



GHADIALI

General Surgery

P R E S E N T S

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

Appendicitis

Multimedia Health Education

Disclaimer

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

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GHADIALI

MULTIMEDIA HEALTH EDUCATION MANUAL

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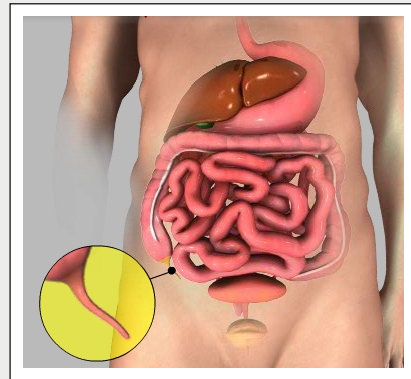
What is Appendicitis?

Appendicitis is a painful swelling and infection of the appendix. Appendicitis is a medical emergency that requires immediate care. People who think they have appendicitis should see a doctor or go to the emergency room right away. Swift diagnosis and treatment reduce the chances the appendix will burst and improve recovery time.

What is the Appendix?

The appendix is a fingerlike pouch attached to the large intestine and located in the lower right area of the abdomen. Scientists are not sure what the appendix does, if anything, but removing it does not appear to affect a person's health. The inside of the appendix is called the appendiceal lumen. Mucus created by the appendix travels through the appendiceal lumen and empties into the large intestine.

(Refer fig.1)



(Fig.1)

What Causes Appendicitis?

Obstruction of the appendiceal lumen causes appendicitis. Mucus backs up in the appendiceal lumen, causing bacteria that normally live inside the appendix to multiply. As a result, the appendix swells and becomes infected. Sources of obstruction include:

- Feces, parasites, or growths that clog the appendiceal lumen
- Enlarged lymph tissue in the wall of the appendix, caused by infection in the gastrointestinal tract or elsewhere in the body
- Inflammatory bowel disease, including Crohn's disease and ulcerative colitis
- Trauma to the abdomen

An inflamed appendix will likely burst if not removed. Bursting spreads infection throughout the abdomen a potentially dangerous condition called peritonitis.

Risk Factors - Who gets Appendicitis?

Anyone can get appendicitis, but it is more common among people 10 to 30 years old. Appendicitis leads to more emergency abdominal surgeries than any other cause.

What are the symptoms of appendicitis?

Most people with appendicitis have classic symptoms that a doctor can easily identify. The main symptom of appendicitis is abdominal pain.

The abdominal pain usually:

- Occurs suddenly, often causing a person to wake up at night
- Occurs before other symptoms
- Begins near the belly button and then moves lower and to the right
- Is new and unlike any pain felt before
- Gets worse in a matter of hours
- Gets worse when moving around, taking deep breaths, coughing, or sneezing

Other symptoms of appendicitis may include:

- Loss of appetite
- Nausea
- Vomiting
- Constipation or diarrhea
- Inability to pass gas
- Low-grade fever that follows other symptoms
- Abdominal swelling
- The feeling that passing stool will relieve discomfort

Symptoms vary and can mimic other sources of abdominal pain, including:

- Intestinal obstruction
- Inflammatory bowel disease
- Pelvic inflammatory disease and other gynecological disorders
- Intestinal adhesions
- Constipation

Diagnosis

How is Appendicitis Diagnosed?

A doctor or other health care provider can diagnose most cases of appendicitis by taking a person's medical history and performing a physical examination. If a person shows classic symptoms, a doctor may suggest surgery right away to remove the appendix before it bursts. Doctors may use laboratory and imaging tests to confirm appendicitis if a person does not have classic symptoms. Tests may also help diagnose appendicitis in people who cannot adequately describe their symptoms, such as children or the mentally impaired.

Medical History

The doctor will ask specific questions about symptoms and health history. Answers to these questions will help rule out other conditions. The doctor will want to know when the pain began and its exact location and severity. Knowing when other symptoms appeared relative to the pain is also helpful. The doctor will ask questions about other medical conditions, previous illnesses and surgeries, and use of medications, alcohol, or illegal drugs.

Physical Examination

Details about the abdominal pain are key to diagnosing appendicitis. The doctor will assess pain by touching or applying pressure to specific areas of the abdomen.

Responses that may indicate appendicitis include:

Guarding:

Guarding occurs when a person subconsciously tenses the abdominal muscles during an examination. Voluntary guarding occurs the moment the doctor's hand touches the abdomen. Involuntary guarding occurs before the doctor actually makes contact.

Rebound tenderness:

A doctor tests for rebound tenderness by applying hand pressure to a patient's abdomen and then letting go. Pain felt upon the release of the pressure indicates rebound tenderness. A person may also experience rebound tenderness as pain when the abdomen is jarred for example, when a person bumps into something or goes over a bump in a car.

Rovsing's sign:

A doctor tests for Rovsing's sign by applying hand pressure to the lower left side of the abdomen. Pain felt on the lower right side of the abdomen upon the release of pressure on the left side indicates the presence of Rovsing's sign.

Psoas sign:

The right psoas muscle runs over the pelvis near the appendix. Flexing this muscle will cause abdominal pain if the appendix is inflamed. A doctor can check for the psoas sign by applying resistance to the right knee as the patient tries to lift the right thigh while lying down.

Obturator sign:

The right obturator muscle also runs near the appendix. A doctor tests for the obturator sign by asking the patient to lie down with the right leg bent at the knee. Moving the bent knee left and right requires flexing the obturator muscle and will cause abdominal pain if the appendix is inflamed.

Women of childbearing age may be asked to undergo a pelvic exam to rule out gynecological conditions, which sometimes cause abdominal pain similar to appendicitis. The doctor may also examine the rectum, which can be tender from appendicitis.

Laboratory Tests

Blood tests are used to check for signs of infection, such as a high white blood cell count. Blood tests may also show dehydration or fluid and electrolyte imbalances. Urinalysis is used to rule out a urinary tract infection. Doctors may also order a pregnancy test for women.

Imaging Tests

Computerized tomography (CT) scans, which create cross-sectional images of the body, can help diagnose appendicitis and other sources of abdominal pain. Ultrasound is sometimes used to look for signs of appendicitis, especially in people who are thin or young. An abdominal x ray is rarely helpful in diagnosing appendicitis but can be used to look for other sources of abdominal pain. Women of childbearing age should have a pregnancy test before undergoing x rays or CT scanning. Both use radiation and can be harmful to a developing fetus. Ultrasound does not use radiation and is not harmful to a fetus.

Conservative Treatment

How is Appendicitis Treated?

The only option for an acute infection of the appendix is surgery to remove the appendix. Prompt surgery decreases the likelihood the appendix will burst.

There are rare occasions, however, that conservative treatment may be indicated. This “wait and see” approach may be used if the diagnosis is unclear and your surgeon wants to wait and see if symptoms worsen. Nonsurgical treatment may also be used in situations where surgery is not available, or if a person is not well enough to undergo surgery.

Some research suggests that appendicitis can get better without surgery. Nonsurgical treatment includes antibiotics to treat infection and a liquid or soft diet until the infection subsides. A soft diet is low in fiber and easily breaks down in the gastrointestinal tract.

Surgical Treatment

Surgery to remove the appendix is called appendectomy and can be done two ways. The older method, called laparotomy, removes the appendix through a single incision in the lower right area of the abdomen. The newer method, called laparoscopic surgery, uses several smaller incisions and special surgical tools fed through the incisions to remove the appendix. Laparoscopic surgery leads to fewer complications, such as hospital-related infections, and has a shorter recovery time.

Surgery occasionally reveals a normal appendix. In such cases, many surgeons will remove the healthy appendix to eliminate the future possibility of appendicitis. Occasionally, surgery reveals a different problem, which may also be corrected during surgery.

Sometimes an abscess forms around a burst appendix called an appendiceal abscess. An abscess is a pus-filled mass that results from the body’s attempt to keep an infection from spreading. An abscess may be addressed during surgery or, more commonly, drained before surgery. To drain an abscess, a tube is placed in the abscess through the abdominal wall. CT is used to help find the abscess. The drainage tube is left in place for about 2 weeks while antibiotics are given to treat infection. Six to 8 weeks later, when infection and inflammation are under control, surgery is performed to remove what remains of the burst appendix.

Surgical Treatment

Laparoscopic Appendectomy is performed under sterile conditions in the operating room with the patient under general anesthesia. During laparoscopy, 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.

(Refer fig.2)

The surgeon makes an incision over the abdomen and inserts 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.

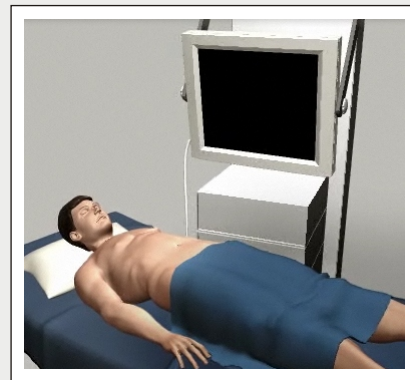
The surgeon makes another incision and inserts a tube called a trocar through which the laparoscope is introduced into the abdomen.

Additional small incisions may be made for a variety of surgical instruments to be used during the procedure.

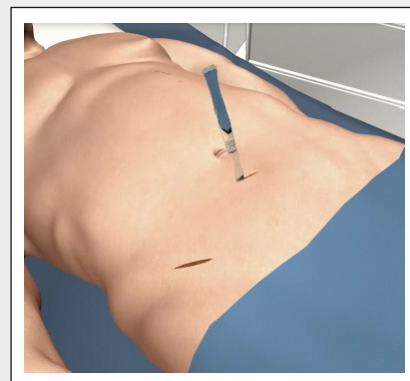
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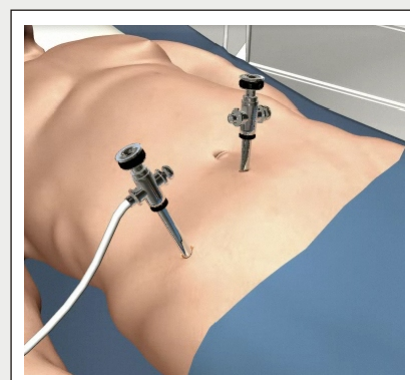
(Fig.2)



(Fig.3)



(Fig.4)



(Fig.5)

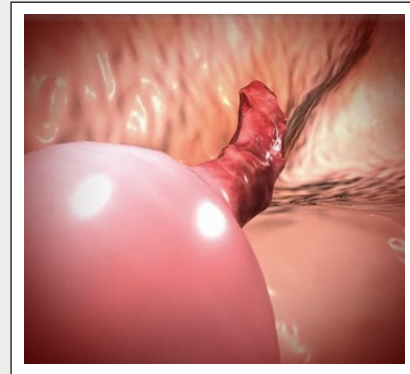
Surgical Treatment

With the images from the laparoscope as a guide, the surgeon can look at the appendix and determine the extent of the problem.

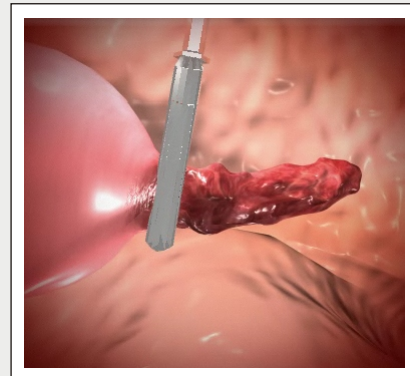
A variety of surgical instruments can be inserted through the laparoscope or through other small incisions your surgeon may make to remove the appendix.

Once the appendix is removed the area is washed with sterile fluid to minimize the risk of infection

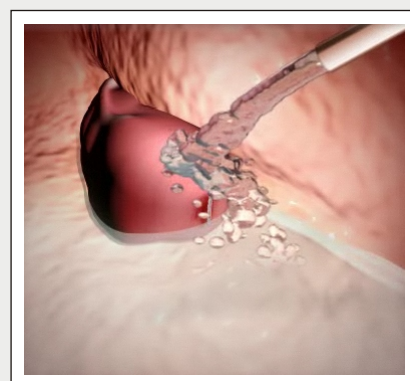
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(Fig.6)



(Fig.7)



(Fig.8)

Unit 3:

Treatment Options

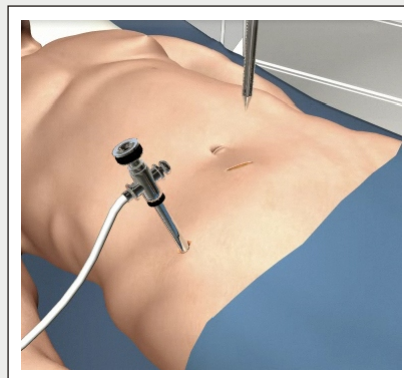
Surgical Treatment

After treating the problem, the laparoscope and other instruments are removed and the gas released.

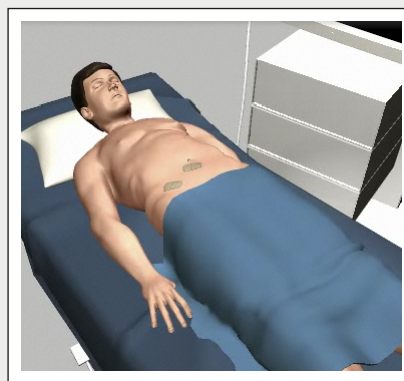
The tiny incisions are closed and covered with small bandages.

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. "9 & 10")



(Fig.9)



(Fig.10)

Post Operative Guidelines

Common post-operative guidelines following laparoscopic appendectomy include the following:

- You will probably be in the hospital for a day or two, longer if the appendix ruptured.
- Follow your surgeon's instructions regarding the dressings on the incision sites.
- Deep breathing and moving around after your surgery helps to prevent pneumonia.
- 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.
- You may feel soreness around the incision areas. 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.
- 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.
- Contact your doctor immediately if you have a fever, chills, increased pain, bleeding or fluid leakage from the incisions, chest pain, shortness of breath, leg pain, or dizziness.

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 laparoscopic appendectomy; however complications can occur and depend on which type of surgery your doctor performs as well as the patient's health status. (Obese, diabetic, smoker, etc.).

Complications can be medical (general) or specific to appendectomy surgery.

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 reaction to medications
- Blood loss requiring transfusion with its low risk of disease transmission
- Heart attack, strokes, kidney failure, pneumonia, bladder infections
- Complications from nerve blocks such as infection or nerve damage
- Serious medical problems can lead to ongoing health concerns, prolonged hospitalization, or rarely death.

Because the abdominal muscles are not cut in laparoscopic surgery, the pain and complications associated with abdominal surgery are lessened. However, complications can occur with any surgery.

Specific complications for Laparoscopic Appendectomy 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 abdomino-pelvic area. Rarely adhesions can obstruct the intestines requiring additional surgery.

Conversion to Open Appendectomy:

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:



(Fig. 11)

Summary

Points to Remember

- Appendicitis is a painful swelling and infection of the appendix.
- The appendix is a fingerlike pouch attached to the large intestine and located in the lower right area of the abdomen.
- Symptoms of appendicitis may include abdominal pain, loss of appetite, nausea, vomiting, constipation or diarrhea, inability to pass gas, low-grade fever, and abdominal swelling.
- A doctor can diagnose most cases of appendicitis by taking a person's medical history and performing a physical examination. Sometimes laboratory and imaging tests are needed to confirm the diagnosis.
- Appendicitis is typically treated by removing the appendix.
- Appendicitis is a medical emergency that requires immediate care.

A good knowledge of this procedure will make the stress of undertaking the procedure easier for you to bear. The decision to proceed with the procedure is made because the advantages of the procedure outweigh the potential disadvantages. It is important that you are informed of these risks before the procedure.

Although every effort is made to educate you on Appendicitis 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 Appendicitis.

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 : _____

Patient's Name : _____

Physician's Signature: _____

Patient's Signature: _____

Date : _____

Date : _____