

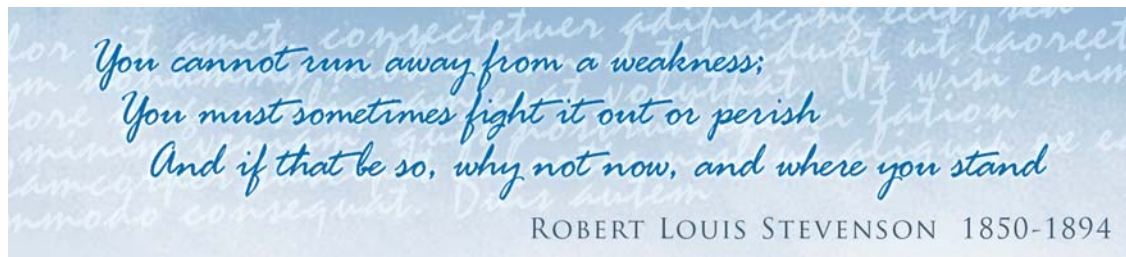


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Hernia

A hernia is a protrusion of a viscus or part of a viscus through an abnormal opening.

Inguinal hernia is the commonest variety.



Hernia is commonly known as a rupture. An outpouching of the peritoneal cavity allows the internal organs to enter through a weakness or defect in the musculature. Alternatively there may be an internal cavity of the peritoneum into which the viscera can enter.

Incidence

Herniae are very common.

Age

Any age can be affected. Some herniae are congenital.

Sex

Either sex can have herniae. However the vast number of inguinal herniae occur in men. Femoral hernia is more common in women.

Classification

Herniae can be classified in 3 different ways.

- By contents
- Pathologically
- Anatomically



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Hernia

By contents

Type	Contents of the hernia
Bubonocele	No contents or fluid only
Omentocele	Omental fat
Enterocoele	Bowel
Vesicocele	Bladder
Littre's Hernia	Meckels Diverticulum

Pathological Classification

Type	
Reducible	The contents can be pushed back into the abdominal cavity
Irreducible	The contents cannot be pushed back into the abdominal cavity
Obstructed	Any bowel contents are obstructed at the neck of the hernia
Strangulated	Any bowel contents lose their blood supply leading to peritonitis
Richter's Hernia	Part of the circumference of the bowel caught in the hernia loses its blood supply



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Anatomical Classification

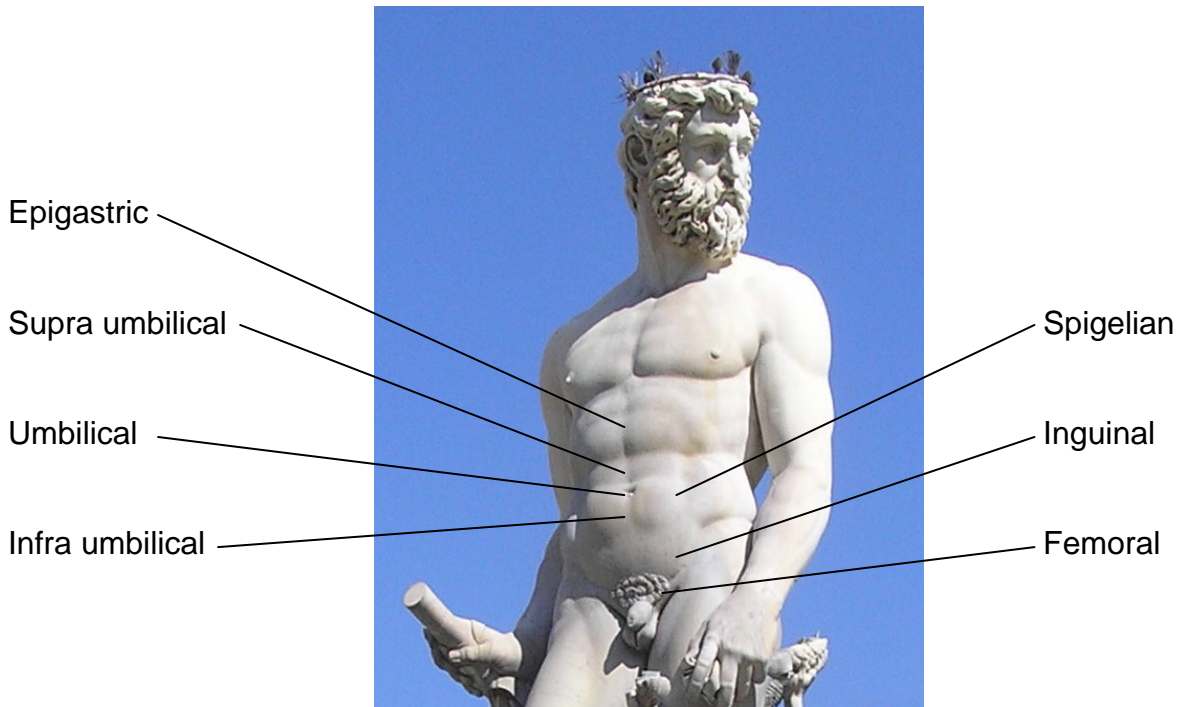
This is the commonest classification

Extra abdominal	These will not be discussed in this article		
Abdominal	Internal	Hiatus Hernia	
		Adhesions	
		Paraduodenal Hernia	
		Diaphragmatic Hernia	Morgagni
			Bochdalek
	External	Inguinal Hernia	Direct
			Indirect
		Femoral Hernia	
		Umbilical Hernia	
		Paraumbilical Hernia	Supra
			Infra
		Epigastric Hernia	
		Spigelian Hernia	
		Incisional Hernia	
	Lumbar Hernia		



Hernia

Sites of external herniae



Neptune's Fountain in Florence
by Bartolomeo Ammannati (1575)

Presentation

Herniae can present with a lump at the site of the hernia. Sharp pain may be experienced when the contents are caught in the hernia during exertion or twisting.

Severe continuous pain is a serious symptom. It may represent obstruction or strangulation. Surgical advice should be sought urgently.

Obstruction may produce vomiting. If left untreated a strangulated hernia will progress to peritonitis.



Hernia

Examination

A lump may be present. Palpating the lump can make it disappear. This is known as reducing the hernia. The lump will then reappear on coughing. Herniae are best diagnosed with the patient standing. When the patient coughs a cough impulse is felt. The cough produces the impulse by pushing out the hernia. This causes a rippling effect under the fingers when palpating the hernia.

The hernia is irreducible when the contents cannot be returned to the abdominal cavity by palpation.

Using a stethoscope on the abdomen the bowel sounds will be high pitched and tinkling when a portion of bowel is obstructed in the hernia.

Tenderness and redness of the overlying skin suggest possible strangulation.

Causes

- Obesity
- Excessive coughing
- Heavy lifting
- Straining during voiding urine
- Straining during bowel movement
- Congenital

Investigations

A history and examination is often all that is required to diagnose a hernia.

If the diagnosis is in doubt then a herniogram will identify the protrusion from the peritoneal cavity using contrast material.

Inguinal Hernia

This hernia is the commonest hernia.

The hernia occurs in the inguinal canal in the lower part of the abdomen.

The inguinal canal is an anatomical site extending from the deep ring where the spermatic cord to the testicle emerges from the abdomen to the superficial ring where the spermatic cord exits from anterior abdominal wall. The canal conveys the spermatic cord through the anterior abdominal wall. The inguinal canal lies obliquely at the lowest part of the anterior abdominal wall. It is the weakest part of the abdominal wall.



Hernia

A direct inguinal hernia protrudes through the posterior wall of the inguinal canal. It is medial to the deep ring and the inferior epigastric artery.

An indirect inguinal hernia protrudes down the spermatic cord through the deep ring. It is lateral to the inferior epigastric artery. It is more lateral than a direct hernia. If the hernia extends all the way down the spermatic cord to the testicle then it is called a patent processus (see article on hydrocele). A patent processus is often found in children.

Inguinal herniae are repaired through an inguinal incision in the groin. In indirect herniae the sac of the hernia is first dissected free of the spermatic cord and transfixed (sutured at the neck) prior to any repair. Traditionally a Bassini repair was fashioned. The internal oblique muscle is sutured to the inguinal ligament. The inguinal ligament extends from the anterior superior iliac spine of the pelvic bone to the pubic tubercle of the pubic bone. It forms the lowest border of the inguinal canal. If the sutures of the Bassini repair are under any tension then a relieving incision is made in the fascia of the internal oblique muscle above and medial to the repair. This is known as a Tanner slide.

More recently the Leichtenstein repair has become popular. It is now considered the treatment of choice. A prolene® (polypropylene) mesh is sutured onto the posterior wall of the inguinal canal. It is anchored by stitches to inguinal ligament below, the pubic tubercle medially and the fascia of the internal oblique muscle superiorly. Laterally the mesh is divided and wrapped around the deep ring.

Prolene plugs are available. They are shaped like rosettes. They are used in small discrete herniae. The plug is inserted into the hernial defect and sutured into place. A mesh is then placed over the plug as described above.

The recurrence rate for the Liechtenstein repair is very low. It allows earlier return to work and normal activities.

In children the hernial sac is tied off (transfixed). A repair is not routinely performed as these herniae are deemed to be congenital defects and the child's musculature is otherwise normal.



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Hernia

A sportman's hernia is a syndrome in athletes where there is a dilated superficial ring of the inguinal canal. This is not strictly a true hernia. It is characterized by chronic groin pain.

Femoral Hernia

This is a small hernia through the femoral canal. The femoral canal is situated medial to the femoral vein below the inguinal ligament. The canal often contains a lymph node known as the node of Cloquet.

A special type of hernia can occur at this site called a Richter hernia. In this instance a part of the circumference of the wall of the bowel gets caught in the hernia. The bit of bowel in question loses its blood supply and becomes gangrenous. Peritonitis ensues. This is a surgical emergency!

To repair the hernia a series of sutures are inserted to close the femoral canal.

Umbilical Hernia

All forms of umbilical hernia occur at, above or below the belly button. They can be congenital. Umbilical herniae at birth are usually left untreated as the majority close spontaneously before the third birthday.

In adults the repair is called a Mayo repair. After reducing the hernia a double layered fascial repair is fashioned overlapping the layers.

Incisional Hernia

These herniae occur in previous surgical wounds. There is an outpouching at a weak part of the incision. These are commonly repaired using a mesh repair.

Complications

These include haematoma, bruising, infections and injury to the scrotal tissues or structures.