

# LAPAROSCOPY

ELE282 Biomedical Engineering Seminar I, Feb. 22, 2000

### **Leonard Sherman**

Biomedical Engineering, University of Rhode Island Kingston, RI 02881

#### What it is

Laparoscopy is a surgical technique through which the human body can be seen internally without making large incisions. Laparoscopy literally means, "to look inside the abdomen". This technique implements special instruments called fiberoptic laparoscopes. Measuring less than half an inch in diameter, they are attached to high-resolution video cameras and are inserted into the human body through the small incisions.

## **Description**

The idea of implementing laparoscopy has been around since the early 19<sup>th</sup> century. First performed using simple instruments by a Swedish physician in 1910. It was not until the advent of high-resolution video camera that laparoscopic surgery - a technologically advanced surgical procedure became very popular among surgeons. Since, it became a practical method of visualization for operating inside the body

In the mid 1980's German and French surgeons began experimenting with simple general surgical laparoscopic procedures. Removal of the gallbladder and appendix were the first procedures tried. The advantages were obvious to surgeons in the United States and their techniques were rapidly adopted and modified. Today, over 90% of the gallbladders removed in this country are done via laparoscopy.

This new technology uses a small video camera and a few customized instruments to perform surgery with minimal tissue injury. After the administration of anesthesia the camera and instruments are inserted into the abdomen or

chest through small, usually \_ inch incisions allowing the surgeon to explore the whole cavity

without the need of making large standard openings dividing skin and muscle. In order to better see in these rather in the cramped quarters, a gas (carbon dioxide) is used to inflate the abdomen to about 15 mmHg. The object of surgery and the surrounding tissues are clearly seen on a high-resolution video monitor. After making the initial incision, additional ones are made to allow for various instruments as the need arises. These instruments are specialized for the specific type of surgery to be able to pass through the small incisions.

#### **Benefits**

Laparoscopy offers many benefits over the traditional surgery. It is usually performed on an outpatient basis, which means that the patient can go home hours rather than days after the surgery. In addition, recovery times are much shorter than with large abdominal incisions are performed which tend to damage the muscle, and connective tissues, along with bone permitting the patient to return to normal activity in a shorter period of time.

Currently their are numerous indications for laparoscopy. Modern uses of laparoscopy include the diagnosis and treatment of pelvic pain in women, treatment of ovarian cysts, appendectomies, gallbladder surgery, hysterectomy and many others.

In summary, the advent of laparoscopy has been an exciting part of modern medicine. It allows patients to recover in days instead of weeks or months. Although the uses of laparoscopy are growing every day, it is still not for everyone.