

Hernias of the abdominal wall

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What has happened?



Definition: Hernia

= Bulge or protrusion of an organ through the structure or muscle that usually contains it.

A hernia is composed of:

1. Hernial orifice
2. Hernial content
3. Hernial sac



Predisposing factors

1) Weakness/defect in the abdominal wall

Congenital

Acquired

- Surgical scar
- Muscle wasting
- Fatty infiltration
- Weak connective tissue

2) High intra-abdominal pressure

- Chronic coughing (Smoker, Asthma)
- Pregnancy/Childbirth
- Obesity
- Ascites
- Constipation
- Heavy lifting/strenuous muscular exercises



Types of hernia

- **Inguinal** hernia
 - indirect/direct
- **Femoral** hernia
- **Umbilical** hernia
- **Incisional** hernia
- **Epigastric** hernia

epigastric

incisional

umbilical

femoral

inguinal, direct

inguinal, indirect

Abdominal wall

4 main muscles:

Abdominal wall

Signs and symptoms ???

Swelling = visible mass or lump

Feeling of pressure / heaviness
in the abdomen

Pain / discomfort

Nausea and vomiting

Increased symptoms when coughing, lifting, bending over, sneezing, exercising

Examination

- **Inspection:** Location, Size, Predisposing factors
- **Auscultation:** Bowel sounds?
- **Palpation:** With a fingertip, attempt of reposition

<http://batesvisualguide.com/multimediaplayer.aspx?multimediaid=6091344>

Clinical classification

Reducible hernia:

can be pushed back into
the abdomen by putting
manual pressure to it

Irreducible/Incarcerated hernia:

can't be pushed back into the
abdomen

Obstructed hernia:
the lumen of intestine is
obstructed

Strangulated hernia:
the blood supply of
hernial content is cut off



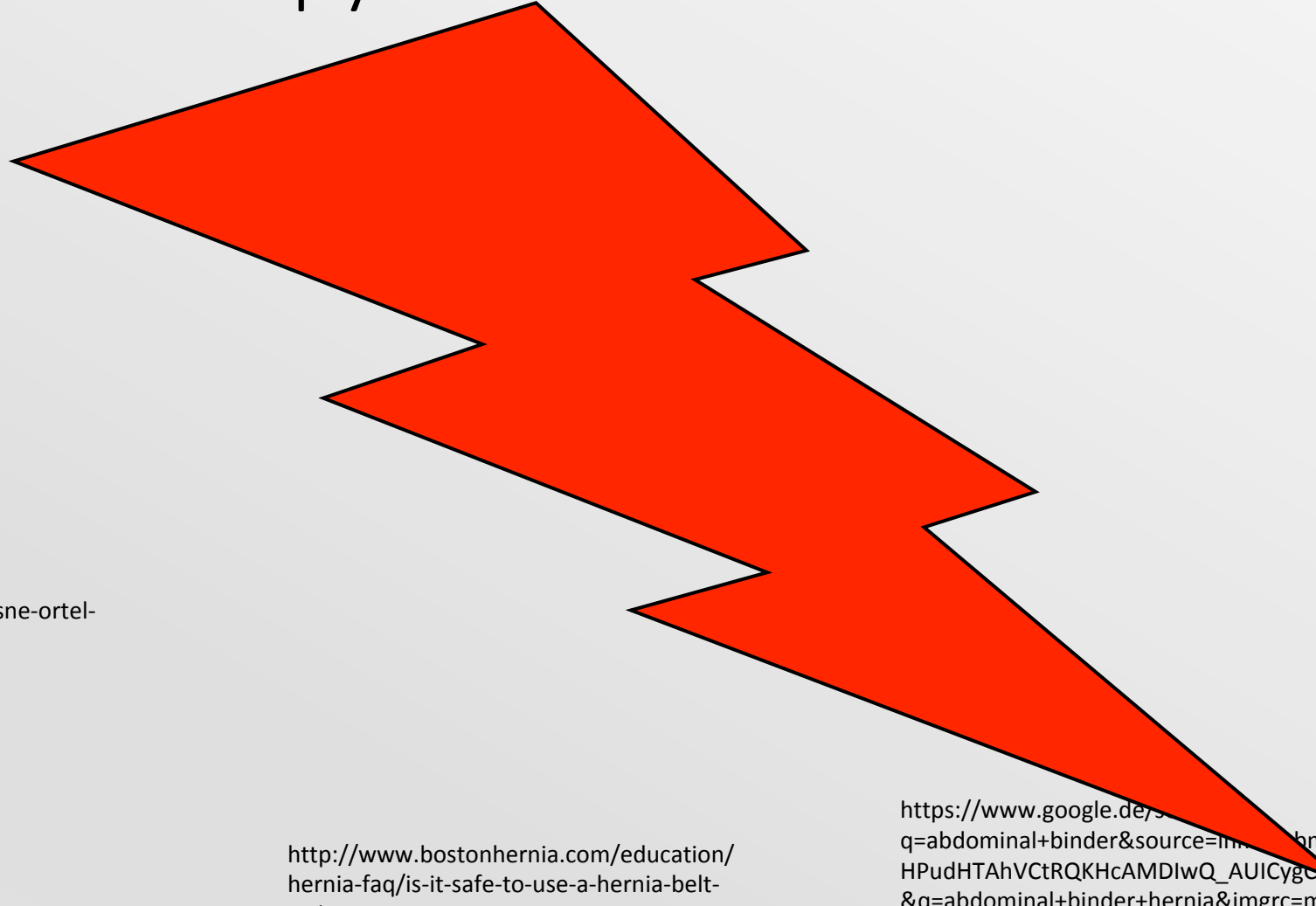
Why do we need a surgical therapy?

Aims of surgery

- 1) Reducing of the hernial content
- 2) Excising of the sac = **herniotomy**
- 3) Repair/closure of the hernial orifice

↗ **herniorrhaphy**
↘ **hernioplasty**

Non-surgical therapy



<https://www.probrace.nl/thuasne-ortel-liesbreukband.html>

<http://www.bostonhernia.com/education/hernia-faq/is-it-safe-to-use-a-hernia-belt-or-hernia-truss>

https://www.google.de/search?q=abdominal+binder&source=images&sa=X&ved=0ahUKEwjgqeHPudHTAhVCtRQKHcAMDlwQ_AUICyge&biw=1440&bih=713#tbm=isch&q=abdominal+binder+hernia&imgsrc=m6RPOw0MypoSCM

Femoral hernia

Location: Below the inguinal ligament, in the upper thigh

- Never congenital
- In the older age group
- 2-3 times more common in females
- Frequently irreducible
- Surgical treatment is unavoidable:
always open!!!

Umbilical hernia

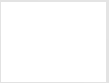
Location: Next to the navel

- More frequent in obese and pregnant women
- Becomes painful when it gets bigger
- Associated with incarceration and obstruction of the intestines
- Surgery is recommended!

Umbilical hernia - reponible

Umbilical hernia – non-reponible

Umbilical hernia – non-reponible



Umbilical hernia – non-reponible

Incisional hernia

- Occurs in 2-10% after laparotomy during the first postoperative year
- Predisposing factors: Healing disorders, obesity, big incisions, constipation, high age group
- Kind of operative method depends on incision size

Incisional hernia

Incisional hernia

Epigastric hernia

- Weak points on the midline (Linea alba)
- Only palpable on slim patients
- Open surgery (Mayo technique)
- High risk of recurrence

Inguinal hernia

- Protrusion of abdominal-cavity through the inguinal canal
- 27% of males, 3% of females develop an inguinal hernia at some time in their life
- Most common hernia → 75% (both sides in 10-15%)
- Two types = direct and indirect

Inguinal hernia – direct and indirect type

direct:

- Medial to vessels
- Through a weak point in the fascia of the abdominal wall
- Always acquired

indirect:

- Lateral to vessels
- Protrudes through deep inguinal ring
- Congenital or acquired

Inguinal hernia – direct and indirect type

Inguinal hernia – direct or indirect ???

Inguinal hernia - Examination

1. Standing position
2. Palpation with fingertip
3. Try to find the superficial inguinal ring
4. Move upward the inguinal canal
5. Try to reposition the hernia





Inguinal hernia

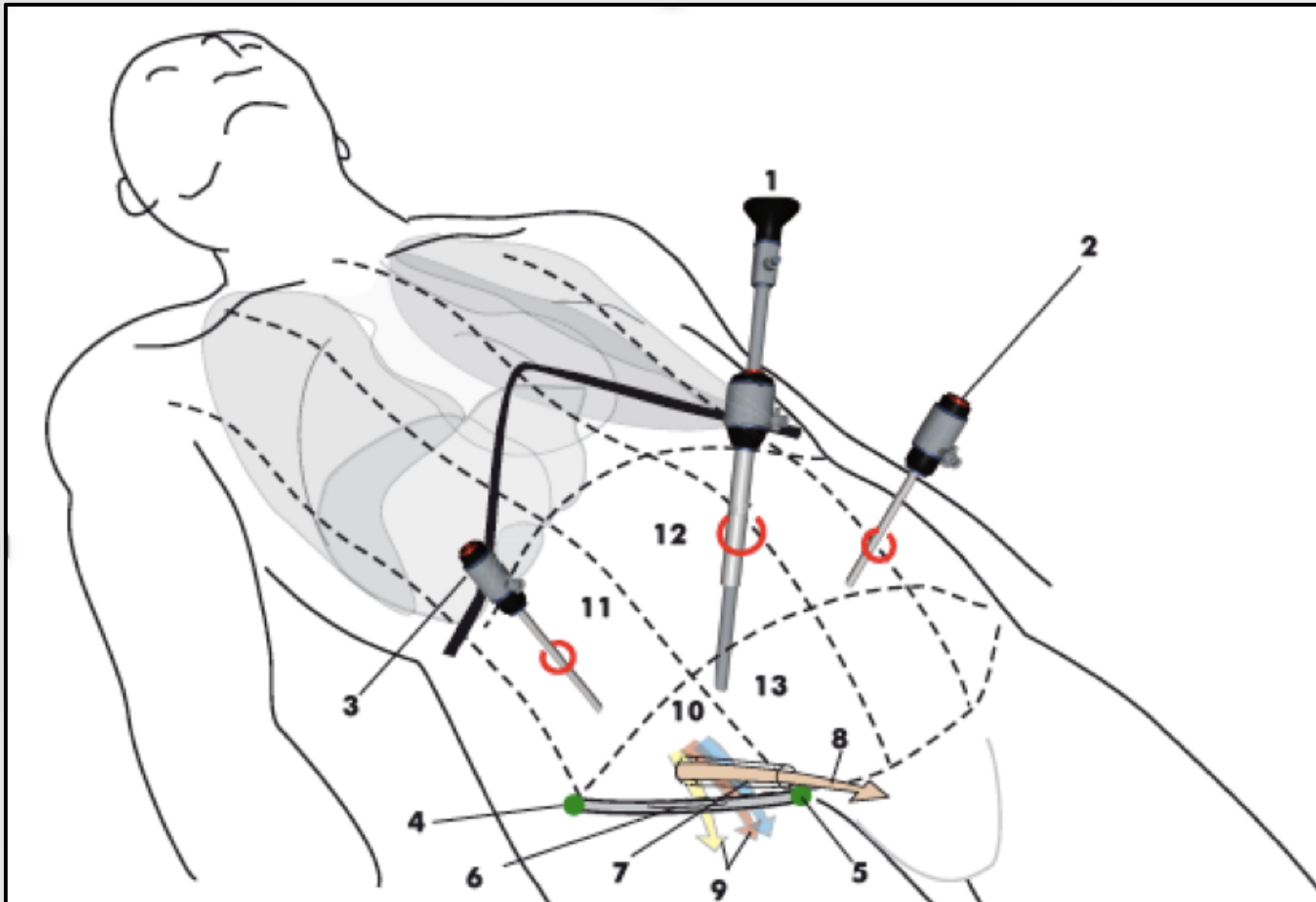
Open surgery	Laparoscopic surgery
Shouldice (< 40 y. , small hernia): Overlap of fascia transversalis	TEP = totally extraperitoneal = inside the abdominal wall
Lichtenstein (> 40 y., big hernia obese patients, weakness in the abdominal wall): Mesh in front of fascia transversalis	TAPP = transabdominal preperitoneal = through the abdomen

Inguinal hernia – TEP vs. TAPP

<http://www.brisbaneherniaclinic.com.au/keyhole-hernia-repair>

<https://www.northdallasurgical.com/procedures/20-procedures/hernia-repair/49-having-laparoscopic-hernia-repair-tapp>

Inguinal hernia – Trocar position



1) Navel – Camera

2) Left midclavicular line –
Laparoscopic forceps

3) Right midclavicular line –
Laparoscopic scissors



Inguinal hernia – TAPP

Step 1: Positioning of the trocars



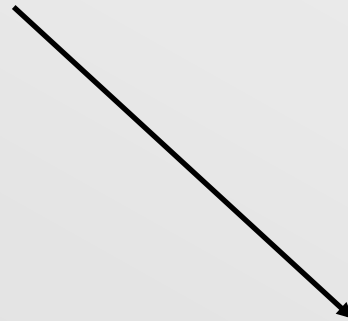
Step 2:
Identifying of
the inguinal
region



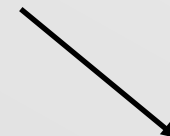
Step 3: Sickle-shaped
incision of the peritoneum

Inguinal hernia - TAPP

Step 4: Preparation of the
hernial sac



Step 5: Insertion of the
mesh and fixation



Step 6: Peritoneal closure

Bilder von „Webop“



Why use a mesh?

1. Tension free repair → Less postoperative pain
2. Higher stability → Less recurrences

The EU Hernia Trialists Collaboration. Repair of groin hernia with synthetic mesh: meta-analysis of RCT. Ann Surg 2002; 235 : 322–32.

Types of meshes

- small-pored vs. large-pored
- absorbable vs. non-absorbable
- monofilament vs. multifilament
- biological vs. artificial

Optimal mesh:

- large-pored
- non-absorbable
- monofilament

Mesh fixation

- Suture
- Tacks
- Staples
- Fibrin sealant
- Self-fixating mesh
- No fixation at all

Complications

- Foreign body sensation
- Dislocation
- Mesh infection
- Chronic pain syndrome (almost reversible after 6 months)
- After-bleeding
- Recurrences

Conclusion

- Indication for operation is always given (at any age!)
- Laparoscopic prior to open surgery
- TAPP prior to TEP
- Correct placement of mesh determines the clinical outcome