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GHADIALI
General Surgery

PRESENTS

Dr. Mufa T. Ghadiali is skilled in all aspects of General Surgery.
His General Surgery Services include:

- General Surgery
- Advanced Laparoscopic Surgery
- Surgical Oncology
- Gastrointestinal Surgery
- Hernia Surgery
- Endoscopy

Single Incision Laparoscopy

Multimedia Health Education

Disclaimer

This movie is an educational resource only and should not be used to make decisions about any surgery. All decisions about the management of medical conditions must be made in conjunction with your Physician or a licensed healthcare provider.

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MULTIMEDIA HEALTH EDUCATION MANUAL

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INTRODUCTION

The trend in surgical techniques is towards developing the least invasive methods to perform surgical procedures. It is believed this will result in not only better cosmetic results, but also less pain and faster recovery for the patient. Laparoscopy is a minimally invasive surgical procedure which utilizes several small incisions in the abdomen to insert a viewing instrument, the laparoscope, and tiny surgical instruments.

Laparoscopy is used to diagnose and treat a wide range of problems within the abdominal and pelvic cavities. It differs from traditional "open" surgery which utilizes one large incision to access the abdomen. The latest advancement in laparoscopic surgery is a new surgical technique called single incision laparoscopy that is performed through only one incision, usually through the belly button.

Introduction

This new technique may be referred to by many names including:

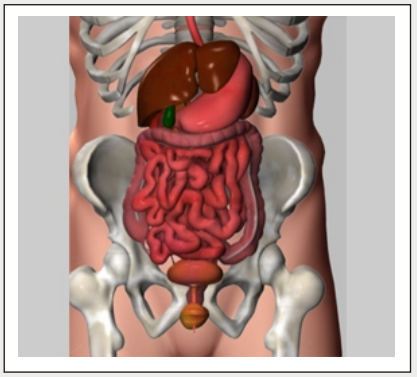
- SILS: Single incision laparoscopic surgery
- SPA: Single port access
- LESSS: Laparoscopic endoscopic single site surgery
- SLIT: Single laparoscopic incision transabdominal surgery
- OPUS: One port umbilical surgery
- NOTUS: Natural orifice transumbilical surgery
- E-Notes: Embryonic natural orifice transumbilical endoscopic surgery
- Scarless Surgery

To learn more about single incision laparoscopy, let us first learn about the anatomy of the abdominopelvic cavity.

Abdominopelvic Anatomy

The abdominopelvic cavity contains the following organs

(Refer fig.1)

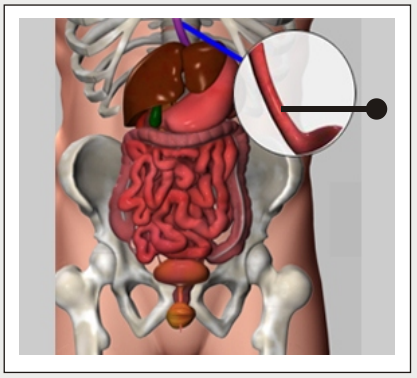


(Fig.1)

Esophagus

The esophagus is the tube that carries food and drink from the mouth to the stomach. The lower end of the esophagus enters the abdominal cavity.

(Refer fig.2)

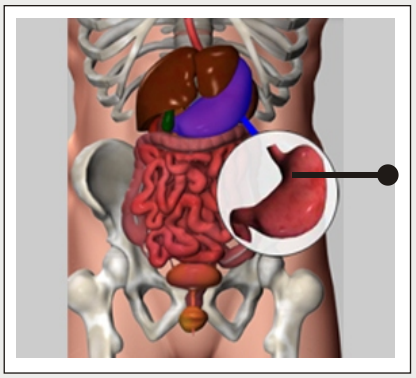


(Fig.2)

Stomach

The stomach is a 'j'-shaped organ with two openings, the esophageal opening where the esophagus meets the stomach, and the duodenal opening, the start of the small intestine where contents leave the stomach.

(Refer fig.3)



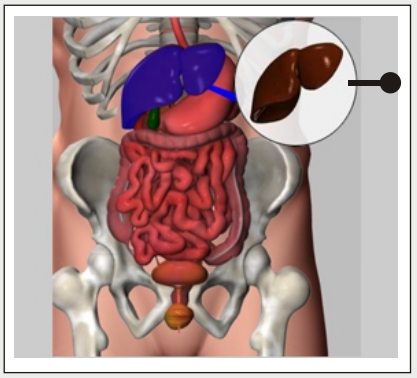
Stomach

(Fig.3)

Liver

The liver is the largest organ in the body and is the main organ of metabolism and energy production.

(Refer fig.4)



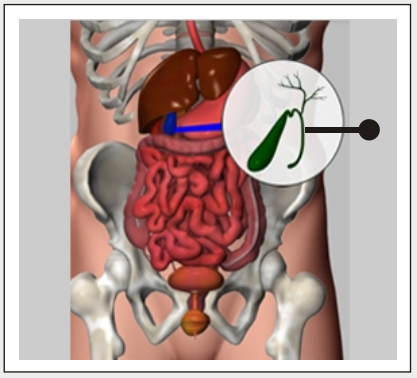
Liver

(Fig.4)

Gallbladder

The gallbladder is a pear-shaped organ that lies just below the liver. It accepts bile from the liver, and stores it. Bile is a watery, greenish-yellowish fluid produced by the liver that aids in the digestion of fatty foods.

(Refer fig.5)



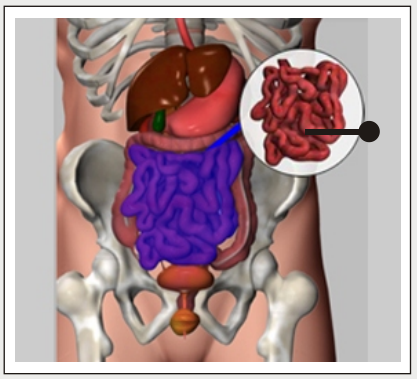
Gallbladder

(Fig.5)

Small Intestine

The small intestine is the site where most of the chemical and mechanical digestion is carried out, and where virtually all of the absorption of useful materials is carried out.

(Refer fig.6)



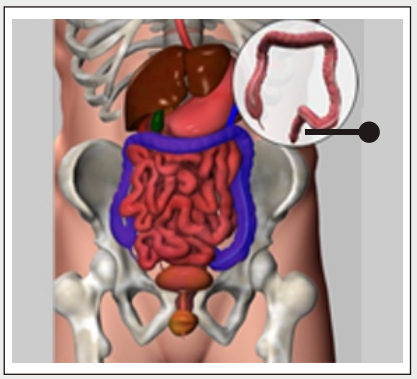
Small Intestine

(Fig.6)

Large Intestine

The large intestine is the last part of the digestive tube and the location of the terminal phases of digestion. It is that part of the digestive tube between the terminal small intestine and anus.

(Refer fig.7)



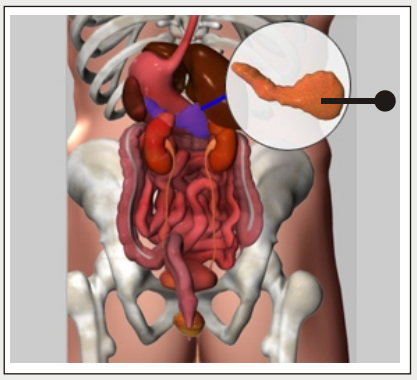
Large Intestine

(Fig.7)

The Pancreas

The pancreas consists mainly of exocrine glands that secrete enzymes to aid in the digestion of food in the small intestine. Structurally, the pancreas has four sections; head, neck, body and tail; the tail stretches back to just in front of the spleen.

(Refer fig.8)



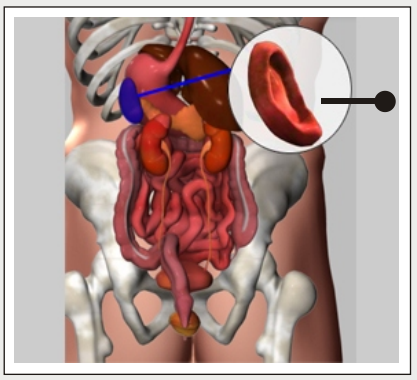
The Pancreas

(Fig.8)

Spleen

The spleen is located in the upper left abdomen and functions to fight infections and keep body fluids in balance.

(Refer fig.9)



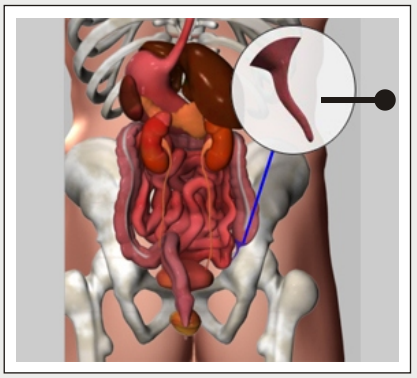
Spleen

(Fig.9)

Appendix

The appendix is a worm-like extension protruding off of a segment of the large intestine called the cecum.

(Refer fig.10)



Appendix

(Fig.10)

Kidneys

Kidneys are located in the back of the abdominal cavity and are responsible for cleaning your blood of wastes and producing hormones.

(Refer fig.11)

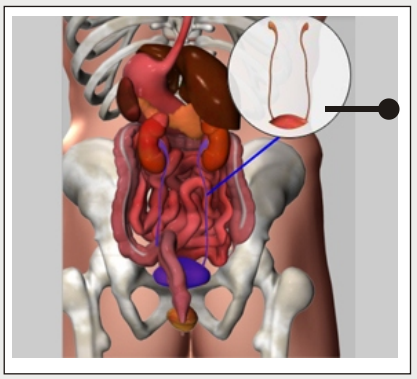
Kidneys

(Fig.11)

Ureters

The ureters are the two tubes that carry the urine from the kidneys to the bladder.

(Refer fig.12)



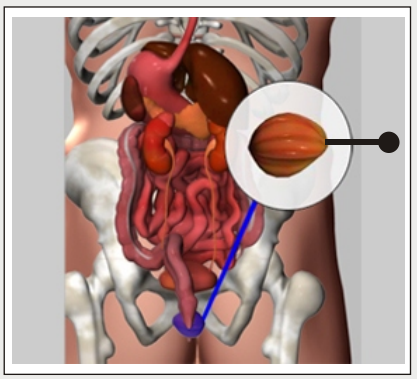
Ureters

(Fig.12)

Prostate

The prostate is a male gland about the size of a walnut that is involved in semen Production.

(Refer fig.13)



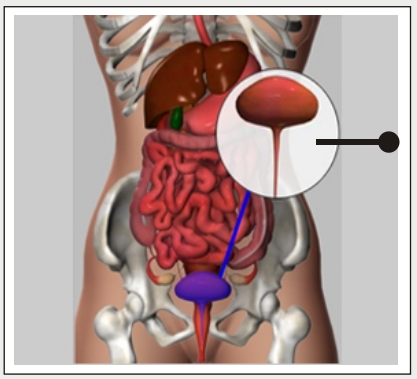
Prostate

(Fig.13)

Bladder

The urinary bladder is a sac that acts as a reservoir for holding urine.

(Refer fig.14)



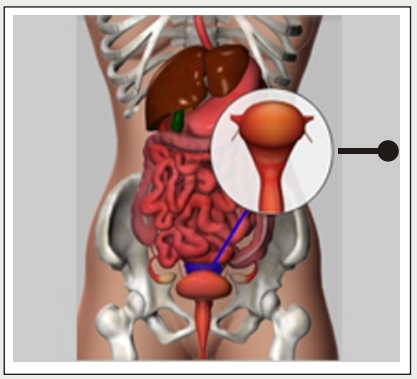
Bladder

(Fig.14)

Uterus

This is where normal egg implantation occurs in women after fertilization by sperm.

(Refer fig.15)



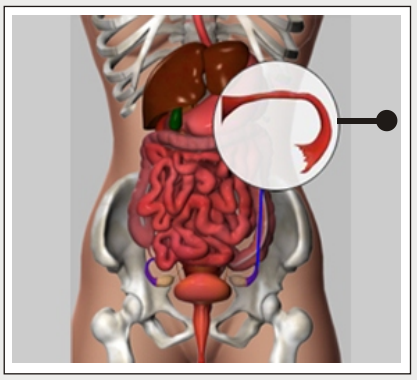
Uterus

(Fig.15)

Fallopian Tubes

These are the passageways that a fertilized egg goes through before implanting in the uterus.

(Refer fig.16)



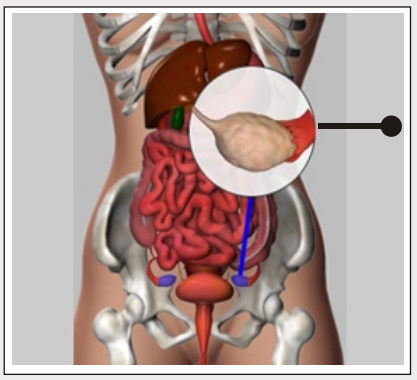
Fallopian Tubes

(Fig.16)

Ovaries

Women have two ovaries that contain eggs for reproduction and also produce female Hormones.

(Refer fig.17)



Ovaries

(Fig.17)

What is Single Incision Laparoscopy?

Single incision laparoscopy is a minimally invasive surgical procedure performed through one incision, usually at the umbilicus (belly button), enabling your surgeon to look inside the abdominal and pelvic cavities to diagnose and treat a variety of abnormal conditions.

Normally, laparoscopy is performed through multiple tiny incisions in the abdomen. The surgeon then inserts a hollow tube called a trocar in the incisions through which the laparoscope and surgical instruments are inserted. A laparoscope is a long, narrow telescope with a light source and video camera at the end. Images from the camera are projected onto a large monitor for the surgeon to view the abdominopelvic cavity.

Laparoscopes have channels inside the scope enabling the surgeon to pass gas in and out to expand the viewing area or to insert tiny surgical instruments for treatment purposes. The surgical instruments used in operative laparoscopy are very small but appear much larger when viewed through a laparoscope. With single incision laparoscopy, your surgeon makes one incision through the umbilicus and then inserts multiple tiny trocars through the one incision to perform the surgery.

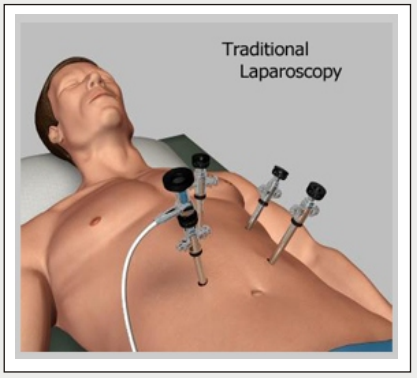
Advantages of Single Incision Laparoscopy

Research studies are ongoing to assess the outcomes of single incision laparoscopy compared to traditional laparoscopy but early studies are confirming that "smaller is better" when it comes to incisions.

Some advantages that may be obtained from undergoing single incision laparoscopy include:

- No visible scar
- Shorter hospital stay
- Decreased post operative pain
- Faster return to work

(Refer fig.18 & 19)



(Fig.18)

(Fig.19)

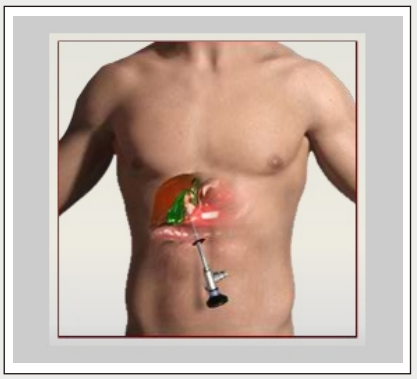
Types of Procedures

Types of operative procedures that can be performed with Single Incision Laparoscopy include the following:

Cholecystectomy

Removal of the gallbladder.

(Refer fig.20)

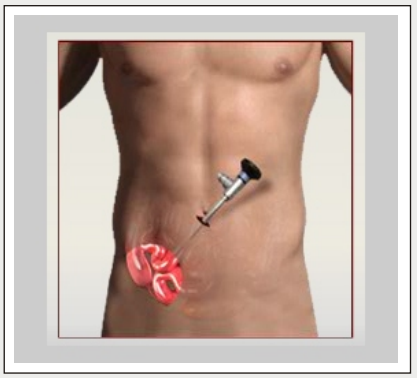


(Fig.20)

Appendectomy

Removal of the appendix.

(Refer fig.21)



(Fig.21)

Bariatric Surgery

Certain weight loss procedures can be performed with single incision laparoscopy including adjustable gastric banding and gastric bypass surgeries.

(Refer fig.22)

(Fig.22)

Gynecological Surgery

Hysterectomy as well as certain gynecological conditions can be treated with single incision laparoscopy including fibroids, cysts, and endometriosis.

(Refer fig.23)

(Fig.23)

Hernia Repair

Repair of common hernia sites including inguinal (groin), femoral (below the groin), and some abdominal hernias.

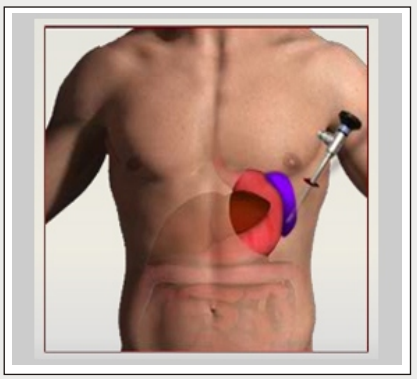
(Refer fig.24)

(Fig.24)

Spleenectomy

Removal of the spleen.

(Refer fig.25)

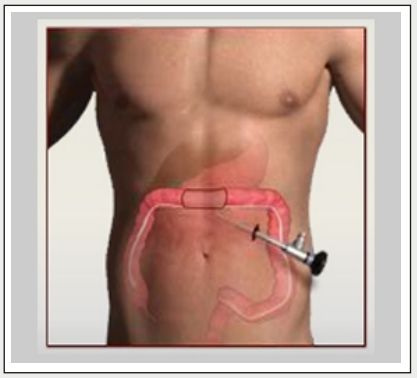


(Fig.25)

Colectomy

Surgical removal of part of the colon for treatment of a wide range of colorectal diseases such as colon cancer, diverticulitis, chronic ulcerative colitis, and Crohn's disease.

(Refer fig.26)



(Fig.26)

GERD surgery

Treatment of gastro esophageal reflux disease (GERD).

(Refer fig.27)

(Fig.27)

Adrenalectomy

Removal of the adrenal glands.

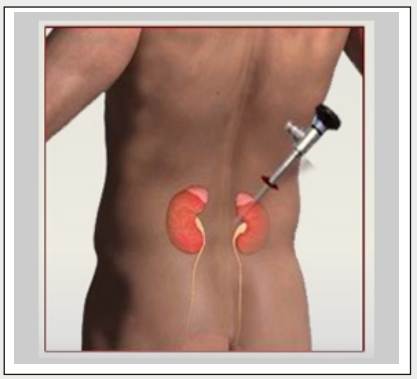
(Refer fig.28)

(Fig.28)

Nephrectomy

Removal of a kidney for donor purposes.

(Refer fig.29)



(Fig.29)

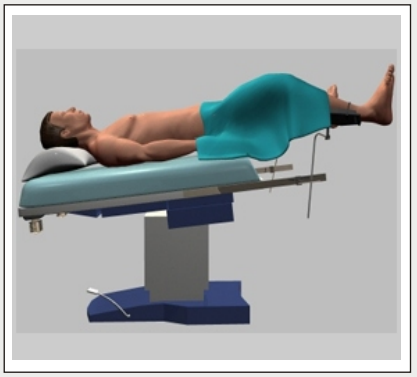
How is it done?

Single Incision Laparoscopy is usually performed as day surgery either in the hospital or outpatient surgery center under general, regional, or occasionally local anesthesia depending on the type of procedure performed and the surgeon's preference. During SILS, the patient is placed lying on their back with their body tilted so the feet are higher than the head. This position helps to move some of the abdominal organs toward the chest allowing the surgeon a clearer view. Your legs may be straight or split apart depending on the surgery and your surgeon's preference on where to stand during the operation.

(Refer fig.30 & 31)

The surgeon makes a small incision in the abdomen, usually at the belly button.The surgeon injects a harmless gas into the abdominal cavity to expand the viewing area of the abdomen giving the surgeon a clear view and room to work.

(Refer fig.31)

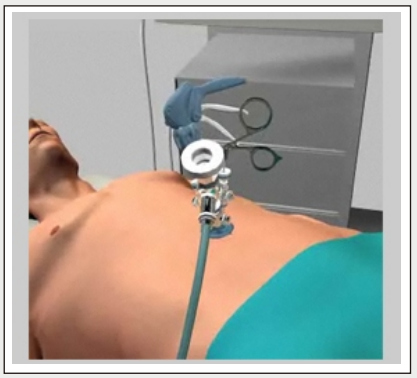


(Fig.30)

(Fig.31)

The surgeon then inserts a tube called a trocar followed by the other trocars in the same incision. The laparoscope and tiny surgical instruments can then be inserted through the trocars to perform the particular surgery.

(Refer fig.32)



(Fig.32)

How is it done?

With the images from the laparoscope as a guide, the surgeon can look for any pathology or anomaly. The large image on the television screen allows the surgeon to see the abdominal contents directly and to determine the extent of the problem, and then perform the particular surgical procedure.

(Refer fig.33)

After treating the problem, the laparoscope and other instruments are removed and the gas released.
The tiny incision is closed and covered with a small bandage.

Single Incision Laparoscopy is much less traumatic to the muscles and soft tissues than the traditional method of surgically opening the abdomen with long incisions (open techniques).

(Refer fig.34)

(Fig.33)

(Fig.34)

Post-op Guidelines

After Single Incision Laparoscopy your surgeon will give you guidelines to follow depending on the type of surgery performed and the surgeon's preference. Recovery time varies depending on the operation and the type of anesthesia used, but usually the patient can go home after a few hours.

Common post-operative guidelines following Single Incision laparoscopy include the following:

You will need someone to drive you home after you are released as the anesthesia may make you feel groggy and tired.

(Refer fig.35)

(Fig.35)

Post-op Guidelines

Do not remove the dressing over the incision for the first two days and keep the area clean and dry. No showering or bathing during this time. The incision usually heals in about 5 days.

(Refer fig.36)

(Fig.36)

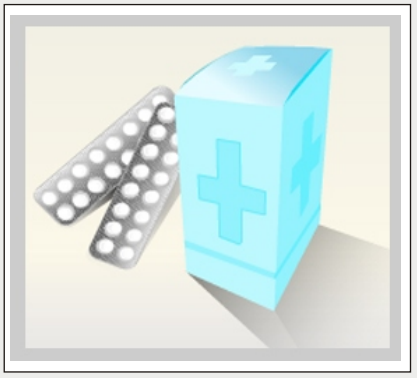
Your surgeon may give you activity restrictions such as no heavy lifting. It is very important that you follow your surgeon's instructions for a successful recovery.

(Refer fig.37)

(Fig.37)

You may feel soreness around the incision area. Your surgeon may give you a prescription pain medicine or recommend NSAID's (non-steroidal anti-inflammatory drugs) for the first few days to keep you comfortable.

(Refer fig. 38)



(Fig.38)

If the abdomen was distended with gas, you may experience discomfort in the abdomen, chest, or shoulder area for a couple days while the excess gas is being absorbed.

(Refer fig. 39)

(Fig.39)

Post-op Guidelines

Contact your doctor immediately if you have a fever, chills, increased pain, bleeding or fluid leakage from the incisions, chest pain, and shortness of breath, leg pain, or dizziness.

(Refer fig. 40)

(Fig.40)

Risks and Complications

As with any surgery there are potential risks involved. The decision to proceed with the surgery is made because the advantages of surgery outweigh the potential disadvantages. It is important that you are informed of these risks before the surgery takes place.

Most patients do not have complications after Single Incision Laparoscopy Surgery; however complications can occur and depend on which type of surgery your doctor performs as well as the patient's health status. Complications can be medical (general) or specific to Single Incision Laparoscopy. Medical complications include those of the anesthesia and your general well being.

Almost any medical condition can occur so this list is not complete. Complications include:

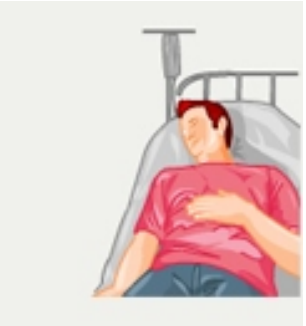
Allergic reactions to medications

Blood loss requiring transfusion with its low risk of disease transmission

Heart attacks, strokes, kidney failure, pneumonia, bladder infections

Risks and Complications

Complications from nerve blocks such as infection or nerve damage



Serious medical problems can lead to ongoing health concerns, prolonged hospitalization, or rarely death.

Specific complications for Single Incision Laparoscopy Surgery include:

Post-operative fever and infection

Antibiotics given at the time of surgery lessen this risk but symptoms of infection should be reported to your physician and can include: fever, chills, increasing pain, bleeding, and foul smelling drainage.

Surgical injury to blood vessels

A rare complication that is usually recognized during surgery and repaired. Rarely, a blood transfusion may be necessary.

Surgical injury to bowel or bladder

Also a rare complication that is usually recognized during surgery and repaired. Rarely, a temporary colostomy may be necessary.

Gas Embolism

If gas is used to distend the abdominal cavity for better viewing there is a risk of gas embolism or gas bubbles in the bloodstream. This is a serious condition that can impede blood flow to vital organs or cause a blood clot to occur in a blood vessel.

Blood Clots

Small clots can form in the leg veins (thrombophlebitis) causing sudden swelling or discoloration in the leg requiring immediate medical attention. A rare but life threatening complication can occur in which the blood clot travels to the lungs (pulmonary embolism).

Adhesions

Extensive scar tissue formation can form in the abdominopelvic area. Rarely adhesions can obstruct the intestines requiring additional surgery.

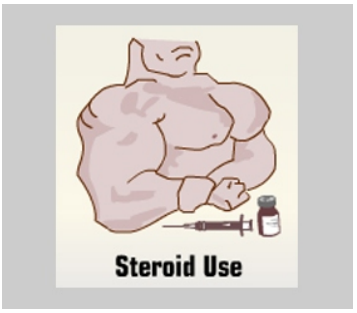
Conversion to multiple ports

Your surgeon may need to make additional incisions if the surgery cannot be completed through a single incision.

Conversion to Laparotomy

There are occasions when a laparoscopy cannot be completed successfully without converting to a traditional "open" surgery called a laparotomy. A laparotomy is similar but is done through a larger abdominal incision.

Risk factors that can negatively affect adequate healing after surgery include:



Disclaimer

Although every effort is made to educate you on Single Incision Laparoscopy Surgery and take control, there will be specific information that will not be discussed. Talk to your doctor or health care provider about any concerns you have about Single Incision Laparoscopy.

☐ ☐ ☐ **YOUR SURGERY DATE**

☐ **READ YOUR BOOK AND MATERIAL**

☐ **VIEW YOUR VIDEO /CD / DVD / WEBSITE**

☐ **PRE - HABILITATION**

☐ **ARRANGE FOR BLOOD**

☐ **MEDICAL CHECK UP**

☐ **ADVANCE MEDICAL DIRECTIVE**

☐ **PRE - ADMISSION TESTING**

☐ **FAMILY SUPPORT REVIEW**

Physician's Name : _____

Physician's Signature: _____

Date : _____

Patient's Name : _____

Patient's Signature: _____

Date : _____