the patient in a clinic setting which will allow the physician more time to perform an endoscopic procedure
- Compatible with image guided surgical techniques

THE TECHNOLOGY

The core characteristics of the FRE are a rigid insertion tube approximately 4 mm in diameter, with a distal tip comprising of a hollow central lumen, which would be controlled by a trackball by the operating index finger for easy guidance. The central lumen could deliver a light source, an approximate 2mm catheter for suctioning, a laser for the excision of nasal papillomas, polyps or hemangiomas; multiple small peripheral lumens and the ability to bend the tip up to + or – 180 degrees in pitch and yaw depending on the OD. The OD would range from 1.6 mm to 5 mm depending on vacuuming flow rate, tip force, bend radius and image quality requirements. Light would run the length of the endoscope in three separate ports as well as the camera view through three other separate ports. Structurally this device would be completely different with a poly-lumen tubing allowing for better fiber optics, resolution and flexibility.

Rush Medical Center University
www.rush.edu/research
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