HERNIA AND ITS MANAGEMENT

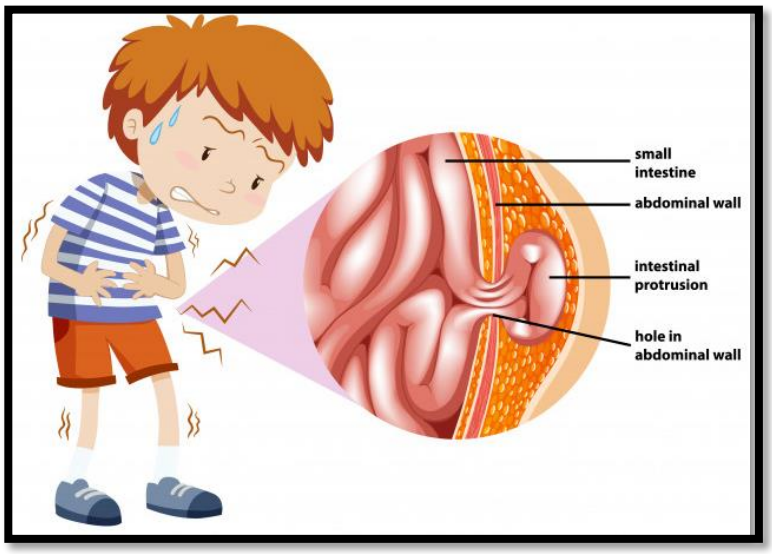
INTRODUCTION:

Worldwide, more than 20 million patients undergo groin hernia repair annually. Although there are many different types of hernias, they are usually related to the abdomen, with approximately 75% of all hernias occurring in the inguinal region. Abdominal wall hernias account for 4.7 million ambulatory care visits annually. More than 600,000 surgical repairs for inguinal hernias are performed nationwide each year, making it one of the most common general surgical procedures performed in the United States.

DEFINITION:

A Hernia is an abnormal protrusion of the viscous (internal organ such as the intestine) through an abnormal opening or a weakened area ion the wall of the cavity in which it is normally contained.

The lump may disappear when the person lies down, and sometimes it can be pushed back into. Coughing may make it reappear.



PREVALANCE OF HERNIA:

Inguinal hernias have a 9:1 male predominance, with a higher incidence among men 40 to 59 years of age. It has been estimated that more than one-fourth of adult men in the United States have a medically recognizable inguinal hernia. Men with a diagnosed hiatal hernia have been shown to have double the risk of an inguinal hernia. Among women, taller height, chronic cough, umbilical hernia, older age, and rural residence have been associated with a higher incidence of inguinal hernia. Neither smoking nor alcohol use has been shown to affect hernia occurrence. Several studies have demonstrated that men who are overweight or obese have a lower risk of inguinal hernia than men of normal weight.

ETIOLOGY:

With the exception of an incisional hernia (a complication of abdominal surgery), in most cases, there is no obvious reason for a hernia to occur. The risk of hernia increases with age and occurs more commonly in men than in women.

1. A hernia can be congenital (present at birth) or develop in children who have a weakness in their abdominal wall.

2. Activities and medical problems that increase pressure on the abdominal wall can lead to a hernia. These include:

- straining on the toilet (due to long-term constipation, for example)
- persistent cough
- cystic fibrosis
- enlarged prostate
- straining to urinate
- being overweight or obese
- lifting heavy items
- peritoneal dialysis
- poor nutrition
- smoking
- physical exertion
- undescended testicles

3. Family history of hernia

RISK FACTORS :

The risk factors can be broken down by hernia type:

1. Incisional hernia risk factors

Because an incisional hernia is the result of surgery, the clearest risk factor is a recent surgical procedure on the abdomen.

People are most susceptible 3-6 months after the procedure, especially if:

- they are involved in strenuous activity
- have gained additional weight
- become pregnant

These factors all put extra stress on tissue as it heals.

2. Inguinal hernia risk factors

Those with a higher risk of inguinal hernia incude:

- older adults
- people with close relatives who have had inguinal hernias
- people who have had inguinal hernias previously
- males
- smokers, as chemicals in tobacco weaken tissues, making a hernia more likely
- people with chronic constipation
- premature birth and low birth weight

- pregnancy

4. **Umbilical hernia risk factors**

Umbilical hernias are most common in babies with a low birth weight and premature babies.

In adults, the risk factors include:

- being overweight
- having multiple pregnancies
- being female

5. **Hiatal hernia risk factors**

The risk of hiatal hernia is higher in people who:

- are aged 50 years or over
- have obesity

TYPES:

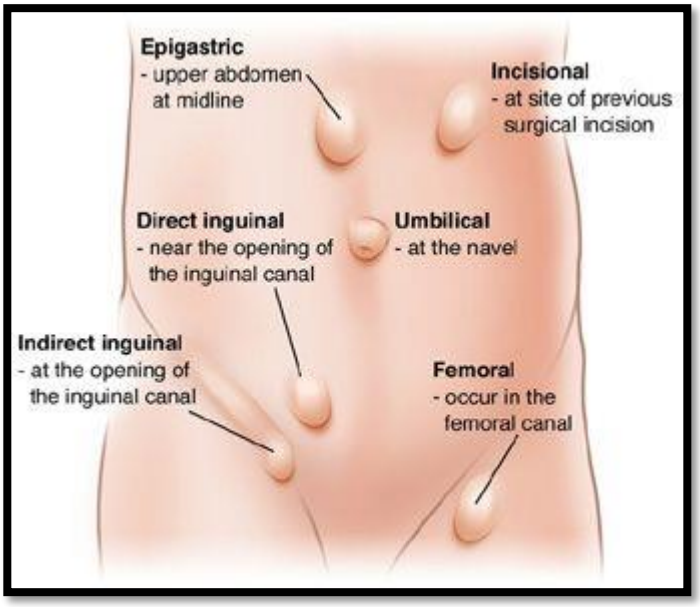


Figure: Types of Hernia

1. **Indirect Inguinal Hernia**

An indirect inguinal hernia occurs when any intra-abdominal structure protrudes through the deep inguinal ring entering the inguinal canal. An indirect inguinal hernia is a congenital lesion.

2. **Direct Inguinal Hernia**

A direct inguinal hernia occurs when the posterior abdominal wall is directly penetrated by intraabdominal structures. They tend to occur in older men, where the posterior abdominal wall is weaker. Once the “posterior” wall of the inguinal canal [transversalis fascia in Hesselbachs triangle] is breached, preperitoneal fat is the first tissue to extrude, sometimes followed by a peritoneal sac. The sac is usually small,with an open neck, and therefore lower risk to incarcerate.

3. **Femoral Hernia**

A femoral hernia is much like a direct inguinal hernia. It penetrates the posterior abdominal wall directly and is an

acquired lesion. A femoral hernia occurs through Hesselbach's triangle below the iliopubic tract; a space bounded superiorly by the iliopubic tract, inferiorly by Cooper's ligament, laterally by the femoral vein, and medially by the insertion of the iliopubic tract into Cooper's ligament. Unlike inguinal hernias, femoral hernias occur more commonly in females.

75% of all hernias occur in the inguinal area, half of which are indirect inguinal hernias. Femoral hernias account for only 3% of all hernias. The vast majority of hernias occur in males, although femoral hernias are more common in females (5:1 = female: male). One quarter of all males with develop an inguinal hernia in their lifetime, verses only 3% of females.

4. Umbilical Hernias

Umbilical hernias occur in three forms, with the most common type also being the least threatening. This simple umbilical hernia occurs when a small defect, caused by incomplete closure of the umbilicus, allows intra-abdominal contents to protrude through the abdominal wall. The defect may be insignificant during youth, only to weaken and stretch with age allowing for the development of a hernia.

Umbilical hernias are congenital in origin and often occur during infancy; spontaneous closure by the age of 2 years is common. Most umbilical hernias that appear before the age of 6 months disappear spontaneously by 1 year of age. Even large hernias (5-6 cm in all dimensions) have been known to disappear spontaneously by 5-6 years of age.

5. Incisional Hernias

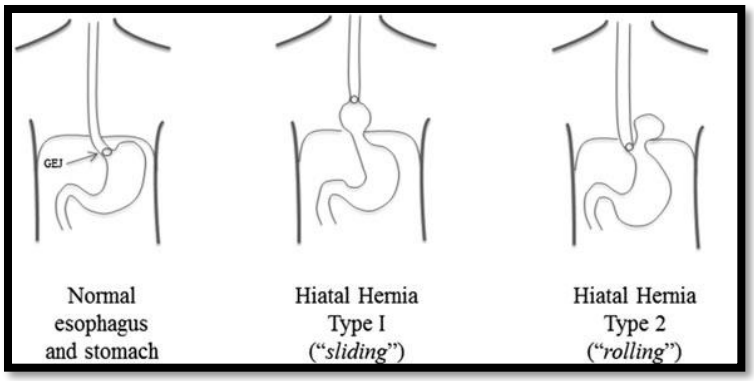
Incisional hernias are the protrusion of intra abdominal contents through a surgically formed defect. Incisional hernias are a huge problem, eventually developing in 5-10% of patients where access to the abdomen was gained through a long midline incision. Often there is a readily identifiable contributing factor; in many instances, however, the wound appears to heal only to become weaker over a period of months, with attenuation of the fascial layer and finally formation of a complete defect.
Initially, the defect may be oval shaped, in line with the incision, but eventually will be circular; skin over the peritoneum will become progressively more attenuated.

6. Other Hernia Sites:

a. Epigastric:

Epigastric hernias occur in the linea alba. They are an acquired defect and are often multiple in nature. In obese patients they can be difficult to appreciate by palpation. Patients with epigastric hernias commonly complain of a painful tearing sensation in the midline on moving into a recumbent position.

b. Hiatal or Hiatus Hernia:



A hiatus hernia is a particular variant of this type, in which the normal passageway through which the esophagus meets the stomach (esophageal hiatus) serves as a functional "defect", allowing part of the stomach to (periodically) "herniate" into the chest. Hiatus hernias may be either "*sliding*", in which the gastroesophageal junction itself slides through the defect into the chest, or non-sliding (also known as *para-esophageal*), in which case the junction remains fixed while another portion of the stomach moves up through the defect. Non-sliding or para-esophageal hernias can be dangerous as they may allow the stomach to rotate and obstruct. Repair is usually advised.

CLINICAL MANIFESTATIONS:

Mild to moderate size of hernia don't usually causes any symptoms. Large hernia may be noticeable and cause some discomfort.

1. Pain during lifting of heavy objects
2. Tenderness and swelling
3. Bulging out
4. Severe and sudden pain
5. Bowel obstruction
6. Nausea and vomiting
7. constipation

DIAGNOSTIC EVALUATION:

A. History Taking:-

i. Age of Patient (65 and above more risk)
ii. Duration of Hernia (1st saw)
iii. Height and Weight (Obesity more risk)
iv. Pain at the Hernia place (score/type/duration/specific)
v. Ask about the previous history of surgical post-operative complications (especially wound infection and/or)
vi. Smoking
vii. Bowel movement (constipation)
viii. Chronic cough
ix. Family history of Hernia.

B. ***PhysicalExamination:-*** Inspection, Palpation, Auscultation and Percussion.

C. Investigation:-

i. **Ultra-sound Scan** – Men might have an ultra-sound to assess for inguinal or scrotal hernias
ii. **X-Ray abdomen** – This image shows multiple loops of dilated small bowel, indicating small bowel obstruction. A loop of bowel is seen below the level of inguinal ligament, indicating an inguinal hernia, the cause of obstruction
iii. **MRI** – An MRI scan can detect a tear in the abdominal muscles
iv. **Barium swallow** – A hiatal hernia can be diagnosed with a specialized X-Ray study that allows visualization of the esophagus and stomach by barium swallow
v. **Blood Test** – CBC, WBC, detect inflammation, infection and presence of tissue neurosis, and detect bloodloss for hiatal hernia

MANAGEMENT:

A. Medical pharmacology treatment:-

i. Antibiotic (used if the patient has strangulated hernia)
   → IV Cefoxitin (Mefoxin) 1g 6-8 hourly
   → Cap. Ampicilin 250-500 mg 6 hourly
ii. H2 receptor blocker (used if the patient with hiatal hernia)
   → Tab. Famotidine 40 mg daily

→ Tab. Rantidine 150 mg BD

iii. PPI (used if the patient with hiatal hernia)
   → Tab. Lansoprazole (prevacid) 15-30 mg daily
   → Tab. Omeprazole (prilosec) 20-40 mg daily
   → Tab. Pantoprazole (controloc) 20-40 mg daily

iv. Nonsteroidal Anti-inflammatory Drugs(NSAIDS) (for patients with mild to moderate pain)
   → Tab. Ibuprofen (Advil) 100 mg 6 hourly
   → Tab. Ketoprofen 50-75 mg 6 hourly

B. Non- pharmacological Management:-

i. Avoid food that cause acid reflux or heart burn such as spicy food
ii. Don't lie down or bend over after a meal
iii. Exercise
iv. Stop smoking
v. Avoid gassy drinks
vi. Avoid lifting heavy objects

C. Non-surgical management:-

Truss (inguinal hernia) – A pad made with firm material that will hold in place over the hernia with belt to help keep the abdominal contents from protruding into the hernia sac.

D. Surgical management:-

- Laparoscopic surgery is the treatment choice
- The surgical repair of a hernia, known as herniorrhappy is usually an outpatient procedure
- Reinforcing the weakened area with wire, fascia, or mesh is known as a hernioplasty.

E. Nursing Management: –

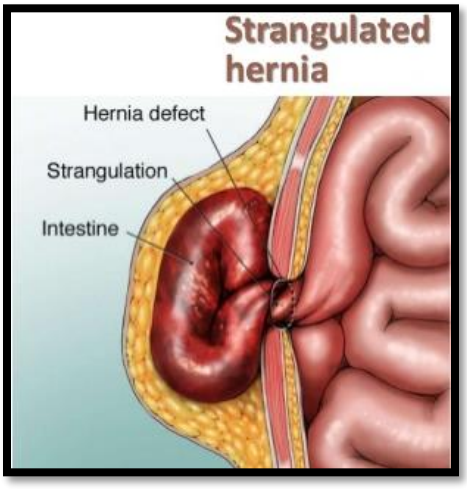
- Pre-Operative Care
   → The patient is instructed to avoid activities that increase intra abdominal pressure, such as lifting heavy object
   → The patient is taught to recognize signs of incarceration or strangulation and the importance of notifying the HCP immediately
   → If a support truss or brief has been ordered, the patient is taught to apply it before arising from bed each morning while the hernia is not protruding
   → Special attention should be paid to maintenance of skin integrity beneath the truss
- Post-operative Care
   → Patients can perform deep breathing to keep lungs clear post-operatively but should avoid coughing. Coughing increases abdominal pressure and could affect the hernia repair
   → The male patient may experience the swelling of scrotum. Ice packs and the elevation of the scrotum may be ordered to reduce the swelling
   → Most patients are discharged the same day of the surgery. They are taught to change the dressing and report difficulty urinating, bleeding, and signs and symptoms of infection, such as redness, incisional drainage, fever or severe pain

→ The patient is also instructed to avoid lifting, driving or sexual activities for 2 to 6 weeks as specified by the HCP

COMPLICATIONS

- Hernia recurrence
- Wound infection
- Ischemia
- Neurosis
- **Strangulated Hernia**: An incarcerated hernia may become strangulated if the blood and intestinal flow are completely cut off in the trapped loop of bowel.

  Strangulated hernias do not develop in adults very often. Once pressure at the neck of the hernial defects exceeds venous outflow pressure the hernia quickly becomes engorged with blood. The elevated pressure quickly impedes arterial flow leading the ischemia and subsequent edema and necrosis of tissue. It leads to an intestinal obstruction and possibly gangrene and bowel perforation.



- **Dehiscence** by is "a bursting open, splitting, or gaping along natural or sutured lines"; dehiscence may occur suddenly in the early post-operative period, accompanied by some bleeding and discharge of serosanguinous fluid. The primary failure of healing is at the fascial level; skin sutures may" hold", containing the extruded viscera; if the skin closure is disrupted, evisceration will occur. With improvement in suture materials and suturing techniques this complication occurs less frequently. Often, dehiscence develops more gradually, caused by infection and associated facial necrosis. Needless to say, serious wound problems such as those shown below are followed by a very high incidence of herniation.

PREVENTION

- Congenital defects cannot be prevented. However, reducing strain on abdominal muscles is helpful
- Those who do heavy lifting, tugging or pushing should wear a support binder or avoid the lifting
- A healthy lifestyle of maintaining normal weight, not smoking and eating high-fiber food is recommended
- Educate the patient to assess for any signs and symptoms of infection such as redness, severe itching at surgical site
- Advise patient come for follow up to monitor patient progress
- Educate patient to eat vitamin rich diet such as vitamin C and protein to promote wound healing
- Encourage patient to take high fiber diet to prevent constipation.